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DOS Times

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A Bulletin of Delhi Ophthalmological Society

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SPECIAL NATIONAL ISSUE

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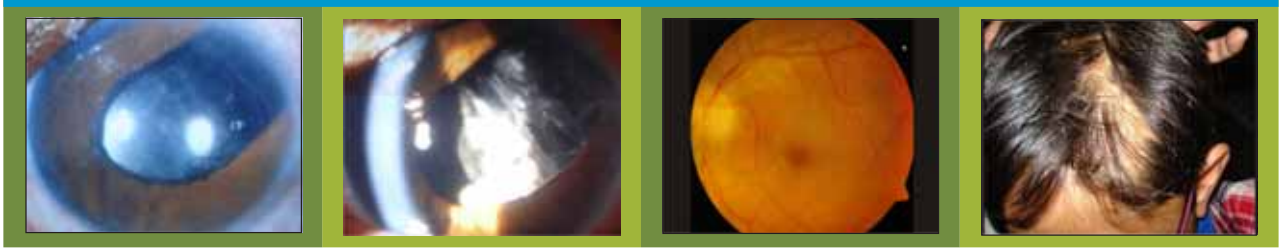

Editorial

My Dear Friends and Colleagues,

The Annual Conference is finally here. Our final call for the year and The Crowning Glory. An year has passed, as if in a blink. There are several achievements to feel good about. However, there are a few issues; leaving me hurt, bitter and angry.

Allegations have been made against me. Fraudulent allegations! of financial irregularity. By some impudent, misguided or mal intentioned person/persons. Spurious emails have been sent to DOS members, to malign the office of the Secretary of The DOS. These emails are not only false; they are also abusive and derogatory.

I seek the support of all DOS members, to file a legal complaint and seek the source of these mails. The person or mafia responsible must be found and punished by the Law and by the DOS.

Delhi is my home and DOS is my family. I have tried my best to live upto the expectation of this august office and in some respects I have succeeded. We have maintained the high academic standards of the society and keeping them as a milestone, we have tried to progress further.

Guest Lectures-by eminent foreign Ophthalmologists were held throughout the year, including a talk by the famous Dr. Harminder Dua, who is authority on stem cells and Editor in Chief of British Journal Ophthalmology. The DOST programme was reinforced with several new innovative features like OSCE to benefit the residents. DOS Times -we have tried to give it a more practical outlook and make it more useful for the practising ophthalmologist.

The Mid-Term conference was very well attended and for the first time, we organized a cultural evening, where all the participants were our own members of the DOS. We want to increase the oneness. We wish to further collegiality. Through out the year, I have enjoyed the brilliant support of the executive and for that i am extremely grateful.

And now the Annual conference is here for you to enjoy. We have for you a record highest number of live surgeries. And 3 days of Scientific, Clinical, Academic, Research and Cultural extravaganza to match the best anywhere.

I have given my best and will continue to do so. This, Malacious Propaganda of a few persons, who perhaps have a sinister personal motive; will not diminish my determination to give my best to the society. I just need your constant support.

Yours Truly.

Thanking you,

Dr Amit Khosla
Secretary,
Delhi Ophthalmological Society

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Immunosupressives in Non Infectious Uveitis

Dr. J. Biswas ***MS, FNAMS***

Dr. Sanjeev Gupta ***MD, DNB***

Dr. Neeraj Jain ***MBBS, DNB***

Steroids have been the mainstay of treatment in non-infectious uveitis. Due to limitations in use of steroid on a long term use, non-steroid immunosupressives are now being used extensively. Considering the doubt in the minds of ophthalmologist regarding their use, we having this focus segment with answer from the pioneers in the field.

(JB): Dr. J. Biswas *MS., FNAMS, Director of Uveitis and Ocular Pathology Departments, Sankara Nethralaya, 18 College Road, Chennai, Tamil Nadu*

(NJ): Dr. Neeraj Jain *Consultant Rheumatologist, Department of Rheumatology & Clinical Immunology, Sir Ganga Ram Hospital, New Delhi*

(Editor): Dr. Amit Khosla (ED) MD, Senior Consultant, Sir Ganga Ram Hospital, New Delhi, Secretary DOS and Editor DOS Times.

ED: When do you consider systemic non steroidal immunosupressives for patients with uveitis?

JB: I would consider immunosuppressives

A. As primary drug along with systemic steroids in patients with severe sight threatening chronic relapsing non infectious uveitis such as Behçet's disease, Vogt-Koyanagi Harada's syndrome or Sympathetic ophthalmitis

B. In patients with proven systemic association such as Juvenile Idiopathic arthritis, Ankylosing spondylitis, Rheumatoid arthritis or Wegener's granulomatosis

C. Cases where early and aggressive immunosuppressive drug therapy can be invaluable in preventing irreversible visual loss

D. In patients with Chronic or relapsing uveitis requiring a dose of prednisone of more than 10 mg/day

E. As steroid sparing agent in patients who are intolerable or resistant to corticosteroids

F. In children as steroid sparing agent to prevent growth retardation and other side effects related to steroids

G. In patients with chronic disease resistant to steroid therapy

Pre- requisites for starting immunosuppressive therapy include:

1. Chronic Non infectious uveitis which if untreated may lead to irreversible visual impairment
2. Steroid resistance/complications
3. Patient should be willing to give an informed consent to start therapy
4. Patient compliance is reliable.
5. Availability of lab monitoring and physician's support.

SG: Non steroidal immunosupressives are used in non infectious uveitic conditions. In majority of these conditions, the first line of therapy is corticosteroids. But if the condition worsens\ recurs on tapering of corticosteroid, systemic non steroidal immunosupressives are added. These agents are also used in non responsive cases and in those patients with complications associated with the usual steroid therapy. In certain conditions such as Bechet"s syndrome, Wegener granulomatosis, and necrotizing scleritis, these are the first line of therapy.

NJ: Systemic immunosuppressive therapy generally is reserved for patients with active, noninfectious causes of inflammation. For systemic immunosuppression to be indicated, usually the inflammation is bilateral and severe enough to interfere with activities of daily living

ED: Mandatory investigations to de done before you start a patient on immunosuppressives?

JB: Complete Hemogram – (Total Count, Differential Count, ESR, Haemoglobin %, Platelet counts)

Blood sugars –Fasting and Post Prandial

Liver Function Tests, Renal function tests –Serum Urea and creatinine

SG: I ask for a physician consultation to rule out any infection. Baseline investigations such as Haemogram, blood sugar, X-ray chest, Mantoux, and Urine R&M are ordered. Liver and kidney function tests are also done to monitor side effects.

NJ: Complete blood count, serum creatinine, liver enzymes and chest x ray.

ED: What is your preferred drug and why? do you use different drugs for different uveitic conditions and also in adult\children?

JB: I prefer Azthioprine with oral steroids for most of the recalcitrant uveitis, and for management of specific diseases, such as Sympathetic Ophthalmia, Serpiginous Choroiditis and Vogt-Koyanagi Harada's disease, which are expected to fare poorly with oral corticosteroids. I would like to start immunosuppressives in children with Anterior uveitis associated with Juvenile Idiopathic Arthritis.

Most commonly used by us for the treatment of ocular inflammatory diseases include the antimetabolites like azathioprine, methotrexate, and mycophenolate mofetil (MMF); the T-cell inhibitors cyclosporine and tacrolimus; and alkylating agents chlorambucil and cyclophosphamide.

Although all these drugs have their advantages and disadvantages, I prefer specific drugs for specific conditions.

For e.g, for Sarcoid Panuveitis, I would prefer Methotrexate or Azathioprine. For Serpiginous Choroiditis, I would prefer Azathioprine or Mycophenolate Mofetil after ruling out systemic Tuberculosis. I would prefer oral Methotrexate for uveitis associated with Juvenile Idiopathic Arthritis.

For Behcets disease, I prefer Cyclosporine.

For Necrotising scleritis my preferred drug would be cyclophosphamide or Methotrexate. In Wegener's Granulomatosis my preferred drug would be cyclophosphamide.

SG: My preferred drug is Azothioprine in all non infectious uveitic conditions in adults. The advantage of this drug is its high potency and good tolerance. The only worrisome side effect is bone marrow depression which is reversible on stopping the drug. In children, I use Methotrexate as it is the safest non steroidal immunosuppressive. Also the cost of treatment with these drugs is much less compared to other immunosuppressive agents.

NJ: Preferred drug are Azathioprine and methotrexate because of long term experience and also good tolerability yes we use different drugs depending on other systemic manifestations.

ED: How do you monitor patients on these drugs?

JB: In Sankara Nethralaya, Physician's clearance is mandatory before starting the patient on immunosuppressives. Once I start immunosuppressives, I would monitor blood counts every 2 weeks. I would perform LFTs once every month, if the patient is started on Azathioprine/Methotrexate/ Mycophenolate. If the patient is started on cyclophosphamide, I would monitor his urine for microscopic hematuria monthly. In case of treatment with cyclosporine, I would monitor LFTs and Renal Function tests on a monthly basis.

SG: Patients are asked to have blood counts every week initially for 1 month and these are done every 15 days. Patients are educated about the minimal threshold levels of test and are asked to stop medication if there is drop in blood count. Liver and renal function tests are also done every 1-2 months. Patients are also asked to remain in touch with physician for monitoring of side effects.

NJ: We can monitor with simple blood counts ,liver enzymes especially azathioprine needs weekly blood counts initially so that slowly dose can be increased.

ED: Contraindications to immunosupressives?

JB: *Absolute contraindications include:* Active infection, Pregnancy (First Trimester), Masquerade syndromes.

SG: Documented hypersensitivity, impaired renal or hepatic functions, pregnancy,

Any concurrent infectious disease.

NJ: These drugs are not without side-effects and risks. Because the majority of them act non-selectively, the immune system is less able to resist infections and the spread of malignant cells. There are also other side-effects, such as hypertension, dyslipidemia, hyperglycemia, peptic ulcers, liver, and kidney injury,so should be used with caution in above problems.

ED: How long you use immunosupressives agents and how do you taper these drugs?

JB: I would prefer to use immunosuppressives for a minimum period of 4-6 months, till the intraocular inflammation becomes quiescent**.** I would then monitor the patient once every 3 months for any flare ups. I would then titrate my duration of treatment based on the severity of the recurrences.

SG: They are used for at least 6months to 1 year after control of inflammation. Then they can be slowly taper off over 2-3 months.

NJ: Immunosuppressive drugs may be required to treat severe noninfectious uveitis successfully, but the efficacy and safety of such treatments are often limited by the small numbers of patients enrolled in clinical trials or studied retrospectively, the absence of control participants, and the variable natural course of some types of uveitis. The long-term risks of most immunosuppressive drugs and the risk of relapse after discontinuation of therapy are also not well established.

ED: Role of biologic response modifiers in uveitis?

JB: I use pulsed Methyl prednisolone only in cases of Acute VKH with exudative RD involving the posterior pole and in cases of vision threatening macular serpiginous choroiditis, severe vasculitis such as Behcet's disease. Strict glycemic control is mandatory in diabetics before starting them in IV methyl prednisolone (IVMP)

It is important that IVMP is administered under monitoring on an inpatient basis.

SG: There are reports of their use in non infectious uveitis but I have no experience with these.

NJ: Anti-tumour necrosis factor (TNF) molecules have become a valuable addition to the therapeutic armamentarium for patients with severe uveitis.patients with a refractory uveitis, resistant to corticosteroids and conventional immunosuppressive drugs were selected. Patients should be screened for infectious conditions. Infliximab should be given at a dose of 5 mg/kg, renewed at weeks 2, 6, and every 8 weeks, and then every 10–12 weeks when uveitis had been controlled for more than 6 months. Prednisone and immunosuppressive drugs were tapered progressively if there was no evidence of ocular inflammation

ED: Do you use cyclophosphamide induction?

JB: Intravitreal tricort is only preferred for recalcitrant CME which does not respond to oral/periocular steroids. I would definitely rule out infectious etiology before contemplating intravitreal steroid injection. Moreover, I would prefer Intravitreal steroids in eyes with Chronic CME and hypotony. I would explain the risk of cataract formation and glaucoma to the patient before the procedure.

SG: No

NJ: No.

ED: Role of pulsed IV methyl prednisolone?

JB: Side effects of oral steroids can be classified as ocular and systemic. *Ocular side effects* include cataract formation and glaucoma (steroid responders) though the risk is more in case of topical steroids compared to oral steroids.

Systemic side effects include – Acid peptic disease, hyperglycemia, cushingoid facies, acne, osteoporosis (adults) ,avascular necrosis of femur (adults), Centripetal obesity, hair thinning , hirsutism and myalgia.

One of the main disadvantages of using long term systemic steroids in children is growth retardation.

SG: IV methyl prednisolone is used when there is optic nerve inflammation with uveitis or there is a severe potentially blinding condition such as VKH syndrome with severe bilateral exudative retinal detachment. I use this as 1 gm\daily for 3- 5 days followed by oral steroids.

NJ: Uveitis is an important cause of functional visual loss and blindness so it is used in impending visual loss.

ED: What is the dose and duration of topical steroids ?

JB: Topical steroids are started and titrated based on the severity of the uveitis. For example in case of severe fibrinous anterior uveitis (HLA B27 related), I would start the patient on steroid eye drop to be instilled every 15 minutes for 1 day followed by 1 hourly the next day and taper off gradually over next 6- 8 weeks. I prefer Topical Prednisolone acetate 1% suspension in treating acute anterior uveitis. In case of steroid responders / low grade smoldering uveitis (Fuchs' heterochromic uveitis), I would prefer a weaker steroid like Fluorometholone 0.1%.

SG: Yes, Intravitreal triamcinolone (usually 4 mg in 0.1 cc) for the management of refractory CME

ED: Have you ever used intra vitreal Methotrexate in uveitis

JB: No.

SG: No

ED: Disadvantages of oral steroids in children / adult?

JB: I would wait for a minimum of 4 weeks after starting immunosuppressives, for the inflammation to subside. I would then taper the drugs over the next 2-3months. I would review the patient on a monthly basis. In cases of smoldering Panuveitis/Intermediate uveitis a maintenance therapy for 6 months with low dose steroids / immunosuppressives is preferred to avoid any acute flare ups.

SG: In children, the main disadvantage of steroid is growth retardation. In children, steroids can still be used for short term without serious side effects.

NJ: Oral steroids can cause hyperglycemia, osteoporosis, cataract, gastrointestinal problems like acid peptic disease etc.

ED: What is the role of oral methyl prednisolone?

JB: Topical NSAIDs can be used as an adjunct in the treatment; however they do not form the main stay of treatment. They can be used in cases of Posterior Uveitis /Intermediate uveitis with Chronic CME not subsiding with conventional therapy. However, their role in the uveitis treatment armamentarium is limited.

SG: Effect and side effects are similar to prednisolone- no real advantage

NJ: For patients who do not respond to local therapy or if more sustained control is required oral steroids are indicated.

ED: What is the role of Role of topical cyclosporine?

JB: No Role of topical cyclosporine in uveitis.

ED: What are your criteria for control of inflammation?

JB: *The criteria for control of inflammation include:* disappearance of aqueous flare / cells and vitritis. In case of posterior uveitis, clearing of vitreous haze is indicative of

regressed inflammation. Moreover, the margins of choroiditis/ retinitis become well defined, sharp, demarcated and pigmented during healing.

SG: Dose is dependent on the severity of anterior segment inflammation – 4 times a day to 1 hourly . Duration - tapered over 3-4 weeks after inflammation has subsided.

ED: When would you start to taper the treatment?

JB: Steroids act rapidly and achieve good control of inflammation in an acute setting. They are cheaper and easily available compared to immunosuppressives. However, steroids do not prevent recurrence /relapse. Immunosuppressives are like double edged swords in the uveitis armamentarium. They achieve good control of inflammation in the long term and minimize the episodes of flare ups. However, some of them are expensive and need strict patient compliance and follow ups.

SG: There is no fixed tapering. Tapering is started after control of inflammation. Taper 10mg wkly.

NJ: Once clinically inflammation is controlled.

ED: What is the role of oral methyl prednisolone?

JB: I do not use oral methyl prednisolone.

SG: Prednisolone acetate because of its better penetration.

ED: Is there any Evidence for topical NSAIDS in uveitis.

A. : Not much.

ED: What is the role of Role of topical cyclosporine.

SG: I have no experience with topical cyclosporine in uveitis.

ED: What are your criteria for control of inflammation?

SG: Control of inflammation in anterior segment means no more than occasional cells. In posterior segment, no macular edema or active lesion of retina or choroids are seen. Vitreous cells remain even after inflammation has subsided.

NJ: Clinical eye examination by ophthalmologist and lab surrogate markers like ESR,CRP.

ED: What are the advantage / dis-advantages of steroids versus the other immunosuppressive?

SG: Steroids are still first line of drug in management of uveitis. Though steroids have side effects, but they are much less serious compared to other immunosuppressive agents.

NJ: Steroids locally are first line treatment and if sustained response is needed than systemic steroids are indicated but once long term steroids are needed that its wise to start steroid sparing drugs ie immunosuppresants to minimize steroids side effects mentioned above.

DOS Editor
Amit Khosla MD

Live Surgery

Live Surgery (Zeiss)

Hall: Convention Hall • Date: 16.4.2010 (Friday) • Time: 8:00 a.m. – 10:30 a.m.

Relay from: *Bharti Eye Institute, Greater Kailash-1, New Delhi*

Surgeons: Arul Mozhi Verman, D. Ramamurthy, J.K.S. Parihar, R.P. Singh, S. Bharti, Virender Agarwal, Subodh Sinha, Alkesh Chaudhary

Panelist: S.C. Lakhotia, Ram Mirley, Amit Khosla, Sajjad Fazli, S.C. Gupta, Vipin Sahni, Rajiv Mohan

Live Surgery (AMO)

Hall: Convention Hall • Date: 16.4.2010 (Friday) • Time: 10:45 a.m. – 12:30 p.m.

Relay from: *Shroff Eye Centre, Kailash Colony, New Delhi &*
Centre For Sight Safardarjung Enclave, New Delhi

Surgeons: Sri Ganesh, Mahipal S. Sachdev, D. Ramamurthy, Noshir Shroff, Soondramoorthy, J.S. Thind, Yogesh Desai, S.K. Narang

Panelist: Sharad Lakhotia, Sridhar Prasad, A.K. Grover, Rajendra Prasad, Harbansh Lal, Anita Sethi

Live Surgery (B&L)

Hall: Convention Hall • Date: 16.4.2010 (Friday) • Time: 12:30 p.m. – 2:00 p.m.

Relay from: *Centre For Sight Safardarjung Enclave, New Delhi*

Surgeons: Kamal Kapur, Amit Tarafdar, Mahipal Sachdev, Ajay Sharma, Harbansh Lal, Rajiv Bajaj, Darshan Bavishi

Panelists: Samir Sud, V.K. Tiwari, Kapil Vohra, Chikitan, T.M. Sharma, Dharmendra Nath, Kapil Agarwal

Glaucoma Management (Sponsored Session Alcon)

Hall: Convention Hall • Date: 16.4.2010 (Friday) • Time: 2:00 p.m. – 3:00 p.m.

Chairman: *Ramakrishnan,* ***Moderator:*** *Harsh Kumar*

1.	Patient compliance & role of FDC in glaucoma management	:	Devan Tuli	12 min
2.	Clinical evaluation of Switch therapy in managing IOP	:	Harsh Kumar	12 min
3.	Importance of patient awareness & counseling in glaucoma management	:	S.S. Pandav	12 min
4.	Role of diurnal fluctuation and 24 hour control in glaucoma management	:	Tanuj Dada	12 min

Question & Answer (10 min)

Live Surgery Session (Alcon)

Hall: Convention Hall • Date: 16.4.2010 (Friday) • Time: 3:00 p.m. – 5:00 p.m.

Relay from: *Chaudhary Eye Centre, Darya Ganj, New Delhi &*
Bharti Eye Institute, Greater Kailash-1, New Delhi

Topics		Surgeons Name
1. Micro Co axial with ReSTOR Implant	:	Sanjay Chaudury
2. TORIC IOL Implantation	:	Suhas Haldipurkar
3. AcrySof® IQ Implantation	:	S. Bharti
4. Micro Co axial with AcrySof® IQ Implantation	:	Rohit Omprakash

Moderator : *A.R. Vasavada* ***Panelists:*** *J.S. Titiyal, Noshir Shroff*

61st Annual Conference of
DELHI OPHTHALMOLOGICAL SOCIETY
16th -18th April, 2010 Friday, Saturday & Sunday,
Hotel Ashok, Chanakyapuri, New Delhi

OPHTHALMOLOGY NOW

Phacoemulsification - Basics

Hall: Conventional Hall-A • Date:17.4.2010 (Saturday) • Time: 9:00–11:00 a.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Sharad Lakhotia	Praveen Malik	Sanjay Chaudhary	Suvira Jain	Alkesh Chaudhary

Keynote Address: *How aging, lighting and IOLs affect visual quality & health:* ***Patricia L. Turner :*** *15 mins*

Time: 7 min each

1. One believes what one sees – all about surgical microscope : Yogesh Shah
2. Converting to Phaco : Tejas Shah
3. Incision : Abhishek Dagar
4. Capsulorrhexis : Piyush Kapur
5. Hydroprocedures : Sajjad Fazli
6. Converting to phaco chop : Suvera Jain
7. Nucleotomy stop & chop : Harbansh Lal
8. Nucleotomy tumble and chop for hard cataract : Sharad Patil
9. Forward chop a safe technique for hard brown cataract : G.S. Dhami
10. Epinucleus & cortical management : T.M. Sharma
11. IOL implantation techniques : Hemant Kumar
12. Conversion to SICS : Vipin Sahani
13. Conversion from phaco to ECCE : Ritika Sachdeva

Ocular Surface – What Lies Underneath

Hall: Convention Hall-B • Date: 17.4.2010 (Saturday) • Time: 9:00 - 11:00 a.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Anita Panda	Ritu Arora	Rishi Mohan	Ashu Agarwal	Namrata Sharma

Time: 10 min each

1. Stem Cell Transplantation : J.K.S. Parihar
2. VKC : A.K. Jain
3. Pterygium Surgery : Santanu Mitra
4. Boston Keratoprosthesis- Result of 8 cases : Samar Basak
5. Modified Osteo Odonto Keratoprosthesis : Radhika Tandon
6. Management of ocular manifestations of Steven Johnson Syndrome & OCP : Namrata Sharma
7. Management of Acute Chemical Burn : Prakash Agarwal
8. Amniotic Membrane Transplantation : Rajesh Sinha
9. Ocular Surface Neoplasia : Anita Panda
10. Peripheral Ulcerative Keratitis : Paras Mehta

Basics: Investigation in Glaucoma

Hall: Convention Hall - C • Date: 17.4.10 (Saturday) • Time: 9:00 - 11:00 a.m.

Chairman	Co-Chairman	Convener	Co-Convener	Moderator
J.C. Das	M.D. Singh	Anju Rastogi	Sunita Dubey	Tanuj Dada

Interpretation and Analysis of Printouts:

1. Disc Photographs	:	Monica Gandhi	10 mins
2. GDX	:	Tutul Chakravarti	15 mins
3. HRT	:	Vinay Gupta	15 mins
4. OCT Printout	:	Reena Chaudhary	15 mins
5. Humphrey single fields	:	Gursatinder Singh	20 mins
6. Octopus single fields	:	N. Rangaraj	20 mins
7. Gonioscopy	:	Deven Tuli	10 mins

Innovation in Machines Procedure & Products

Hall: Banquet Hall • Date: 17.4.2010 (Saturday) • Time: 9:00 - 11:00 a.m.

Time: 8 min each

Chairman	Co-chairman	Convener	Co-convener	Moderator
S. Bharti	Rajender Khanna	Rajender Prasad	Gyan Goel	M.C. Jha

1. Low vacuum MICS – my experience : Ram Mirley
2. Co-axial MICS phacoemulsification : Arul Mozhi Verman
3. New dimension in femtosecond - flex & smile : Rupal Shah
4. Upgrade your practices with micro-incision : Kamal Kapur
5. Art of micro-incision surgery : Kapil Vohra
6. Outcome of advance control tracking in LASIK : Gaurav Prakash
7. AcrySof® TORIC IOL – Delivering Precision and Accuracy : Abhay Vasavada
8. Patient Outcome with ReSTOR +3 Our Experience : Venkatesh
9. Welcome to the world of true customized Cataract Surgery : Sanjay Chaudhary
10. Bladefree Flap Customisation : Soondramoorthy
11. Our Journey into customized LVC – the Femtosecond Way : Freddy Simon
12. Our experience with the STAR : Saurabh Chaudhary

Art & Technique of ECCE and Secondary IOL

Hall: Cocktail Hall • Date: 17.4.2010 (Saturday) • Time: 9:00 – 11:00 a.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
V.K. Dada	P.V. Chadha	Sanjiv Mohan	A.K. Jain	Rohit Nanda

Keynote Address: *Surgical planning to succeed in complex situation:* ***Suhas Haldipurkar:*** *15 min*

Time: 8 min each

1. Role of ECCE in PG training : Sanjiv Mohan
2. Anatomy of limbus with wound construction : Saurabh Sawhney
3. Capsulotomy – techniques : Bhawna Tiwari
4. Hydro dissection and nucleus removal Cortical aspiration and IOL insertion : Om Prakash
5. Wound closure : Saurabh Kamal
6. Scleral fixated IOL – IOL design & technique : Rajesh Sinha
7. Glued IOL : Avnindra Gupta
8. The History & complications of PMMA IOLs : Ashwani Kalia

Common Sense in Ophthalmology – Evidence Approach to Ophthalmology

Hall: Emerald • Date: 17.4.2010 (Saturday) • Time: 9:00 a.m. - 11:00 a.m.

Chairman	Co-Chairman	Convener	Co-Convener	Moderator
B.K. Nayak	Rajul Parikh	Subodh Sinha	Jatinder Bali	Zia Chaudhuri

1. Importance of Clinical epidemiology & introduction:	B.K. Nayak	5 min
2. How to order diagnostic test	: Rajul Parikh	20 min
3. How to use statistical test	: B.K. Nayak	20 min
4. Clinical significance Vs statistical significance	: Rajul Parikh	20 Min
5. How to assess therapy	: B.K. Nayak	20 Min
6. How to read and analyse a scientific paper	: Subodh Sinha	20 min
7. Computers in managing patient information and conducting research	: Jatinder Bali	10 min

Orbit

Hall: Sapphire • Date: 17.4.2010 (Saturday) • Time: 9:00 - 11:00 a.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
A.K. Grover	Milind Naik	Anuj K. Mehta	Neelam Pushker	Bhavna Chawla

Time: 8 min each

1. Anatomical aspects of orbit and oculoplastics : Vipul Arora
2. Clinical Evaluation of a Patient with Proptosis : Raman Mittal
3. How to Interpret a CT-Scan and MRI : Seema Sud
4. Orbital Infections : Priti Uday
5. Thyroid Eye Disease – The current Approach : E.R. Mohan
6. Practical Management of Nonspecific Orbital Inflammation : Santosh Honavar
7. Orbital Tumors Surgical Management : A.K. Grover
8. Orbital fractures – evaluation and management : Vikas Menon
9. Advances in Orbital tumour pathology : Deepali Jain
10. Functional Endoscopic sinus surgery and role in orbit disease : Apjit Kaur
11. Managing vascular lesion of the orbit : Usha Singh
12. Step by step orbital surgery : S.M. Betharia

Free Paper - 3

Hall: Ruby (292) • Date: 17.4.10 (Saturday) • Time: 9:00 a.m. – 11:00 a.m.

Judges: *V.K. Jain, Nita Gurha, Om Prakash, Neeraj Bhargava*

Time: (6 min each)

1. Questionable Medical Terms in Ophthalmology Now Our Study- Suggested Improvement : G.R. Rao
2. Just 0.3cc subconjunctival xylocaine for SICS : Jaswant Arneja
3. Clinical study to evaluate influence of incision site on postoperative astigmatism in manual SICS : Amit Kumar Patel
4. Visual Outcome in 4mm Scleral Tunnel Incision in Small Incision Cataract Surgery: A New Method of Nucleus Fragmentation : Ravi Chauhan
5. Visual Outcome in Prepresbyopic Cataract Implanted with Diffractive Multifocal Compared with Accomodative IOL-Prospective 6 Months Study. : Rajesh Joshi
6. Infection Vs Heredity: Role in congenital cataract : Amrita Bajpai
7. Clinical Outcome of Toxic anterior Segment Syndrome in an outbreak : Sanjeev Thapar
8. Evaluation of near vision performance in patients implanted with an accommodative acrylate intraocular lens with a monofocal polymethyl methacrylate intra ocular lens : Mir Soleh Nisar
9. To Evaluate the Role of Modified Hydro Procedures in Successful Phacoemulsification of Posterior Polar Cataracts. : Ranjeet K. Rana
10. To evaluate the success of induced conventional monovision in patients with bilateral cataract : Vikas Jain
11. A Study of Cataract In Relation To Anatomical Dimensions and Refractivity of the Eye : Surabhi Sharma
12. 3 Years of free Community Eye Care in Meghalaya : Shailesh Kumar
13. Cataract and its Treatment Patient Awareness & Public Myths : Aravind P.M.
14. Refractive lens exchange in high myopia and high hypermetropia. : Santosh Suman
15. Experience with aspheric diffractive bifocal IOL Eyecryl ACTV in 30 eyes : Ramesh C. Shah

Phacoemulsification in Difficult Situations

Hall: Conventional Hall - A • Date: 17.4.10 (Saturday) • Time: 11:00 a.m. – 1:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Pawan Goyal	Noshir Shroff	Suhas Haldipurkar	V.C. Mehta	Ram Mirley

Time: 8 min each

1. Phacoemulsification in small pupil : Suresh Pandey
2. Management of IFIS : V.C. Mehta
3. Management of dense cataract : J.S. Titiyal
4. Posterior polar cataract : Sharad Lakhotia
5. Phacoemulsification in soft cataract : Ajay Sharma
6. Phaco in white cataract : Rajiv Bajaj
7. Phaco in subluxated cataract : Suhas Haldipurkar
8. Phacoemulsification in compromised endothelium : J.S. Titiyal
9. Adventures with rings and hooks : Gaurav Luthra
10. Explantation of foldable IOL : Debasish Bhattacharya
11. Tough cases in phacoemulsification – video assisted presentation : Mahipal Sachdev

Glaucoma Surgery

Hall: Convention Hall - B • Date: 17.4.2010 (Saturday) • Time: 11:00 a.m.- 1:00 p.m.

Chairman	Co-Chairman	Convener	Co-Convener	Moderator
Usha Yadava	Pradeep Vyas	Tanuj Dada	Devendra Sood	Viney Gupta

Time: 7 min. each

1. Managing a shallow anterior chamber after glaucoma surgery : Monica Gandhi
2. Management of a raised IOP after glaucoma surgery : Deven Tuli
3. Managing bleb related complications : Kirti Singh
4. Co2 asserted non penetrating laser surgery : Harsh Kumar
5. Dilemma in glaucoma surgery: Tube vs trabeculectomy
   a. Tube : J.K.S. Parihar
   b. Trabeculectomy : Usha Yadav
6. Diode laser cyclophotocoagulation: My way for refractory glaucomas : Sushmita Kaushik
7. Blebless surgery – current and future prospects : Ramakrishna
8. Role of Avastin in glaucoma surgery : T.S. Murlidhar

Ocular Surface Disorder

Hall: Convention Hall-C • Date: 17.4.10 (Saturday) • Time: 11:00 a.m.-1:00 p.m.

Chairperson	Co-Chairperson	Convener	Moderator
Samar Basak	A.K. Jain	Rishi Mohan	Jeewan S. Titiyal

Time: 15 min each

1. Epidemiology & Diagnosis of Dry Eye- An Update : A.K.Jain
2. Recent Advances in understanding and management of Dry Eye : Paras Mehta
3. Topical Cyclosporine-Identifying the right patient : Samar Basak
4. Ocular Surgery & Dry Eye : Rishi Mohan
5. Recent Advanced in understanding & management of Dry Eye : Namrata Sharma
6. Patient Counseling & managing difficult situations in Dry Eye : Geetha K Iyer

61st Annual Conference of
DELHI OPHTHALMOLOGICAL SOCIETY
16th -18th April, 2010 Friday, Saturday & Sunday,
Hotel Ashok, Chanakyapuri, New Delhi

OPHTHALMOLOGY NOW

Treatable Macular Disorders

Hall: Banquet Hall • Date: 17.4.2010 (Saturday) • Time: 11:00 a.m. - 1:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
B. Ghosh	Dinesh Talwar	S.N. Jha	Rajiv Mohan	Salim Zafar

Time: 8 each

1. Role of OCT in Macular Disorders : B. Ghosh
2. Idiopathic Juxtafoveal Telangiectasia : Dhananjay Shukla
3. BRVO – Do we need to treat early : Dinesh Talwar
4. CRVO – Role of anti VEGF / IVTA / Lasers : Rohan Chawla
5. Macular Hole Management : Atul Kumar
6. Epiretinal membrane – Therapeutic dilemmas : Deepender Vikram Singh
7. Implants in post segment disease : Naginder Vashisht
8. Retinal Examination as the marker of systemic disease : Gopal S. Pillai
9. Current management modalities for Central Serous Choroiretinopathy : Meenakshi Thakkar
10. My experience with Anti-VEGF : N. Brose
11. Treatable infection of the macula : Vishali Gupta

Phacoemulsification – All you wanted to know

Hall: Cocktail Hall • Date: 17.4.2010 (Saturday) • Time: 11:00 a.m.–1:00 p.m.

Moderator: *Amit Khosla, Harbansh Lal*

All you wanted to know about phacoemulsification : D. Ramamurthy, J.S. Titiyal, S. Khokhar, Jagat Ram, Abhay Vasavada, Kamal Kapur

SICS

Moderator: *Ruchi Goel*

All you wanted to know about SICS : K.P.S. Malik, Ragini Parikh, Dharmendra Nath, Arun Kshetrapal, A.K. Khurana

Rationale Drug Therapy in Ophthalmic Practice

Hall: Emerald • Date: 17.4.2010 (Saturday) • Time: 11:00 a.m. - 1:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
B. Ghosh	Madhu Badhuria	Ritu Arora	Vinita Singh	Kirti Singh

Time: 8 min each

1. Microbial pattern in common ocular infection: An Indian scenario : Gursatinder Singh
2. Ocular surface disease : Kirti Singh
3. A case of corneal ulcer : Ritu Arora
4. Pediatric eye: medical therapy of common pathologies : Vinita Singh
5. Rational medical therapy in iridocyclitis : Madhu Bhaduria
6. Which drugs to use and how in a case of Endophthalmitis : B. Ghosh
7. First line drugs in a patient with glaucoma, evidence based guidelines : Suneeta Dubey
8. Intra-operative and postoperative regimen after common intraocular surgeries : Sanjay Dhawan
9. Case based scenarios : Kirti Singh

Vision and Squint Basics

Hall: Sapphire • Date: 17.4.2010 (Saturday) • Time: 11:00 a.m. – 1:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Vimla Menon	P.K. Pandey	G.K. Das	P.C. Dwivedi	Rohit Saxena

Time: 8 min each

1. Development of Pediatric Vision & its assessment : Kanak Tyagi
2. Setting up a squint practice : Ankur Sinha
3. Orthoptic Exercises: Do they really work? : Manish Sharma
4. Amblyopia Treatment Study: What should we do? : Shailash GM
5. Active vision therapy: When and how to give? : A.K. Amitava
6. Pediatric Low Vision: How to Manage? : Abhishek Dagar
7. Understanding paralytic squint workup : Arun Samparathi
8. Diplopia demystified : Ramesh Murthy
9. Assessing for binocularity and stereopsis : Sumita Agarkar

Free Paper - 4

Hall: Ruby (292) • Date: 17.4.10 (Saturday) • Time: 11:00 a.m. – 1:00 p.m.

Judges: *Arun Sangal, Vishnu Gupta, Gopal Das, Tanuj Dada, Usha K. Raina*

Time: (6 min each)

1. Evaluation of correction of myopia by advanced overnight orthokeratology : Colonel Ashish Saksena
2. An OPD Based Efficient and Effective Model of Counseling to Motivate Eye Donation : Sumit Mohan
3. Vasculoepithilioplasty in Non Healing Corneal Ulcer: An Evaluation : Sikha Singh
4. Role of Nepafenac in Non Responding Fungal Corneal Ulcers with Hypopyon:A New Weapon In Armamentorium : Bhumika Sharma
5. Visual Outcome in Cataract & Advanced Primary Glaucoma Cases Underwent Combined Phacotrabeculectomy with Foldable IOL : Shakun Gupta
6. Combined Manual Phaco with PCIOL and Minitrabeculectomy in Lens Induced Glaucoma (Lig) Our Experience : Rakesh Shakya
7. Evaluation of Top Hat Incision for Trabeculectomy Combined with Single Site Manual Incision Cataract Surgery: A Retrospective Analysis : Amit Kumar Gupta
8. To establish the role of retinal nerve fibre analyser (Optical Coherence Tomography) in early detection of primary open angle glaucomas : Rajat Jain
9. Prostaglandin Analogues in Primary Open Angle Glaucoma-Our Experience : Deepak Mishra
10. Quantitative Analysis of Progression of Glaucoma on OCT : Nabin Ku. Pattnaik
11. Ocular Complications of Organ Transplantation : Sujithra H
12. Clinical Presentations of Multiple Cranial Nerve Palsies : Punita K Sodhi
13. Remodelling of visual pathways in acute optic neuritis: AFMRI Study : Anoop Kishore Gupta

Instruction Course: FA & OCT

Hall: Convention Hall -A • Date: 17.4.2010 (Saturday) • Time: 1:00 p.m.-2:00 p.m.

Amod Gupta, Vishali Gupta

Instruction Course: Visual Fields

Hall: Convention Hall - B • Date: 17.4.2010 (Saturday) • Time: 1:00 p.m.- 2:00 p.m.

Kirti Singh

Instruction Course: Corneal Topography Pentacam

Hall: Convention Hall–C • Date: 17.4.10 (Saturday) • Time: 1:00 p.m.-2:00 p.m.

Mike Holzer, Heidelberg (University Germany), Jorge Iwanczuk (Product Manager Pentacam)

Instruction Course: Evaluation in Strabismus

Hall: Banquet Hall • Date: 17.4.2010 (Saturday) • Time: 1:00 p.m.- 2:00 p.m.
Rohit Saxena

Astigmatism & Presbyopic Correction

Hall: Conventional Hall - A • Date: 17.4.2010 (Saturday) • Time: 2:00–4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
S. Bharti	Mahipal S. Sachdev	Debasish Bhattachaya	J.S. Titiyal	S.N. Jha

Time: 8 min each

1. Astigmatism correction during cataract surgery – A medical necessity : Ravijit Singh
2. Making incision to your advantage (LRI) : Kapil Agarwal
3. OCCI : Harbansh Lal
4. Toric IOL – Great expectations to great outcomes : Noshir M. Shroff
5. Comparative analysis of limbal incision Vs Toric IOL in astigmatism in phaco surgery : Rajat Dhesi
6. My experience with multifocal IOL : V.C. Mehta
7. My experience with Crystalens : Mahipal S. Sachdev
8. My experience with multifocal lens : D. Ramamurthy
9. Pearls in transition to multifocal lens : S.P.S. Grewal
10. Toric IOL in keratoconus with cataract : A.K. Jain

Cornea Diagnostics – Unraveling the Maze

Hall: Convention Hall-B • Date: 17.4.2010 (Saturday) • Time: 2:00- 4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
G. Mukherjee	Ritu Arora	Ashu Agarwal	Tushar Agarwal	Ajay Dave

Time: 10 min each

1. Corneal Topography : where do we stand today : Ashu Agarwal
2. Specular Microscopy : Uma Sridhar
3. Confocal Microscopy – Is that helpful : Mukesh Taneja
4. Anterior Segment OCT: Mapping New territories in Cornea : Ritu Arora
5. Pachymetry : Pallavi Sugandhi
6. Update on Corneal Biomechanics : Rishi Mohan
7. Challenging Case -1 : Paras Mehta
8. Challenging Case -2 : Manisha Acharya

Medical Management of Glaucoma

Hall: Convention Hall - C • Date: 17.4.2010 (Saturday) • Time: 2:00 - 4:00 p.m.

Chairman	Co-Chairman	Convener	Co-Convener	Moderator
Ramanjit Sihota	Vishnu Gupta	Kirti Singh	Tanuj Dada	Deven Tuli

1. My way of calculating target IOP in glaucoma : Rajul Parikh 15mins
2. My first drug of choice in OAG is
   a) Beta blockers : Taru Dewan 5mins
   b) Prostaglandins : Parul Sharma 5mins
   c) Adrenergic agonists : Deven Tuli 5mins
   d) Carbonic anhydrase inhibitors : Monica Gandhi 5mins
3. Unilateral trial vs bilateral trial : Parul Sony 7mins
4. If the initial drops doesn't work I would prefer:
   a) Adding another medication : Julie Pegu 5mins
   b) Switch to another medication : Nikhil Chaudhary 5mins
   c) Prefer a combination therapy : Sonu Goel 5mins
   d) Selective Laser Trabeculoplasty : Sirish Neligivi 5mins
5. Importance of diurnal pressure curve in the management of glaucoma patients : Sushmita Kaushik 8mins
6. Dosing Schedule in glaucoma management: AM / PM for Beta Blockers and combination therapy. : Shantanu Mukherjee 8mins
7. Medical Management of a patient with advance glaucoma : Pradeep Vyas 15mins
8. Managing a co existing cataract and glaucoma in a 56 year old with an advanced glaucoma and IOP controlled with two drugs and a significant cataract my approach : Harsh Kumar 8mins

Advanced VR Surgery

Hall: Banquet Hall • Date: 17.4.2010 (Saturday) • Time: 2:00 - 4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
H.K. Tewari	Amod Gupta	Atul Kumar	M.R. Dogra	A.K. Singh

P.K. Jain Oration Award: Ophthalmology my Journey: Prof. Rajvardhan Azad: 20 min

Time: 8 min each

1. Vitrectomy for diabetic macular edema : Amod Gupta
2. PDR with combined retinal detachment : Ajit Babu
3. Retinal detachment with suprachoroidal haemorrhage : A.K. Singh
4. Management issues in RD with severe PVR : Y.R. Sharma
5. Tissel glue in optic pit with macular detachment : Niranjan Kumar
6. MIVS in macular surgery : Atul Kumar
7. Primary vitrectomy for retinal detachment : Cyrus Shroff
8. Recent trends in paediatric retinal surgery : M.R. Dogra
9. Role of heavy silicon OCT in retinal detachment : S. Natrajan

Lasik

Hall: Cocktail Hall • Date: 17.4.2010 (Saturday) • Time: 2:00 p.m. - 4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Vivek Pal	Rajinder Khanna	Ashima Abbott Chandra	Virender Agarwal	Neera Agarwal

Keynote Address: *Building refractive practice:* ***Sharad Lakhotia***

Time: 8 min each

1. When not to do lasik : Ranjana Kumar
2. Evaluation with pentacam : S.P.S. Grewal
3. Decision tree for LASIK ablation profiles : Yogesh Desai
4. Complications of Lasik : Amit Gupta
5. Repeat Lasik / Enhancements : Neera Agarwal
6. Complications with Femtolaser : D. Ramamurthy
7. A perfect LASIK surgical tool – xp microkeratome : J.K.S. Parihar
8. Thin cornea it is possible SBK keratome : Dinesh Sharma
9. Pendular keratome – the mechanical femtosecond : Sonu Goel
10. Micro Keratome vs femtosecond laser : Sri Ganesh

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OPHTHALMOLOGY NOW

Concepts in Strabismus Surgery

Hall: Emerald • Date: 17.4.2010 (Saturday) • Time: 2:00 p.m. - 4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
B.S. Goel	Pradeep Sharma	Venkatesh Rao	Jaspreet Sukhija	Suma Ganesh

Time: 8 min each

1. Botox in squint : Sobi Pandey
2. Management of superior oblique palsy : Dipali Garg
3. Resurgery: Is there any nomogram : Virender Sachdeva
4. Adjustable strabismus surgery: Do we need to do it? : Pradeep Sharma
5. Hangback Surgery: When? : Kamlesh
6. Inferior oblique surgery: When and how much to do? : Jaspreet Sukhija
7. Surgical options in superior oblique disorders : Santhan Gopal
8. Post-retinal Detachment Strabismus Surgery : Ajay Agarwal
9. Lost Muscle: Management Protocols : Pradeep Agarwal

Aesthetics & Socket

Hall: Sapphire • Date: 17.4.2010 (Saturday) • Time: 2:00 p.m. - 4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Santosh Honavar	Usha Singh	Vikas Chadha	Poonam Jain	Raj Anand

Time: 8 min each

1. Evaluation of Patient for an Aesthetic Procedure : Seema Das
2. Injectables – Pearls and Pitfalls : Manju Mina
3. Blepharoplasty – How to get it Right Every Time : Milind Naik
4. Evaluation of Contracted Socket : P.M. Aravind
5. Prevention and Management of acquired contracted Socket : Bhavna Chawla
7. Management of congenital anophthalmos and micro-ophthalmos : Raj Anand
8. Hydroxyapatite implants do we need to wrap : Vikas Chadha
9. Use of Botulinum toxin : Poonam Jain

Free Paper (Video Session)

Hall: Ruby (292) • Date: 17.4.10 (Saturday) • Time: 2:00 p.m. - 4:00 p.m.

Judges: *Mahesh Chandra, P.K. Sahu, Praveen Malik, P.V. Chadha, Shipra Tripathi, Om Prakash*

Time: (6 min each)

1. Hydro-Implantation- Novel technique of foldable lens implantation without viscoelastic : Harshul Tak
2. Scleral fixation Of Dislocated IOL : Sheikh sajjad Ahmed
3. Intramural Phacoemulsification of Black Nucleus : Ranjeet K. Rana
4. Pupil dilator rings- Malyugian and Morcher : Sanjay Chaudhary
5. Modified bluementhal technique in phako promised patients : Ashok K Tandon
6. Surgical management of Limbal Dermoid : Ramendra Bakshi
7. Lamellar keratoplasty with tattooing : Pallavi Sugandhi
8. Amritakiranam : Sujithra H
9. A Case of Orbital Filarial Cyst with Live Adult Worms : V.K. Mohindra
10. Toric ICL : Sanjay Chaudhary
11. Brilliant blue selective staining using whole blood for internal limiting membrane peeling during macular hole surgery : Neha Goel
12. Fun with PVD : Tufela Shafi
13. Small Gauge Vitrectomy Challenges and Complications : Gopal S. Pillai
14. Management of Traumatic Cataract and Aniridia : Amit Agarwal

Alcon Sponsored Session

Hall: Conventional Hall-A • Date: 17.4.2010 (Saturday) • Time: 4:00 – 5:00 p.m.

Paediatric Cataract

Hall: Conventional Hall - A • Date: 17.4.2010 (Saturday) • Time: 5:00–6:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
A.K. Grover	Jagat Ram	S.K. Khokhar	Rajiv Mohan	Abhishek Dagar

Time: 8 min each

1. When to operate, with or without IOL : Abhishek Dagar
2. Anterior capsulorrhexis & Posterior capsulorrhexis & anterior vitrectomy : A.K. Grover
3. Complication & management : S. Khokhar
4. Post-op visual rehabilitation in congenital cataract : Jaspreet Sukhija
5. IOL exchange & piggyback IOL in children : Jagat Ram

Update on CNVM

Hall: Convention Hall– B • Date: 17.4.2010 (Saturday) • Time: 4:00 - 6:00 p.m.

Moderators: *Dinesh Talwar, Sanjeev Gupta, Dinesh Garg*

Keynote Address: *Age-related phototoxicity and photoreception: intraocular vs. crystalline lenses:* ***Martin A. Mainster :*** *15 mins*

Time: 8 min each

1. Role of general ophthalmologist in ARMD : Ajit Babu
2. Fl. Angiography and OCT in ARMD : Charu Gupta
3. Different Anti-VEGF available – merits & de-merits : Dinesh Garg
4. Anti-VEGF in CNVM when to initiate the treatment, when to re-inject, when to stop and when to rethink : Muna Bhende

Panel discussion – case oriented

Expert Panel: *Muna Bhende, Ajay Aurora, Charu Gupta, Pradeep Venkatesh, Ajit Babu*

Glaucoma Practice Management

Hall: Convention Hall - C • Date: 17.4.2010 (Saturday) • Time: 4:00 - 6:00 p.m.

Chairman	Co-Chairman	Convener	Co-Convener	Moderator
Rama Krishan	Vishnu Gupta	Harsh Kumar	Sushmita Kaushik	Devendra Sood

1. Making the diagnosis of glaucoma cost effective in the Indian scenario:
   a) Lesson's learnt from my exposure in the United States : Deven Tuli 7 mins
   b) Lesson from my exposure in Australia : Viney Gupta 7 mins
2. Identification of dry eye among glaucoma patients : Ashi Khurana 7 mins
3. Managing dry eye in glaucoma patients : Shalini Mohan 7 mins
3. Importance of adherence in management of glaucoma : S.S. Pandav 7 mins
4. Impact of glaucoma diagnosis on quality of life : P. Sathyan 10 mins
5. Persistency and compliance in glaucoma: Issues around it : Andrew Braganza 10 mins
6. How to prevent patient dropout in glaucoma : Viney Gupta 7 mins
   : Nikhil Chaudhary 7 mins
7. Pharmaco economics of glaucoma therapy : Gursatinder Singh 8 mins
8. Newer concepts in management of glaucoma : Tanuj Dada 8 mins

IOL - Selection

Hall: Banquet Hall • Date: 17.4.2010 (Saturday) • Time: 4:00 – 6:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
D. Ramamurthy	Abhay Vasavada	Vivek Pal	J.K.S. Parihar	Neeraj Manchanda

Time: 8 min each

1. Which material to choose & design : Abhay Vasavada
2. Aspheric IOL – How to select : Soondra Moorthy
3. Spherical aberration following different type of IOL : A.K. Jain
4. Micro incision IOL : Rajiv Bajaj
5. Ultrasmart IOL : Vasantha
6. Toric IOL : Rishi Mohan
7. Accommodative IOL – incorporating the crystalens IOL into your practice : J.S. Thind
8. Aspheric IOL : V.C. Mehta
9. Current challenges with single aspheric lenses : Anita Sethi
9. Aspheric IOL – My experiences : Ram Mirley
10. Combining refractive & diffractive technology for better visual out-come : J.K.S. Parihar
11. Mono vision cataract surgery – option to multifocality : Parul Sharma

SICS

Hall: Cocktail Hall • Date: 17.4.2010 (Saturday) • Time: 4:00 p.m. – 6:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
K.P.S. Malik	Dharmender Nath	Ragini Parikh	Shailesh Kumar	Ruchi Goel

Time: 8 min each

1. Why is SICS the most desirable of modern cataract techniques : R.S. Dhaliwal
2. Subluxated cataract with glaucoma – combined procedure : Ruchi Goel
3. Incision – Badly constructed wound, imperfect tunnel how to manage : Ragini Parikh
4. SICS in corneal opacity : Samar Basak
5. Rock hard cataract : K.P.S. Malik
6. Endothelial cell loss in SICS long term results of SICS vs phaco : Parikshit Gogate
7. Small pupil SICS in complicated cases : S.P. Singh
8. Small pupil SICS the way I do it : Arun Kshetrapal
9. My technique of SICS : Dharmender Nath

Uvea

Hall: Emerald • Date: 17.4.2010 (Saturday) • Time: 4:00 p.m. – 6:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
S.P. Garg	Amod Gupta	S.N. Jha	Nandkumar Bhide	Shishir Narain

Time: 8 min each

1. My current approach in managing uveitis : Amod Gupta
2. Intermediate uveitis – How to prevent misdiagnosis & how to minimize resources : R.P. Singh
3. Posterior segment manifestation in HIV patient in post-HAART : Ramandeep Singh
4. Role of Immunosuppressive in uveitis – which one to use : Neeraj Jain
5. Do's & Don'ts of Cataract Surgery in a patient with uveitis : Nandkumar Bhide
6. Misdiagnosis, Misfortunes and Masquerades : Shishir Narain
7. Ocular Manifestations of Tuberculosis : Salil Mehta
8. Intravitreal infliximab : Ankur Agarwal
9. Approach to patient with scleritis : Rupesh Agarwal

ROP

Hall: Sapphire • Date: 17.4.2010 (Saturday) • Time: 4:00 p.m. - 5:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
R.V. Azad	M.R. Dogra	Pramod Bhende	Sarita Beri	Parijat Chandra

1. Laser in ROP : Mangat Ram Dogra (10 min)
2. Case Discussion in ROP : R.V. Azad (40 min)
3. Virectomy in ROP : Pramod Bhende (10 min)

Ocular Oncology

Hall: Sapphire • Date: 17.4.2010 (Saturday) • Time: 5:00 p.m. - 6:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Santosh Honavar	Usha Singh	Vikas Chadha	Bhavna Chawla	Shaloo Bageja

Time: 10 min each

1. Diagnosis and Management of Choroidal Melanoma : Vikas Chadha
2. Retinoblastoma – They Live and See! : Santosh Honavar
3. Retinoblastoma Radiotherapist's approach : Sushmita Pathy
4. Paediatric orbital tumours : Bhavna Chawla

Free Paper – 2(a) (Dr. T.P. Agarwal) (Cornea)

Hall: Ruby (292) • Date: 17.4.10 (Saturday) • Time: 4:00 p.m. – 6:00 p.m.

Judges: *Madan Mohan, Gurbax Singh, G. Mukherjee*

Time: (6 min each)

1. 3 cases of post traumatic graft dehiscence after penetrating keratoplasty: clinical features andoutcome : Maj. Nitin Vichare
2. Case report: Infectious Crystalline Keratopathy (ICK) : Anchal Gupta
3. Management of corneal ulcers in a tertiary care institution : Harbhajan Kaur

Free Paper – 2(b)

Hall: Ruby • Date: 17.4.10 (Saturday) • Time: 4:00 p.m. – 6:00 p.m.

Judges: *Y.R. Sharma, Rajpal Insan, Sarita Beri, Sunandan Sood, Sandhya Makhija*

Time: (6 min each)

1. Management of Dropped Nucleus : Tariq Qureshi
2. A-Scan Assisted SLO-Oct Optical Coherence Tomography In Evaluation of Macular Pathology. : Sandhya Makhija
3. Comparison of Surgical Outcomes Between Buckle Vitrectomy and Primary Vitrectomy : Manish Tandon
4. Are We Underestimating the Complications of Untreated Central Serous Retinopathy? : Shina Mahajan
5. Core Vitrectomy Versus Near Total Vitrectomy and PVD Induction with Surface Cleaning In Visual Outcome of Postoperative Endophthalmitis : Tufela Shafi
6. Clinical Profile of Ocular Sarcoidosis in a Tertiary Care Ophthalmic Center : Priyanka Agarwal
7. Phenotypical and genotypical differences of Von Hippel Lindau syndrome in Indian population- A population based study : Gopal S. Pillai
8. Preoperative intavitreal bevacizumab (Avastin) as an adjunt in proliferative diabetic retinopathy under going pars plana vitreous surgery : Parul Dewedi

9. Incidence of Retinopathy of Prematurity (ROP) in the Rural areas of Uttar Pradesh : Lokesh Jain
10. An Innovative Method of 23-Gauge Sutureless Silicone Oil Removal : Manish Tandon
11. Clinical Evaluation of Surgical Outcome In Monocular Elevation Deficiency : Sanjeev Thapar
12. Presentation, Management and Outcome of Carotid Cavernous Fistula: A Review of 19 Cases : Anu Jain

Phacodynamics & Biometry

Hall: Conventional Hall - A • Date: 18.4.10 (Saturday) • Time: 9:00 – 11:00 a.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Harbansh Lal	Sri Ganesh	M.C. Agarwal	Neeraj Verma	Alkesh Chaudhary

Keynote Address: Phacodynamics: ***T.P. Lahane***

Time: 8 min each

1. Phaco machines - console : Hemant Kumar
2. Phaco machines, hand pieces & tips : Amit Tarafdar
3. Phaco machines & foot pedal : Ravijit Singh
4. Role of Fluidics & Power : Nitin Balakrishan
5. How to avoid surge : Sri Ganesh
6. Basics of biometry : Harbansh Lal
7. Formula & their application : S. Venkatesh
8. Post-refractive surgery biometry : Saurabh Chaudhary
9. IOL master : Neeraj Bhargava
10. Newer teaching tools in phacoemulsification : Yogesh Desai
11. Newer phaco technology Ozil vs signature Ellipse : Noshir M. Shroff

Posterior Segment Problems in Cataract Surgery

Hall: Convention Hall - B • Date: 18.4.2010 (Sunday) • Time: 9:00 -11:00 a.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
B. Ghosh	Lalit Verma	Ajay Aurora	Meenakshi Thakkar	Deepender Vikram Singh

Time: 8 min each

1. Long term problems & management of retained lens matter : Manisha Agarwal
2. Management of dropped nucleus - IOL : S.N. Jha
3. Cystoid Macular Edema - Anti-VEGF vs steroids : S.P. Chaudhary
4. Psudophakic Retinal Detachment : Vinay Garodia
5. Do's & Don'ts in Cataract Surgery in a diabetic patient : Gopal Verma
6. Practical tips in preventing Intra-ocular infection in operating room : Gopal S. Pillai
7. TASS : Kamaljit Singh
8. Post operative endophthalmitis – management strategies : Lalit Verma
9. Role of present day guidelines for prophylaxis & intracameral antibiotics : Samar Basak
10. Vitrectomy for endophalmitis rationale & technique : Ajay Aurora
11. Xcyton guided Treatment of endophthalmitis : Shreekant Damgude

ACG

Hall: Convention Hall - C • Date: 18.4.2010 (Sunday) • Time: 9:00 - 11:00 a.m.

Keynote Address*: Angle closure diagnostic and treatment implications in India: Ramanjit Sihota : 15 min*

Chairman	Co-Chairman	Moderator
S.S. Pandav	Usha K. Raina	Devendra Sood

1. Diagnostic dilemma: Glaucoma in a myopic eye : Viney Gupta 8 min
2. Newer tonometers in glaucoma : Sunil Gupta 8 min
3. An ideal tonometer : Rajat Maheshwari 7 min
4. Recent advances in perimetry: Microperimetry : Vineet Ratra 8 min
5. Current concepts in the diagnosis and management of developmental glaucomas. : U.R. Kaul 8 min
6. Classification of Primary angle closure : Monica Gandhi 8 min
7. Ant.OCT: Its role in angle closure : Mayuri Khammar 8 min
8. Role of UBM in angle closure : Sushmita Kaushik 8 min
9. Laser iridotomy in angle closure : S.S. Pandav 8 min
10. Cataract extraction in angle closure : Reena Chaudhary 8 min
11. Trabeculectomy or combined trabeculectomy with cataract extraction and lens implanatation : Suneeta Dubey 8 min

Corneal Infections: The Battle with the Bugs

Hall: Banquet Hall • Date: 18.4.2010 (Sunday) • Time: 9:00 a.m. - 11:00 a.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Jeewan S. Titiyal	Swadesh C Acharjee	Namrata Sharma	Mukesh Taneja	Bhupesh Bagga

Time: 10 min each

1. Bacterial Keratitis – Multidrug Resistance : Jeewan S. Titiyal
2. HSV Keratitis – The Story Repeats Itself : Ritu Arora
3. Fungal Keratitis – Is Voriconazole the Answer : Namrata Sharma
4. Acanthamoeba Keratitis : Rajesh Sinha
5. Microsporidiosis – The New Bug in Town : Mukesh Taneja
6. Management of Non-Infectious Keratitis : Bhupesh Bagga
7. Neurotrophic Keratitis : Chandrashekhar Kumar
8. Challenging Case -1 : Jaya Kaushik
9. Challenging Case -2 : Urmi Mala

DOS Quiz

Hall: Cocktail Hall • Date: 18.4.2010 (Sunday) • Time: 9:00 a.m. - 11:00 a.m.

Quiz Master: Aashish Lall, Kapil Midha

Contact Lens: Managing Astigmatism with Soft Toric Lenses

Hall: Emerald • Date: 18.4.2010 (Sunday) • Time: 9:00 a.m. – 11:00 a.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
R.K. Bhandari	Nibaran Gangopadhyay	Rishi Mohan	Navin Sakhuja	Rangarajan

1. Soft Toric Lens Existing Designs : Sudhir Bhatia 20 min
2. Latest innovations in soft toric contact lens : Navin Sakhuja 20 min
3. Simplified fitting of Soft Toric Lenses : Monica Choudhary 20 min
4. Toric Soft CLs in Ophthalmology practice : N.R. Rangarajan 20 min
5. Silicon Hydrogel Soft Toric lenses, case studies : Amod Gogate 20 min

Neuro - Ophthalmology

Hall: Sapphire • Date: 18.4.2010 (Sunday) • Time: 9:00 a.m. – 11:00 a.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
J.L. Goyal	V. Krishna	Rashim Gandhi	Satya Karna	Harinder Sethi

Time: 8 min each

1. Is there any management of Traumatic Optic Neuropathy? : V Krishna
2. Toxic Optic Neuropathy :Picking it early : J.L.Goyal
3. Optic Neuritis: Indian perspective : Vimla Menon
4. Isolated cranial nerve palsy in >40 year old: Is imaging required? : Rashmin Gandhi
5. External ophthalmoplegia: Finding the site and cause? : Randhir Jha
6. Analysing disc edema : S. Ambika
7. Making sense of imaging option : Satya Karna
8. Ocular myasthenia gravis: diagnostic graveyard : Siddharth Kesarwani
9. Electrophysiology aids in diagnosis : Jitender Jethani
10. Do steroids have a role in NION : Satya Karna

Free Paper-1 (Dr. A.C. Agarwal)

Hall: Ruby (292) • Date: 18.4.10 (Sunday) • Time: 9:00 a.m. - 11:00 a.m.

Judges: *P. D'souza, V.P. Gupta, B.P. Guliani, Kamlesh*

Time: (6 min each)

1. To evaluate micro SICS (manual) for removal of pediatric Congenital cataracts : Ranjeet K. Rana
2. Levator plication versus resection in congenital ptosis : Saurabh Kamal
3. Handheld Autorefractor: Is this an Option In Children? : Manish Sharma
4. Comparison of Actual & Postoperative Flap Thickness After Lasik with Carrazio Pendular Microkeratome Using High Speed Corneal & Anterior Segment OCT (CAS-OCT) : Abhiyan Ku. Pattnaik
5. Transpupillary Thermotherapy for Idiopathic Central Serous Retinopathy : Shalini Gupta
6. An Optical Coherence Tomographic (OCT) Study of Post Laser Diabetic Cystoid Macular Edema (CME): Intravitreal Bevacizumab (IVB) versus Intravitreal Triamcinolone Acetonide (IVTA) : Bhawna Piplani
7. Intravitreal Triamcinolone (IVTA) assisted photocoagulation in diabetic serous macular detachment (SMD) : Anisha Seth
8. Our Experience of Intravitreal bevacizumab in refractory diffuse diabetic macular edema : Mir Soleh Nisar
9. Effects cataract surgery on progression of diabetic retinopathy : Sandhya Gupta
10. Myocysticercosis: Presenting as typical strabismus syndromes a series of three cases : Varshini Shanker
11. Comparision of Demoraphic and Clinical Profile of Eales™ Disease in North and North-East India : Lokesh Jain
12. Visual Acuity Cut-Off for Screening School Children : Manish Sharma

Debates

Hall: Conventional Hall - A • Date: 18.4.10 (Sunday) • Time: 11:00 – 1:00 p.m.

Judges: *S.C. Lakhotia, A.K. Grover, Vivek Pal, Jagat Ram, T.P. Lahane*

Time: 8 min each

1. Multifocal vs accommodative IOL : V.C. Mehta / Kamal Kapur
2. Hydrophobic vs hydrophilic IOL : Rohit Omprakash / Machipal Sachdev
3. Hard cataract SICS vs phaco : K.P.S. Malik / Kapil Vohra
4. High Myopia (-8.0 D) Laser vs ICL : Neera Agarwal / S. Khokhar
5. High Myopia (-16 D) ICL vs refractive lens exchange : S. Bharti / Harbansh Lal
6. Venturi vs Peristaltic machine : Ravijit Singh / D. Ramamurthy

Spotlight for Diabetic Retinopathy

Hall: Convention Hall - B • Date: 18.4.10 (Sunday) • Time: 11:00 a.m.–1:00 p.m.

Moderator : *Lalit Verma, Amit Khosla*

Time: 10 min each

1. Systemic evaluation in a case of diabetis mellitus : Surender Kumar
2. Correlation of fluorescein angiography & OCT in diabetic retinopathy : Muna Bhende
3. DDME – overview of management : Sanjeev Gupta

A case based interactive Session with a panel of experts

Expert Panel: *Ajit Babu, Muna Bhende, Puneet Gupta, Pramod Bhende, Dhananjay Shukla, J.S. Guha*

Challenges in Diagnosis and Treatment

Hall: Convention Hall-C • Date: 18.4.10 (Sunday) • Time: 11:00 a.m.- 1:00 p.m.

Chairman	Co-chairman	Convener	Moderator
J.C. Das	P. Sathyan	Harsh Kumar	Devindra Sood

1. The intricacies of diagnosing glaucoma in India	: Pradeep Vyas	12 min
2 The challenge of treating glaucoma in India	: Devindra Sood	12 Min
3 Medical treatment of glaucoma in India: Issues to keep in mind before starting treatment	: Harsh Kumar	12 Min
4 Side effects of treatment: Issues not discussed or left out as not so relevant	: Parul Sharma	12 Min
5 Two, three or four or fixed drug combinations	: Madhu Bhaduria	12 Min
6 Two, three or four: What's maximal tolerable treatment for me	: S.S.Pandav	12 Min
7 Selective laser trabeculoplasty: Its role and impact in India	: Sirish N	12 Min
8 Modifying a trabeculectomy to enhance surgical outcome in Indian eyes	: P. Sathyan	14 Min

Non- Lasik Refractive Procedures

Hall: Banquet Hall • Date: 18.4.2010 (Sunday) • Time: 11:00 a.m. - 1:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
D. Ramamurthy	S. Khokhar	Sanjay Chaudhary	S.K. Narang	Arun Baweja

Time: 8 min each

1. My experience with Phakic IOL : Partha Biswas
2. Pre-operative evaluation for phakic IOL : Arun Baweja
3. Iris claw a better alternate for Lasik rejects : Ritu Arora
4. Technique & outcome of surgery – spherical and toric ICL : Partha Biswas
5. Complication of ICL : Sanjay Chaudhary
6. Presbyopic correction with IOL : Mahipal S. Sachdev
7. Refractive Lens Exchange : Harbansh Lal
8. Intacs for myopia : J.S. Titiyal
9. ICL for keratoconus : Sri Ganesh

Practice Management

Hall: Cocktail Hall • Date: 18.4.2010 (Sunday) • Time: 11:00 a.m. - 1:00 p.m.

Chairman	Co-Chairman	Convener	Co-Convener	Moderator
S.C. Lakhotia	P.V. Chadha	P.C. Bhatia	Arun Sethi	Samir Sud

Keynote Address: *Income tax planning for doctors :* ***R.N. Lakhotia:*** *20 min*

Time: 8 min each

1. The efficient ophthalmologist : Arun Sethi
2. The new provisions of the new proposed nursing home act : Mohanty
3. Group practice – has the time for it come : Yogesh Desai
4. Managing human resources : Sameer Sud
5. How to keep up with the new technology : Tejas Shah
6. Practice Management new concept : Sharad C. Lakhotia
7. Facing up to medico legal traps – New MCI guidelines : S.K. Jain

Community Ophthalmology

Hall: Emerald • Date: 18.4.2010 (Sunday) • Time: 11:00 a.m. - 1:00 p.m.

Chairman	Co-Chairman	Convener	Co-Convener	Moderator
S. Ghose	R. Jose	T.P. Das	G.V. Rao	Rajshekhar

Time: 8 min each

1. Govt. of India Initiatives in community Ophthalmology & Working with the Non-Governmental Organizations : R. Jose
2. Vision 2020 – its initiatives in India since its inception : G.V. Rao
3. Assessing burden of ocular diseases & strategies to control them : Praveen Vashisht
4. Training of Ophthalmic Personnel – Models & Implementation : T.P. Das
5. Childhood blindness in India : Rajshekhar
6. Managing neglected Cataract in Children : Asim Kumar Sil
7. Vision 2020 – opportunities for ophthalmologist countdown to 2020 : Sara Varghese
8. Evaluation of programme of the project – training of teachers, visual screening of school students, refraction and dispensing of spectacles : Jaswant Arneja
9. Tele Ophthalmology in Rural India-a replicable model : Abhishek Dagar

Managing Eyelids - Tools of the Trade

Hall: Sapphire • Date: 18.4.2010 (Sunday) • Time: 11:00 a.m. - 1:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Mandeep Bajaj	E.R. Mohan	Kiran Tandon	Ruchi Goel	Poonam Jain

S.N. Mitter Award: Repair of Eyelid Defects : A.K. Grover

Time: 8 min each

1. Levator Resection – Practical Pearls : Neelam Pushker
2. Fasanella Servat Procedure – Get it Right! : Mandeep Bajaj
3. Tarsofrontal Sling Made Simple : Santosh Honavar
4. Eyelid trauma – current perspective : E.R. Mohan
5. Tumours of eyelid : Ruchi Goel
6. Ectropion – evaluation and management : Anita Sethi
7. Managing facial palsy – Lagophthalmos : Milind Naik
8. Management of complicated ptosis : V.P. Gupta

Free Paper - 5

Hall: Ruby (292) • Date: 18.4.10 (Sunday) • Time: 11:00 a.m. – 1:00 p.m.

Judges: *Anju Rastogi, Bhavna Chawla, Mahesh Chandra, Sushil Kumar*

Time: (6 min each)

1. Ocular Findings in Viral Encephalitis in Eastern U.P. : Sunil Gupta
2. Ocular Cysticercosis Presenting As Conjunctival Cysts, A Case Series : Arun Kumar Panigrahi
3. Tuberculosis, Yet another Manifestation : Manish Saxena
4. Grey Line Split With Anterior Lamellar Repositioning Is An Excellent Method For Cicatricial Eyelid Entropion : Ashok Kag
5. Clinical Profile and Management of Secondary Orbital Squamous Cell Carcinoma : Vishal Nigam
6. Clinico-Pathological Spectrum of Proptosis: A Retrospective Analysis : Anu Jain
7. Prospective study of clinical profile and management modalities of orbital infections in a tertiary eye care centre : Subhashis Mukherjee
8. Laser Endoscopic Dacryo Cysto Rhinostomy : Tariq Qureshi
9. Significance of Time in Determining Outcome with Ocular Prosthesis : Sachin Gupta
10. Subconjunctival Orbitotomy,a cosmetically acceptable approach for extraconal orbital lesions : Kumudini Sharma
11. Ruthenium 106 Plaque Brachytherapy: Indications and Outcome in Ocular Tumors : Manju Mina
12. Upper Lid Neurofibromatosis : Sagar Basu
13. Asperigillosis of Orbit : Rachana Meel
14. Amniotic Membrane Grafting In Primary & Recurrent Pterygium : Rital Patel
15. Granulomatous Orbital Diseases - A Holistic Approach : Ankur K. Shrivastava

Complication of Phacoemulsification

Hall: Conventional Hall - A • Date: 18.4.2010 (Sunday) • Time: 2:00– 4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
N.S.D Raju	Jagat Ram	Darshan Bhavishi	Sanjay Chaudhary	Rajiv Mohan

Keynote Address: *Management of Capsular Bag Dehiscence during phacoemulsification:* ***Jagat Ram*** *:12 min*

Time: 8 min each

1. Complications of incision : Suvira Jain
2. Complication of capsulorrhexis : Kamal Kapur
3. Nucleus management in presence of PCR : A.K. Grover
4. Epinucleus removal in presence of PCR : Darshan Bhavishi
5. Cortical removal in presence of PCR : Alkesh Chaudhary
6. Scleral fixated IOL my technique – vitreoretinal surgeon perspective : Tapas R. Padhi
7. Managing nucleus in a extended rhexis : Rohit Omprakash
8. Vitrectomy for the anterior segment surgeon : N.S.D. Raju
9. Preventing a PCR from extending : Sanjay Chaudhary
10. PCR – combined anterior & posterior segment approach : Shishir Agarwal
11. Management in a case of Zonular weakness : S.C. Gupta

Nuts & Bolts of Surgery

Hall: Convention Hall - B • Date: 18.4.2010 (Sunday) • Time: 2:00- 4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
V.P. Gupta	Vishnu Gupta	Rajpal	Ruchi Goel	Subhash Dadeya

A session for the general ophthalmologist to understand the advances of day to day surgeries. The speaker shall explain common mistakes done in routine surgery.

Time: 8 min each

1. Senile Entropion : Hardeep Singh
2. Enucleation : Vikas Menon
3. Evisceration : Shaloo Bageja
4. Pterygium Surgery : S. Khokhar
5. Intra-vitreal injection : Darius Shroff
6. Recession & Resection of Horizontal muscle : Subhash Dadeya
7. SICS : Ruchi Goel
8. Trabeculectomy : Shalini Mohan
9. Yag Iridotomy : Nikhil Chaudhary
10. DCR : S.N. Betharia

Keratoplasty, Ectasia & Eye Banking - The New Horizon

Hall: Convention Hall - C • Date: 18.4.2010 (Sunday) • Time: 2:00 - 4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Gurbax Singh	Anita Panda	Ajay Dave	Jaya Kaushik	Dariel Mathur

Keynote address: *Revival of Lamellar Keratoplasty:* ***Rasik B. Vajpayee****: 15 min*

Time: 8 min each

1. DSAEK with cataract-My experience : Jeewan S. Titiyal
2. Manual DSAEK – A series of 275 cases : Samar Basak
3. DALK in Keratoconus : Mukesh Taneja
4. Intralase Enabled Keratoplasty : Anand Parthasarthy
5. Corneal Triple Procedure : Ajay Dave
6. Collagen Cross Linking – Is that a solution for Keratoconus : Rishi Mohan
7. Intracorneal rings (Intacs) for Keratoconus : Nitin Dua
8. Therapeutic Keratoplasty : Rajib Mukherjee
9. Visual Rehabilitation after Collagen Cross-linking : Ashu Agarwal
10. Surgical Management of Bullous Keratopathy : Radhika tendon

Innovations in VR Surgery

Hall: Banquet Hall • Date: 18.4.2010 (Sunday) • Time: 2:00 p.m. - 4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
R.V. Azad	Cyrus Shroff	Pramod Bhinde	J.S. Guha	Pradeep Venkatesh

1. Newer developments in VR Surgery : Atul Kumar 15 min
2. Viewing systems – advantages and disadvantages
   a) EIBOS : Anuj Gogi 7 min
   b) BIOM : J.S. Guha 7 min
   c) Landers system / Hand held viewing system : Alkesh Chaudhary 7 min
   d) My experience all viewing system : Deepender Vikram Singh 5 min
3. My experience with 23G instruments : Pramod Bhende 10 min
4. My experience with 25G instruments : Y.R. Sharma 10 min
5. Newer illumination system : Atul Kumar 10 min
6. Various dyes used in vitreous surgery : Puneet Gupta 10 min

Trauma

Hall: Cocktail Hall • Date: 18.4.2010 (Sunday) • Time: 2:00 p.m. - 4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Y.R. Sharma	B.P. Guliani	Neeraj Bhargava	H.S. Trehan	Sanjiv Mohan

Time: 8 min each

1. International classification of trauma & scaling system : Sanjiv Mohan
2. Managing IOFB : J.S. Guha
3. Corneal trauma decision making : Shipra Tripathi
4. Management of canalicular injuries : Priti Uday
5. Role of USG in post segment trauma : B.P. Guliani
6. Role of traumatric cataract : Pankaj Rupaliha
7. Management of open globe injury related to post segment : Neeraj Sanduja
8. Concussional post segment trauma : H.S. Trehan
9. Strategic planning in primary globe repair : Rupesh Agarwal
10. Ocular trauma in high intensity blast injury : Nitin Vichare
11. Rural ophthalmic injuries : Pramod Kumar
12. Sports trauma : Shantanu Mukherjee

Contact Lens (Wet lab)

Hall: Emerald • Date: 18.4.2010 (Sunday) • Time: 2:00 p.m. - 4:00 p.m

Strabismus Advanced

Hall: Sapphire • Date: 18.4.2010 (Sunday) • Time: 2:00 p.m. – 4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
Kamlesh	Santhan Gopal	Vinita Singh	Ajay Agarwal	Subhash Dadeya

Time: 8 min each

1. Infantile esotropia: How early is early : Abhishek Dagar
2. Duane's Syndrome: When and what to do? : B Venkateshwar Rao
3. Acquired Esotropia: What to see before surgery : P.K. Pandey
4. IDS: Optimal timing for intervention : Subash Dadeya
5. Strabismus following cataract surgery : Madhu Karna
6. Prisms in the management of strabismus : Rasheena Bansal
7. Restrictive squints; Approach : Suma Ganesh
8. Nystagmus: workup and management : Rohit Saxena

Lacrimal System

Hall: Ruby • Date: 18.4.2010 (Sunday) • Time: 2:00 p.m. - 4:00 p.m.

Chairman	Co-chairman	Convener	Co-convener	Moderator
V.P. Gupta	Sushil Kumar	S. Sandramouli	Anuj Mehta	Vikas Menon

Time: 8 min each

1. Congenital NLD obstruction : Kamalpreet Likhari
2. Imaging in lacrimal disorders : S. Sandramouli
3. Lacrimal gland tumours : Pankaj Gupta
4. How to do a good DCR : Sima Das
5. Managing DCR with intubation & mitomycin C : Sushil Kumar
6. Endonasal DCR : Shalabh Sharma
7. Laser DCR and its long term result : V. Krishna
8. Recent Concepts in managing punctal atresia and canalicular obstruction : Vikas Menon
9. Innovation in conjunctival DCR : V.P. Gupta

Poster

Poster Area: Sagar Ratna Loby 17.4.2010 & 18.4.2010 (Sautrday & Sunday)

Judges: *D.K. Sen, Rishi Mohan, Alkesh Chaudhary, Arun Baweja, Sanjay Ahuja*

1. Cataract Membrancea - an Unusual Case Report : Shruti Mahajan
2. Comparative study of impression smear with conventional mechanical corneal scraping by 10% Potassium hydroxide method in diagnosis of fungal keratitis. : Sunil Gupta
3. Improving Academic Performance of Problem Learners in Medical School by Use of Composite Teaching Methods. : S. Sajjad Ahmed
4. Retinal Implants: A Ray of Hope : Lokesh Jain
5. Waardenburg syndrome: A rare case with bilateral congenital cataract: A new entity? : Maj Nitin Vichare
6. Tuberculosis, Yet Another Manifestation. : Manish Saxena
7. A Case of Goldenhar-Gorlin Syndrome with Bilateral Limbal Dermoids a Rare Occurence : Madhusmita Behera
8. A Rare Case of Optic Nerve Head Drusen : Lokesh Jain
9. A Case of Holmes Adie Syndrome an incidental finding : Nidhi Pandey
10. A Rare Case of Sebaceous Carcinoma of the Caruncle : Jayashree Baruah
11. Diagnostic dilemma: pigmented conjunctival lesion : Anchal Gupta
12. Superior Limbic Keratoconjunctivitis A Case Series. : R. Elizabeth George
13. Dry Eye, Think of Tuberculosis : Manish Saxena
14. An Unusual Case of Upper Eyelid Benign Sebaceous Gland Hyperplasia : Ashok Kag
15. A Rare Case of Orbital Dirofilariasis : Geetanjali Singh
16. Orbito Sino Mucormycosis : Pooja Kharbanda
17. Free skin grafts in the management of cicatricial ectropion : Prashant Oberoi
18. Prosthetic Management of Retinoblastoma Patient after Enucleation : Sachin Gupta
19. Botox-not just aesthesis : Deepa Nair
20. Cerebellar Astrocytoma Presenting with Acute Onset Esotropia in 8 Yr Old Girl-A Case Report : Bijnya Birajita Panda
21. Congenital pigmented free floating vitreous cyst : Varshini Shanker
22. Barriers to Paediatric Eye Care in India - Results of A Pilot Study : Abhishek Datta
23. Our experience with 1st 100 ICLs : Sanjay Chaudhary
24. Early detection of Keratoconus for safe Lasik : Sanjay Chaudhary
25. Bilateral CRAO from trauma : Avik Kumar Roy
26. Sutureless Vitrectomy Under Topical : Lokesh Jain
27. CMV retinitis a atypical presentation in Immune compromised Host : Kumudini Sharma
28. Visual Functions in Amblyopia: Effect of Treatment and Prognostic Significance : Parul Dwivedi
29. Clinical Evaluation of Penetrating Keratoplasty : Madhusmita Behera
30. Clinical comparison of the Diaton Non-contact Tonometer with the Goldmann applanation tonometer in normal subjects : Himanshu Gupta
31. Limbal Relaxing Incisions: It Role in Managing Preexisting Astigmatism In Patients Undergoing Phacoemulsification. : Anamika Garg
32. To Report the Anatomic and Visual Acuity Responses After Intravitreal Bevacizumab (Avastin) in Patients with Diffuse Diabetic Macular Edema. : Amit Srivastava
33. To Ascertain the Effect of Combined Injection of Intravitreal Triamcinolone Acetonide with Intravitreal Bevacizumab in Macular Edema Not Responsive to Intravitreal Bevacizumab Alone : Sarika Gupta
34. Visual Outcome and Complications in Penetrating Ocular Trauma with Traumatic Cataract : Varun Kharbanda
35. Unusual Case of Methicillin Resistant Staphylococcus Aureus and Acanthamoeba Keratitis in a Non-Contact Lens Wearer from Kashmir, India : S. Sajjad Ahmed
36. Role of Subconjunctival Avastin in Reducing Incidence of Allograft Rejection in High RSK Corneal Grafts : Fareed Ahmed
37. Leber Hereditary Optic Neuropathy : Ajay Pathak
38. Role of intracameral moxifloxacin in preventing endophthalmitis in phacoemulsification : R.K. Bansal
39. Fitting of progressive lenses : Jaswant Arneja
40. Which type of bio-focals will suit my eyes : Jaswant Arneja


Delhi
Ophthalmological
Society
2nd
DOS
TEACHING
PROGRAMME
Dates :
13th & 14th February, 2010 (Saturday & Sunday)
Venue :
Ayurvigyan Auditorium, Army Hospital (R & R)
Dhaula Kuan, New Delhi
DOS TEACHING PROGRAMME
Sponsored by:
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Delhi
Ophthalmological
Society
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Dhaula Kuan, New Delhi
DOS TEACHING PROGRAMME
AYURVIGYAN AUDITORIUM

Xcyton: Novel modality to treat Endophthalmitis

Shreekant Damgude *MS* , ***R. J. Madhusudan*** *DO, DNB*

A 47 year old gentleman presented with decreased vision, pain and persistent redness in the left eye for 3 months following cataract surgery.

He had a history of cataract surgery in right eye 10 years back and in left eye 3 months back and retinal detachment surgery in left eye 2 years back. He had a history of glaucoma for last 10 yrs (on topical brimonidine). He had no significant past medical history.

Examination revealed distant best corrected visual acuity of 6/18 in right eye and 6/36 p in left eye and near visual acuity of N6 in right eye and N36 in left eye. Left eye showed anterior chamber reaction(1+ cells), pseudophakia, irregular pupil, zonular dialysis, thick PCO, cellular deposits on lens. Vitreous was hazy with media clarity grade 4 (Figure 1). USG- B scan showed few vitreous cavity echoes of mild to moderate reflectivity. Retina was on.

Differential diagnosis of retained cortical matter and Propionibacterium acnes endophthalmitis was thought of.

Anterior chamber tap was sent for gram stain, KOH preparation, culture and sensitivity.

Gram stain showed no bacteria. Culture showed no growth. KOH stain was negative for fungal elements.

Anterior chamber wash was done along with intracapsular injection of vancomycin and dexamethasone under guarded visual prognosis. Post AC wash, patient was on topical moxifloxacin, tobramycin, homatropine and prednisolone acetate.

Differential diagnosis of Pacnes endophthalmitis and fungal endophthalmitis was considered. Patient was advised to undergo IOL removal with intravitreal antibiotics with scleral fixation of IOL later. But patient didn't turn up.

After one month patient presented with dislocated IOL into vitreous cavity. Minimal vitreous haemorrhage was noted in inferior quadrant (Figure 3).

USG -B scan (Figure 4) showed very intensive echo of high reflectivity in mid vitreous cavity indicative of dislocated IOL with mild to moderate reflectivity echoes of vitreous haemorrhage along with old buckle effect. Retina was on.

We performed vitrectomy with IOL removal with capsular bag removal with endolaser over inferior quadrant.

Intravitreal injections of triamcinolone acetonide and vancomycin was given. Patient received usual post operative medications.

Capsular material and vitreous tap was sent for DNA macro-chip work up of Endophthalmitis on Xcyto screen (Figure 5).

On1st postoperative day left eye visual acuity was 2/60 improving on pinhole to 3/60.Media clarity was grade 2-3.

Exudates and vitreous haemorrhage cleared off. Disc & macula revealed normal findings.Endolaser marks were seen. Retina was on.

On 3rd postoperative day, left eye visual acuity improved to 6/24 p on pinhole.

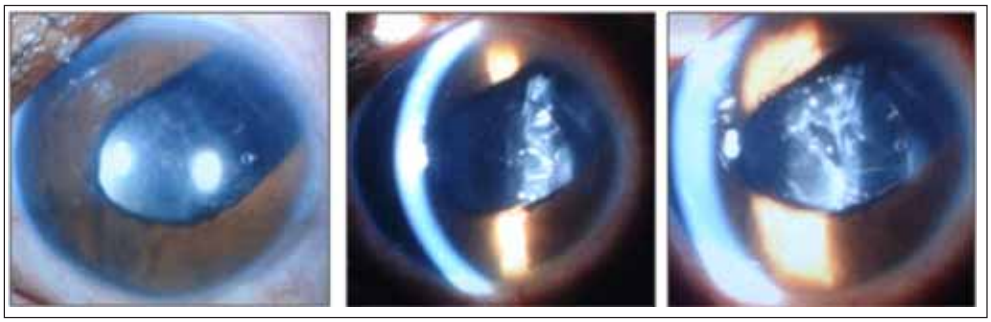

Figure 1: *Left eye on presentation. (Pseudophakic, thick PCO, AC reaction, zonular dialysis)*

After 1 month patient presented with left eye best corrected visual acuity of 6/60 with anterior chamber reaction (2 + cells) and inferonasal subluxation of IOL (Figure 2).

But depending on presence of DNA of filamentous fungi on DNA macrochip Xcyto screen, intravitreal injection of Amphotericin B 5ug was given. Oral tab. Ketoconazole (200 mg BD) was started. Topical steroids were stopped and patient was put on topical Natamycin. On next day drug induced anterior chamber fibrinous reaction along with drug induced vitritis was noted. Visual acuity dropped to hand movements with PR accurate.

Lotus Eye Care Hospital,
Coimbatore

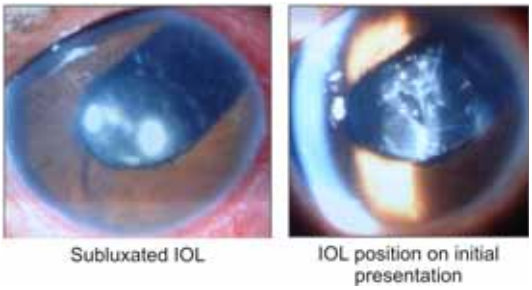

Figure 2

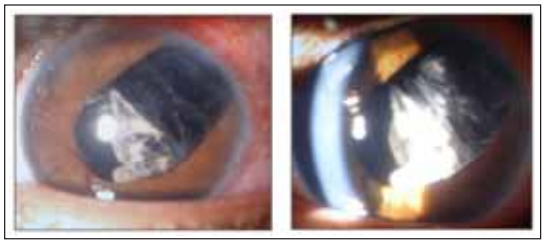

Figure 3: *Thick fibrotic capsular plaque, dislocated IOL into vitreous cavity*

On 4th day post injection visual acuity was 1/60 with +10 D improving to 6/36 and on pinhole improving to 6/24p.

After 2 weeks postinjection, (Figure 6) left eye visual acuity was 6/18 p with +10 D and near vision was N 10 with +3 D. NCT was 16mm Hg. AC was clear. Media was clear grade 1-2.

After 2months of follow up

Left eye UCVA was - 2/60 and +8 Ds /+1 Dcyl 55 deg 6/18p and NV was - N10 with +3 Ds. NCT in left eye was 13 mm Hg. (Figure 7)

Discussion

Syndrome based Diagnostics- New Paradigm: Xcyton

Xcyton is a latest emerging technique of DNA mapping of group of organisms in which clinical sample is tested for the presence of DNA of suspected organisms. In this process very small amount of sample is required which is tested along with the control .All suspected organisms can be tested at one point of time unlike PCR in which test is performed separately for each organism. In Xcyton ,sequence of DNA of organism is matched with that of the control. No amplification takes place unlike PCR. Entire test gets over in 7 hrs and report is available next morning.

In this case, if we would not have examined the sample with Xcyton, we would not have treated the patient with intravitreal amphotericin -B and probably patient would not have shown sustained improvement on follow-up.

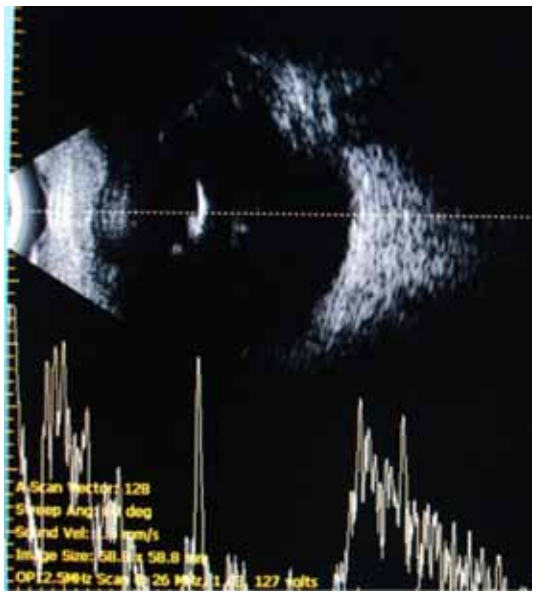

Figure 4: *Dislocated IOL into vitreous cavity on USG – B scan*

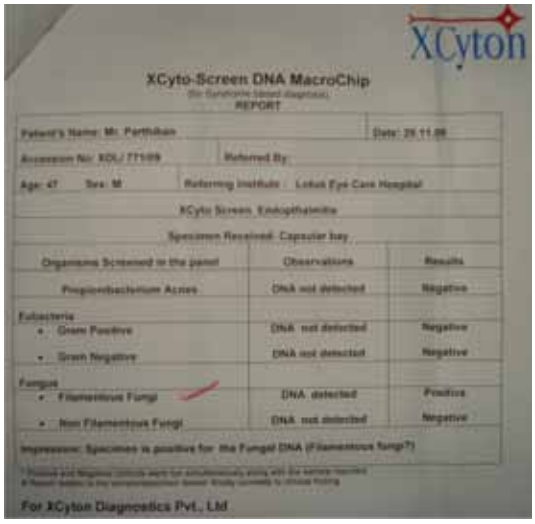

Figure 5: *Xcyton report showing positive result for filamentous fungus DNA*

Other investigative modalities and their limitations

Bacterial Culture and its challenges

Bacterial culture takes too long in Mycobacteria . Further baterial culture is not possible in few circumstances.

- If the patient was on antibiotic treatment due to improper diagnosis.
- In case of anaerobic organisms

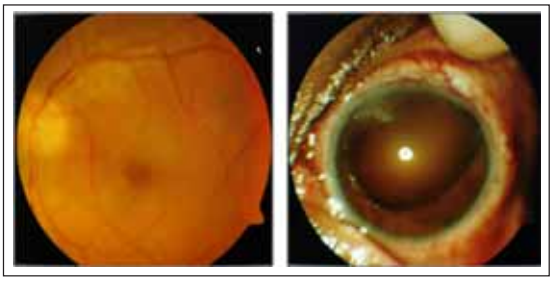

Figure 6: *After 2 weeks post-op*

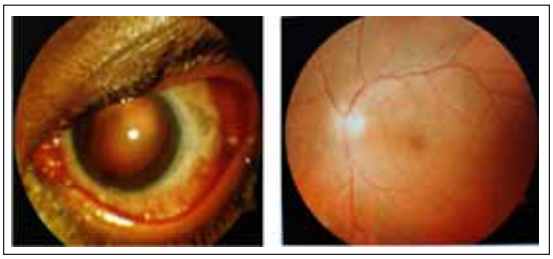

Figure 7: *After 2 months of follow -up*

- If the contaminants overgrow
- Sample collected is too small

Virus Detection- its shortcomings

- Takes a minimum a week
- Needs a detection system such as immuno-fluorescence in addition
- Needs good number of virions in the sample
- Sensitivity limited to 26% in best of the laboratories across the world

Immunodiagnostics and its limitations

- Antibody Detection ELISA - useful after five days of infection
- Antigen Detection ELISA - Not enough antigen present in sample
- Lateral Flow tests (Strip tests)?
- Western Blots
- Immunocytochemistry - Fluorescent antibody

Clinical specimen available for eye infections

- Corneal scrapings - a few cells
- Conjunctival swab - a few cells
- Aqueous humor - 50 uL
- Vitreous fluid - 50 uL

PCR

PCR proves very useful by amplifying the DNA being investigated by 10 to 12 times. It requires 3-4 hours only and can be conducted with very less sample. It is highly sensitive.

Individual tests have to be done for each probable organism

Syndrome based molecular diagnostics: A New Paradigm in Diagnostics

XCyto-Screen DNA macrochip for Infectious Endopthalmitis-It is capable of simultaneous detection of all pathogens causing eye infections. Endophthalmitis screening on Xcyto screen includes:

- Gram Positive Bacteria
- Staphylococci
- Streptococci
- Enterococci
- Propionibacterium acne

Gram Negative Bacteria

- Enterobacteriaceae
- Non Fermentors

Fungus

- Filamentous
- Non filamentous

Performance

Xcyton takes 7 hours to perform the test where as the other conventional methods take 2 to 7 days for test results to arrive. In case of Xcyton all samples are processed on the same day and the result are available on next day.

Comparison with other techniques:

- Bacterial culture takes 48 hours for identification
- Fungal cultures take 72 hours
- Viral culture takes 7 days for identification
- Parasites cannot be cultured at all
- Individual PCR's takes 4-5hrs for each organism

Xcyton requires only small volume of sample. Quantity of samples required for diagnosing eye infection are:

- 50 ul of aqueous humor
- 50 ul of vitreous humor
- One mg of corneal scraping
- Conjunctival swab

Sensitivity

Xcyton can detect just a few organisms present in sample

- 50 Varicella Zoster Virus particles / ml
- 50 Mycobacterium tuberculosis / ml
- 500 cells of Mycobacterium chelonae
- 500 cells of Mycobacterium fortuitum
- 250 cells of Toxoplasma gondii / ml
- 50 particle of HSV 1 / ml
- 50 particle of HSV 2 / ml
- 100 particles of CMV / ml of body fluid

Specificity

Xcyton is equivalent to DNA sequencing as the end detection is chemical binding of the specific sequence to Macro-Chip.

Conclusion

Xcyton is a cost effective and useful for detecting any organism in endophthalmitis spectrum. It requires only 7 hours to perform the investigations and ascertains your suspicion to make precise treatment plans.

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Forthcoming Events: National

April 2010

16-18 NEW DELHI

Annaul Conference
Delhi Ophthalmological Society
Venue: Hotel Ashok, Chankaya Puri, New Delhi
Contact Person & Address
Dr. Amit Khosla, ***Secretary DOS***
Room No. 2225, 2nd Floor, New Building,
Sir Ganga Ram Hospital,
Rajinder Nagar, New Delhi - 110 060
Ph.: 011-65705229, ***E-mail:*** dosonlin@vsnl.net,
Website: www.dosonline.org

Forthcoming Events: International

September, 2010

16-20 BEIJING, CHINA

APAO-AAO Joint Congress
China National Convention Centre, Beijing
APAO Central Secretariat
Secretariat, Asia Pacific Academy of Ophthalmology
C/o. The Chinese University of Hong Kong,
Dept. of Ophthalmology & Visual Sciences, Hong Kong
Eye Hospital, 3/F, 147K Argyle Street, Kowloon,
Hong Kong
Email: secretariat@apaophth.org
Tel: (852) 2762-3042, ***Fax:*** (852) 2715-9490,
Website: www.apao2010beijing.org

The Disc Damage Likelihood Scale: A Brief Review

***Deven Tuli** MS*

In clinical examination of the optic nerve head for glaucoma changes, there is generally a large inter observer variation even amongst glaucoma trained evaluators. To overcome this issue and to have a more objective means of comparison, the Disc Damage Likelihood Scale (DDLS) was introduced first in 1981. The initial version had five stages. A recent version, which is discussed in this article, has 10 stages. The Spaeth system, which uses rim/ disc ratios to estimate the width of the neuroretinal rim, is based on the narrowest width of the neuroretinal rim in any position, or, if no rim is present, the circumferential extent of absence of the neuroretinal rim. The rim is defined as the width between the outer edge of the disc and the inner edge of the rim, this inner edge being the position where the surface of the disc first starts to bend posteriorly towards the lamina.

There are 10 DDLS stages, extending from 1 to 10. Considering average-sized optic discs (1.5 to 2.0 mm of diameter), a DDLS *stage 1* would represent a disc with a rim/disc ratio of 0.4 or more at its narrowest position. Similarly, *stage 2* would comprise 0.3 to 0.39 of the narrowest rim/disc ratio, *stage 3* from 0.2 to 0.29, stage 4 from 0.1 to 0.19, and *stage 5* less than 0.1 (but more than 0). (Figure 3)

Rim/disc ratios reach 0 (no rim present at any location) from DDLS stages 6 to 10. These stages are separated by the circumferential extent of rim absence: in *stage 6*, it is less than 45 degrees, in *stage 7*, between 46 and 90 degrees; in *stage 8*, between 91 and 180 degrees; in *stage 9*, between 181 and 270 degrees; in *stage 10*, more than 270 degrees (Figure 3).

Significance of DDLS Stages

Stages 1 and 2 both represent discs in which there is a low likelihood of any actual damage. However, some discs start with no cup whatsoever, so that even a cup/disc ratio of 0.1 or a rim/disc ratio of 0.4 could represent actual pathology. By the time most discs get to a far-advanced stage, that is, where there is no rim for approximately 180 degrees or more, the detection of change becomes difficult but not impossible. Stages 9 and 10 both represent discs with far- advanced damage.

Advantages of DDLS

The DDLS overcomes several limitations of previous staging:

1. It balances ease of use with sufficient power to detect progression.
2. It relies more on the neuroretinal rim rather than cup/disc ratio (Figure 1)
3. It covers the entire spectrum of disc damage from early to advanced and far advanced glaucoma.

Limitations of DDLS

1. The location of rim narrowing is not considered, and non-contiguous areas of less extensive narrowing are not taken into account.
2. There is no room for unclassifiable discs; discs with congenital anomalies or other atypical discs do not fit well into any staging scale and are best described individually.
3. Another limitation is that rim width characterization, although precisely defined, is subjective, and thus may vary depending on the observer. (Figure 2)

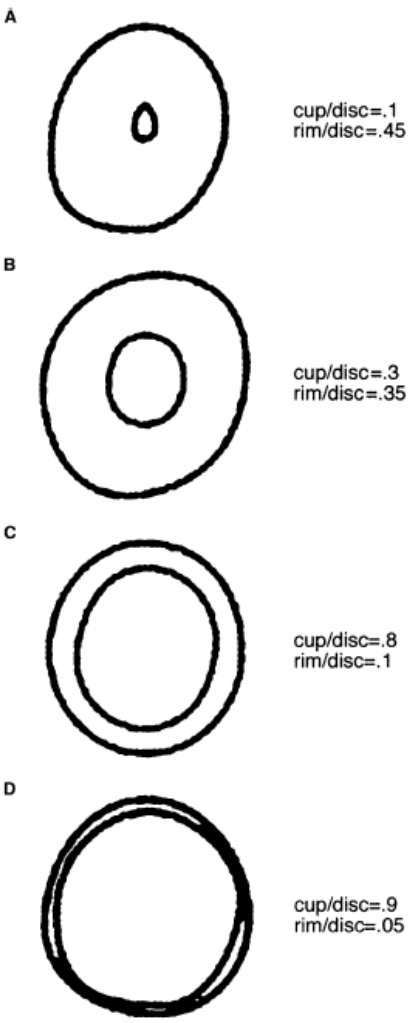

***Figure 1:** Comparison of cup/disc and rim/disc ratios*

Bharti Eye Hospitals
Greater Kailash-1, New Delhi

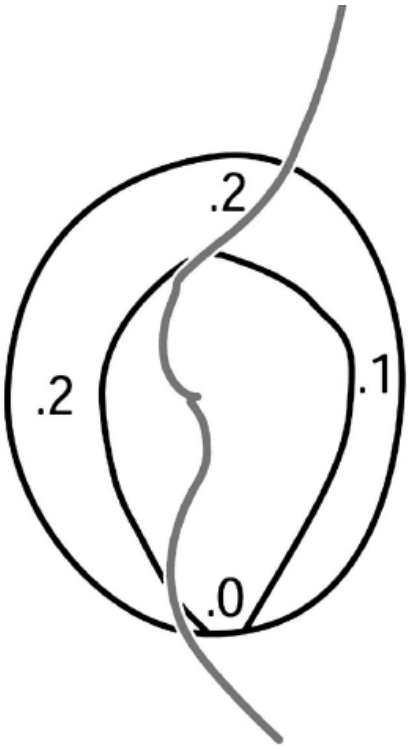

Figure 2: *The rim/disc ratio will vary for different parts of the optic disc when cupping is not symmetric in all parts of the disc*

At first sight the DDLS may appear to be complex and difficult to use; however, after a short learning period, most observers are able to master it without much difficulty.

However, the DDLS has been found to be highly reproducible, with higher inter-observer and intra-observer reproducibility than staging based on cup/ disc ratio system (like Armaly, 1969). Additionally, the DDLS appears to have greater validity than the cup/disc ratio system in that the changes it characterizes correlate with visual field changes better than those based on the cup/disc ratio system (Henderer et al, 2003).

	DDLS Stage	Narrowest rim width (rim/disc ratio) [average disc size: 1.50 - 2.00 mm]	Example
At Risk	1	**0.4** or more	
	2	**0.3** to **0.39**	
	3	**0.2** to **0.29**	
	4	**0.1** to **0.19**	
Glaucoma Damage	5	less than **0.1**	
	6	**0** (*extension*: less than 45°)	
	7	**0** (*extension*: 46° to 90°)	
Glaucoma Disability	8	**0** (*extension*: 91° to 180°)	
	9	**0** (*extension*: 181° to 270°)	
	10	**0** (*extension*: more than 270°)	

Figure 3: *The Disc Damage Likelihood Scale (DDLS) is based on the radial width of the neuroretinal rim measured at its thinnest point*

The DDLS, then, is useful for all three aspects of optic disc examination:

1) Diagnosis,

2) Categorizing severity, and

3) Monitoring progression.

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3. Henderer JD, Liu C, Kesen M, et al: Reliability of the disc damage likelihood scale. Am J Ophthalmol 135:44-8, 2003.

Author
Deven Tuli MS

Eye Banking: Current Perspective

Noopur Gupta *MS DNB,* ***Radhika Tandon*** *MD DNB FRCS (Ed) MRCOphth*

Corneal blindness is one of the target diseases under the global initiative of Vision 2020. Eye banking activities form a critical component and foundation pillar for managing this disease wherein infrastructure, human resource, logistics and service delivery need to be at par with international standards. With the implementation of the Eleventh five year plan period of National Programme for Control of Blindness (2007-2012), a new thrust and vigor has been infused for improvement of eye donation, collection, processing, maintenance of quality standards, equitable distribution of donor corneal tissue, strengthening of institutional capacity for undertaking corneal transplantation, community awareness, training of health personnel and delivering highest level of quality services in eye banking activities. A brief overview of eye banking activities, organization of an eye bank[1] and the relevant Transplantation of Human Organs Act, 1994 (THOA) [2] are being presented.

Objectives & Functions

Eye Banks are maintained and operated for the extraction, removal, care, storage, preservation, and/or use of human eyes or parts thereof for purposes of sight preservation or restoration. Eye banks also are operated for medical education, instruction pertaining to sight preservation or restoration, or research.[3] Eye Banks must continue to provide a service that ensures the safety and efficacy of donor tissue and ensures fair and equitable distribution of transplantable tissue. The eye bank has the following functions:

- Procure, process and distribute corneal tissue of the highest quality for transplantation (Figure 1a-1d).

Figure1a: *Processing kit used for globe disinfection*

Figure 1b: *Cleaning and disinfection of donor eye*

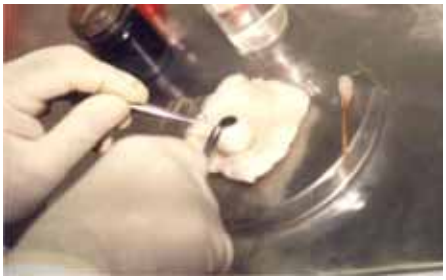

Figure1c: *Removal of corneo-scleral rim from whole globe*

Figure 1d:*Transfer of donor button to preservative media*

Dr. Rajendra Prasad Center for Ophthalmic Sciences,
All India Institute of Medical Sciences, New Delhi

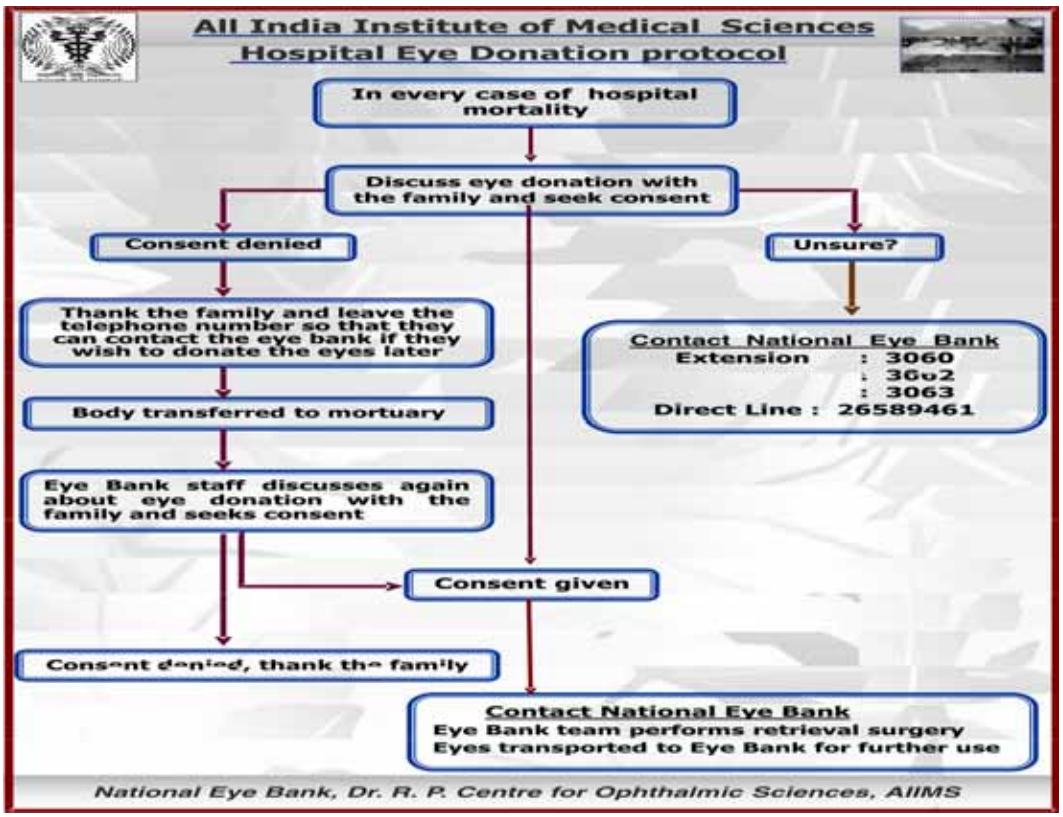

Figure 2: *Hospital eye donation protocol*

Figure 3: *Pamphlets and posters to promote eye donation*

- Provide and process eye tissue for research or teaching as needed.
- Provide families of potential donors the mechanism and operational process to donate a decedent's eyes.
- Promote retrieval of donor tissue from the hospital setting and develop professional in- service programs in order to maximize identification of suitable donors and referral to the eye bank (Figure 2).
- Provide support and grief counseling to donor families.
- Provide for soliciting eye donation from potential donors.
- Promote public relation activities (Figure 3).

Milestones in Eye Banking

- 1944: Dr. R. Townley Paton established the first eye bank in New York City.
- 1953: Stocker revealed the vital role endothelial cells play in corneal transparency.
- 1955: Harris and Nordquist, continuing Filatov's and Stockers efforts, published a paper that showed endothelium maintains function at 4°C.
- 1961: Eye Bank Association of America was established as a non-profit organization dedicated to the restoration of sight through the promotion and advancement of eye banking
- 1974: McKarey and Kaufman developed M-K medium which allowed the excised corneo-scleral rim to be preserved for up to 4 days at 4°C.
- 1985: Kaufman et al presented K-Sol as a storage method viable for up to 10 days.
- 1991: Optisol™ (Bausch & Lomb) was developed as a storage medium that lasts up to 14 days.

Process of Eye Donation

The eye bank reviews the information with the referral service and makes a decision whether or not to approach the next of kin for donation based on the medical standards set by the eye bank.

The next of kin is designated as husband or wife, adult children, parent, brother or sister, legal guardian, or other person authorized to make such decisions. The family gives written consent for eye donation. Once consent has been obtained and recorded, the eye bank must now make arrangements to recover the tissue and get it back to the laboratory for further review and processing.

Medical/social interview must be done with the next of kin to help determine suitability and safety.

A thorough review of the donor's medical chart is performed as well as interviewing the doctors and nurses that treated the patient if needed.

Blood samples are drawn and minimal serologic testing required is for HIV, hepatitis B & C, and syphilis while many eye banks test for other diseases.

Table 1: Contraindications for the Use of Donor Tissue for Keratoplasty

- Death of Unknown Cause
- Death from central nervous system disease of unestablished diagnosis
- Creutzfeldt-Jacob disease or a risk factor
- Subacute sclerosing panencephalitis
- Progressive multifocal leukoencephalopathy
- Congenital rubella
- Reyes syndrome
- Active viral encephalitis or encephalitis of unknown origin
- Active septicaemia (bacteraemia, fungaemia,viraemia)
- Active bacterial or fungal endocarditis
- Active viral hepatitis
- Rabies
- Active leukaemias
- Active disseminated lymphomas (Hodgkin's disease, Malignant non-Hodgkins lymphoma, Burkitt's lymphoma, Mycosis fungoides, Multiple myeloma, Macroglobulinaemia, Heavy Chain disease)
- High risk for HIV infection
- Hepatitis B surface antigen positive donors
- HTLV-I or HTLV-II infection
- Hepatitis C seropositive donors
- HIV seropositive donors
- HIV or high risk for HIV infection
- Retinoblastoma, Malignant tumours of the anterior ocular segment
- Active ocular or intraocular inflammation
- Congenital or acquired disorders of the eye which would preclude a successful outcome for the intended use
- Prior intraocular surgery or anterior segment surgery (Refractive corneal procedures, Laser photoablation surgery)
- Behavioral and or social issues like :
  - Homosexual or other high risk sexual behavior within the last 5 years
  - Intravenous drug use for non-medical reasons within the last 5 years
  - Exposure to infectious disease within the last year by contact with an open wound, needle stick, or mucous membrane
  - Tattooing or piercing within the last 12 months using shared instruments.

Table 2: Methods of Corneal Preservation				
Methods	**Types**	**Characteristics**	**Time limit**	**Constituents**
Short term	Moist chamber McCarey-Kaufman	Whole eyes at 4°C	24 hours 2-3 days	— Tc 199, Dextran (osmotic agent), NaHCO3, HEPES buffer, Gentamicin, Phenol Red (pH indicator)
Intermediate	K-sol Dexol Optisol	2°C - 6°C	7-10 days	M-K formulation + 2.5% chondroitin sulfate
	Optisol GS	GS- gentamicin 100 mg/mL and streptomycin 200 mg/mL	14 days	
Long term	Organ culture	31°C and 37°C Enables HLA matching	35 days	Minimal essential medium (MEM), supplemented with varying amounts of fetal calf serum (FCS)
Very long term	Cryopreservation	Freezing, Vitrification, Glycerol	One year	—

Donor tissue retrieval procedure could either be through enucleation or corneal sclera rim excision. The eye bank team should carry only validated sterile instruments for retrieval.

Slit lamp examination is performed on every cornea for grading and any evidence of infection, trauma, and contraindications.

Specular microscopy may be performed to determine viability and amount of the endothelial cells (preferably ≥2,000 cells per mm⊠).

Once all the information has been obtained and screened it is then and only then that the donor tissue may be released for transplant.

Contraindications for Donation

Diseases that could potentially be transmitted by corneal transplantation (Table 1) fall into three categories:

- Infections- bacterial, fungal and viral
- Malignancies
- Intrinsic eye disease or surgery

Preservation of Donor Cornea

Various methods have been used for the storage of donor cornea for keratoplasty (Table 2). The methods have been classified in terms of duration of storage as (a) short-term, (b) intermediate term (c) long-term and (d) very long-term.

Eye Banking System: Organization

For an efficient eye banking system, a three tier organization structure has been recommended (Figure 4). An integrated system involving a three-tier community eye banking pyramid based on the infrastructure and manpower at all levels. The three tiers proposed were eye donation centres, eye bank and eye bank training centres. The top tier comprises of 5 Eye banking training centers (EBTC) which would be responsible for tissue harvesting, processing & distribution, creating public awareness as well as training and skill up-gradation of eye banking personnel. The middle tier would comprise of a strong network of 45 Eye Banks (EB)-organizations which would comply with all the regulations stipulated by Govt. of India/EBAI (Eye Bank Association of India); and these would cater to a population of 20 million each. These Eye Banks would be closely linked with 2,000 Eye Donation Centers-EDC (ratio of 1: 50 suggested), each of which would cater to a population ranging from 50,000 to 100,000. The Eye Donation Centers will be regulated and funded by the Eye Banks themselves. The EDC should provide public and professional awareness of eye donation, co-ordinate with donor families and hospitals to motivate eye donation, to harvest corneal tissue, and collect blood for serology and to ensure safe transportation of tissue to the parent eye.

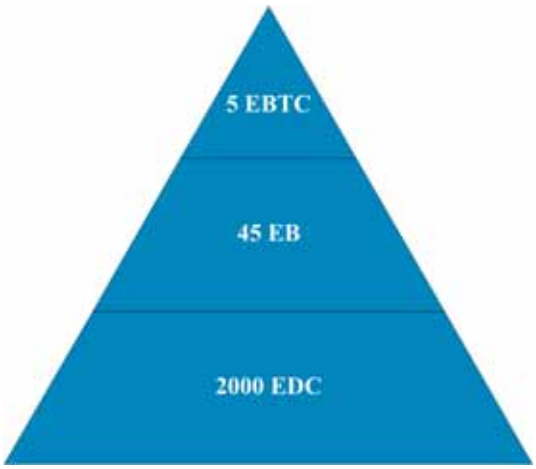

***Figure 4**: Three-tier pyramid structure proposed for efficient eye banking system*

Transplantation of Human Organs Act (THOA)

The removal and transplantation of human organs is regulated by The Transplantation of Human Organs Bill which was passed by Parliament of India in June, 1994[2] and The Act came into force from February 4, 1995 by a Gazette notification. THOA provides for the regulation of removal, storage and transplantation of human organs for the therapeutic purposes and prevention of commercial dealings in human organs for matters connected therewith or incidental thereto.

Special Provision for removal of Corneas

The THO Act in section 3, currently provides that organs shall be removed by a registered medical practitioner only. During the national consultation, it was pointed out that this stipulation was actually hampering the eye donation programme and was, therefore, suggested that for the removal of corneas, a trained eye technician could do the job. This suggestion has been accepted and it is proposed that in Section 3, after sub section (4), a new sub section 4-A shall be inserted to provide that a technician possessing such qualifications and experience may be allowed to perform enucleation.[4]

Conclusion

Eye banking in the present times has been a result of well-established medical standards which are continually evaluated, reviewed and internationally disseminated. Improved corneal storage techniques, and comprehensive corneal evaluation through the combined use of slit-lamp and specular microscopy combined with ongoing eye bank procurement programs have led to scheduled elective corneal transplant surgery with safe, efficacious tissue. Whatever the future holds, eye banks must continue to provide a service that ensures the safety and efficacy of donor tissue and ensures fair and equitable distribution of transplantable tissue.

References

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3. Requard J. The Current Status of Eye Banking - Its Relationship to Corneal Surgery and the Future. In F. Price, editor DSEK: What You Need to Know About *Endothelial Keratoplasty,* Edition 1 Slack, Inc. 2009 p 163-170.
4. Transplantation of Human Organs Rules amendment 2008

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Monthly Clinical Meetings Calendar 2009-2010

Dr. R.P. Centre for Ophthalmic Sciences 26th July, 2009 (Sunday)	**Venu Eye Institute & Research Centre** 29th November, 2009 (Sunday)
Shroff Charity Eye Hospital 23rd August, 2009 (Sunday)	**Safdarjung Hospital** 27th December, 2009 (Sunday)
Base Hospital 4th October, 2009 (Sunday)	**Bharti Eye Foundation** 31th January, 2010 (Sunday)
Sir Ganga Ram Hospital 1st November, 2009 (Sunday)	**Centre for Sight** 28th February, 2010 (Sunday)
Midterm Conference of DOS 14th & 15th November, 2009 (Saturday - Sunday)	**Guru Nanak Eye Centre** 28th March, 2010 (Sunday)

Annual Conference of DOS 16th-18th April, 2010 (Friday, Saturday & Sunday)

Ultrasonography of Eye

***B.P. Guliani** MS*

Ultrasonography of eye has become a routine investigation for an ophthalmologist both anterior and posterior segment. I have presented number of times instruction course on Ultrasonography of eye in All India and Delhi ophthalmological conferences.

Topics to be published in three parts in three consecutive DOS times:

1. Basics of ultrasound:
    a. Physics of ultrasound
    b. Ultrasound machine
    c. Display
    d. Indications of USG
2. Technique of Ultrasonography
    a. Probe positions
    b. clinical interpretation of USG imaging
3. Role of USG in Posterior segment diseases
    a. Vitreous debris e.g. vit. Haemg. Vit. Degeneration, endoph,
    b. RD vs. PVD
    c. IOFB
    d. Trauma
    e. Intraocular mass lesion tumour, cyst, metastasis

Please note USG role in IOL power calculation and orbital diseases will not be covered in this series of topics.

History of USG in eye

- Mundt&Hughes-1956-A-scan used for IO tumors
- Baum&Greenwood-1958-B-scan
- Janssen & associates-1960-Biometry
- 1970-First commercial B-scan (immersion)
- 1975-First contact B-scan

Basic physics

Ultrasound: Acoustic waves with frequency of oscillations >20k Hz (20000oscillations/sec) and it is Inaudible to human ear

Frequency vs. wave length: They are inversely proportional i.e. more the frequency shorter will be the wavelength and lesser the frequency more the wavelength.

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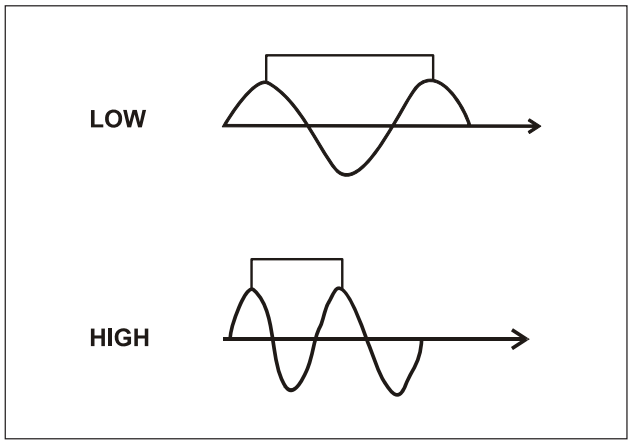


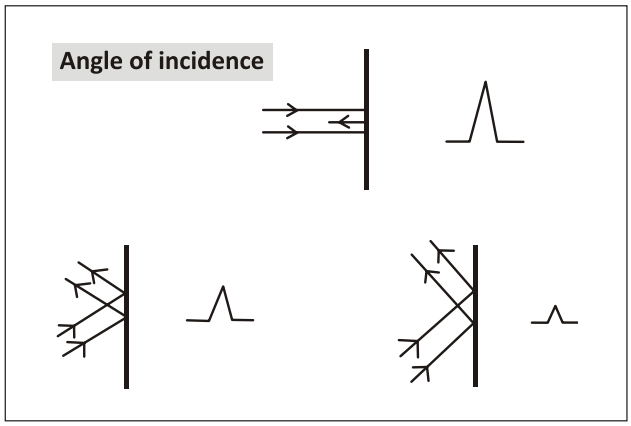
Wave length and penetration: Shorter the wavelength lesser will be penetration more resolution. Longer the wavelength deeper will be penetration and lesser will be the resolution.

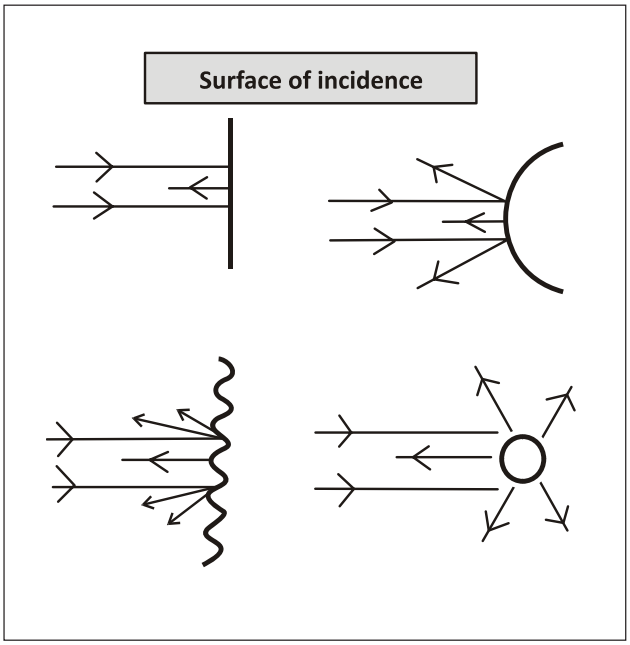
Probes frequency: The above concept is utilised for making different probes for Ultrasonography.

Probe frequency	Wave length	penetration	resolution	use
50 MHz	shorter	shallow	maximum	UBM for ant. segment
8-10 MHz	short	intermediate	intermediate	A-scan, B-scan
5 MHz .	Long	Deeper	less	Abdominal
(1 MHz=50 million cycles/second)				

Echo

It is a property of the sound wave by which when it strikes a surface part of it which is reflected is heard as an echo. Interpretation of Ultrasound image is largely based on manipulation of this property of sound wave. Strength of echo depends upon following factors:



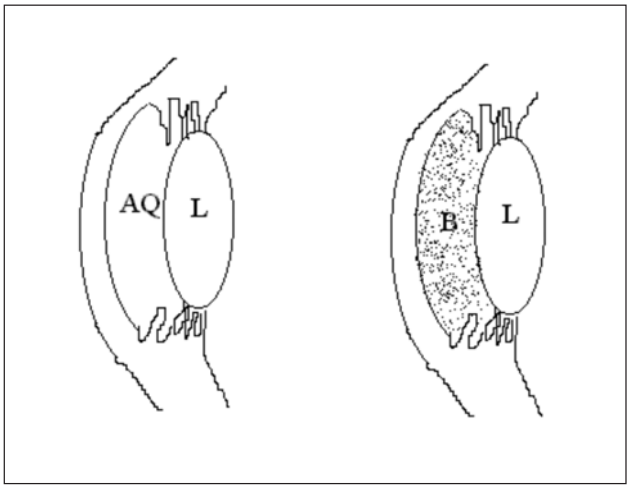


Angle of incidence: looking at this fig. Following conclusions can be made

Angle of incidence	reflectivity	Echo strength
perpendicular	maximum	high
oblique	less	low
More oblique	least	Very low

Surface: looking at this fig. Following conclusions can be made

Interface	Reflectivity	Echo	Reason
Smooth	Maximum	Maximum	
Corrugated	Less	Low	
Round	Lesser	Lower	
Spherical	Least	Very low	



Acoustic interface: looking at this picture reflectivity from lens surface in a patient with hyphaema will be lower to clear AC.

Reason: Difference in sound velocity of the media e.g.

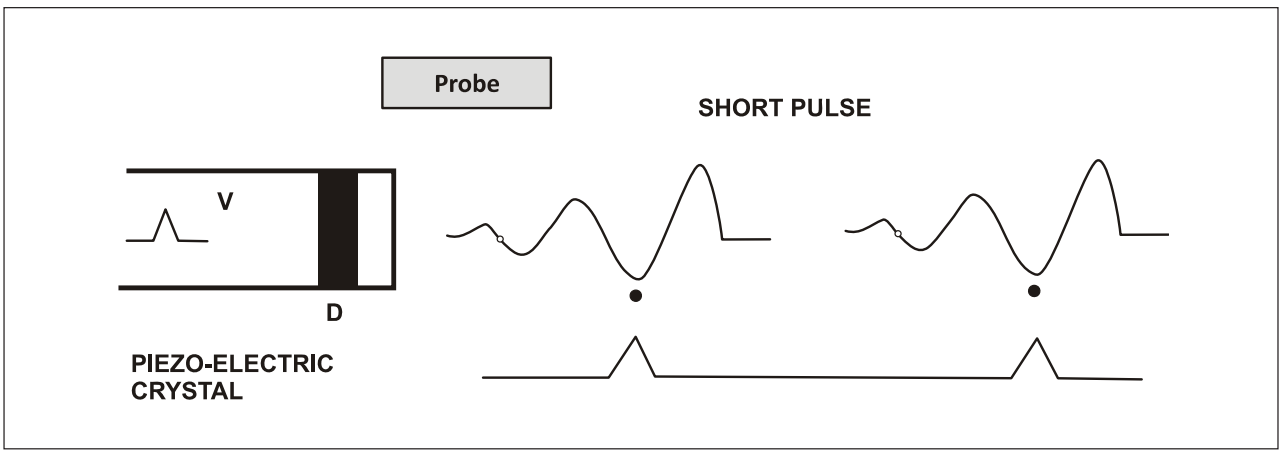
Lens	1641 m/sec.
aqueous	1532 m/sec.
blood	1550 m/sec

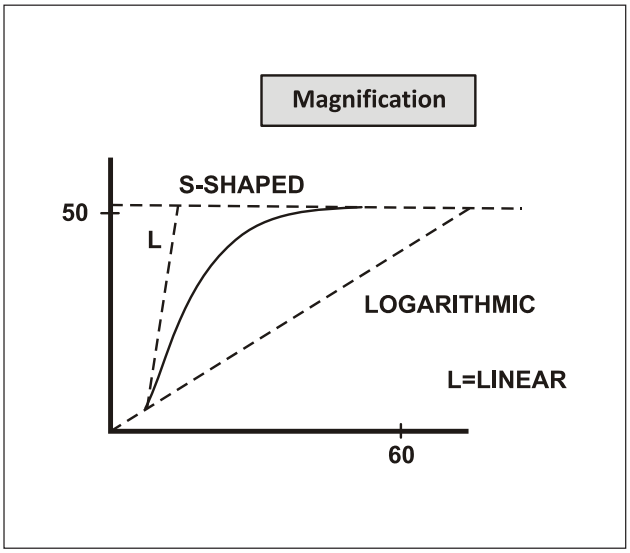
Gain

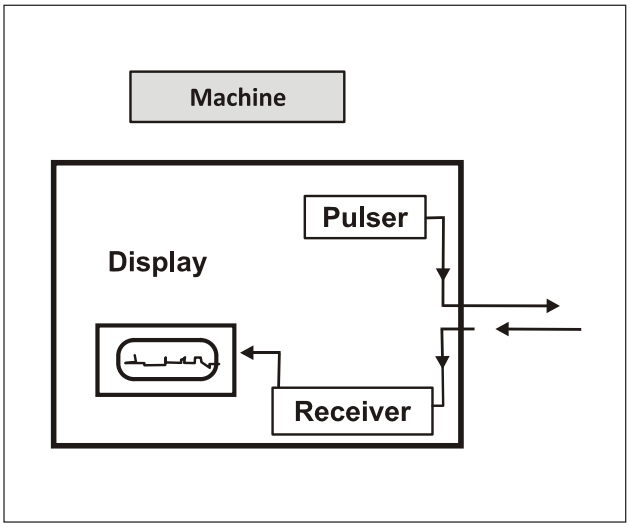
The reflected wave show different reflectivties due to factors mentioned above. To visualize waves of very low reflecivity they have to be magnified. This is accomplished by adjusting gain.

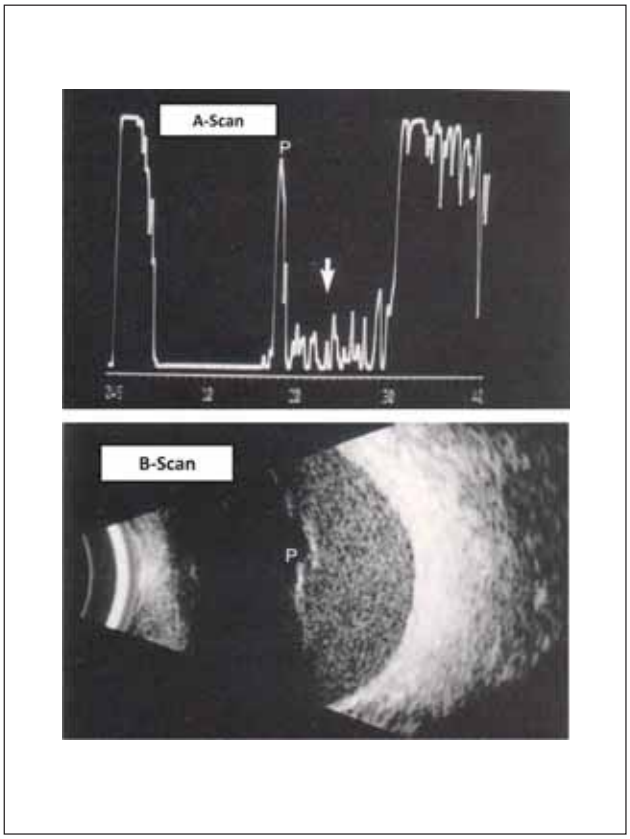
Machine and probe

- Probe has piezoelectric ceramic crystal .This crystal when subjected to electric pulse, vibrates and produces ultrasound
- Ultrasound pulse enters the eye and gets reflected from normal and abnormal tissues
- Reflected pulse is received by the receiver
- Displayed on the monitor by A-scan and B-scan mode
- Adjustment of Gain and interpretation of the image









Display modes

- A-scan
- B-scan
- Standardized echography: A+B Scan

	A-scan	B-scan
display	One dimensional	Two dimensional
echo	Height of peak	Bright dot
lesion	Nature &size	topography

Indications: Ultrasonography is useful in both opaque and clear media

Evaluation in Opaque Media

- Corneal Opacity
- Hyphaema
- Cataract
- Pupillary / Retrolental MEMB.
- VIT.H'GE / Endophthalmitis

Evaluation in clear ocular media

- Iris & Ciliary Body Lesions
- CD
- RD
- Tumors
- Optic Disc Abnormalities
- IOFB Detection & Localization

Normal peaks in A-scan

- Tall echo from cornea – one in contact scan & double peaked in immersion technique
- Tall echoes from ant. & post. Lens surface
- Tall, sharply rising echo from retina
- Medium-tall to tall echo from sclera
- Med . To low echoes from orbital fat
- A-scan axial length measurement (biometry):distance between initial peak and retina

How to interpret A-scan

- One dimensional echo display
- Echoes are displayed as vertical spikes
- Height of spike = strength of echo (amplitude)
- Clinical judgment based on amplitude & spacing of echoes

Special uses of A scan

- IOL power calculation
- A-scan corneal thickness pachymetry
  - refractive surgeries
  - corneal edema post-op
- Standardized A-scan for tissue diagnosis

Author
B.P. Guliani MS

How to build good Refractive Surgery Practice

Sharad Lakhotia *MS, CAMS*

In my past experience of 25 yrs. I've watched carefully how people have grown from no where and achieved great heights. There is a mathematical formula and if things are done in an organized way, nothing is unachievable. Ofcourse the blessings of almightily reign supreme and are beyond the context of this article.

Basic Principle

Before we look for the best to achieve, following needs to be clearly spelt.

High class professional training: One must get experience of working with the masters. Try to get the blessings of a 'Guru' and the way is open to climb the ladder. If you have qualified from a top institute, you always start with a great confidence to the patients.

Constant upgrading of skill & equipments: one should regularly participate in National & International Conferences to upgrade the skill. One must see the trend in newer development and its acceptance and should adopt new technology, if convinced.

Patient repose faith in the centre that keeps technology regularly upgraded and can assure best results. Eyes are precious. Even ordinary patient will also like to get treatment done by best professional setup. In the era of Radial Keratotomy, the one who bought Eximer laser caught attention. Then *Lasik* and then *Femtosecond Laser* caught attention. Then all Femtosecond Lenticular extraction (smile) and intracor procedure are in pipeline. The one, who embraces newer technology, of which he is confident, will win the race.

Be the first: Always start with a big bang. Be the first person to introduce a new technology in your area. Let people understand that whatever is latest will be available here. In today's time everybody is looking for a magical cure. People are always attached to centers offering some thing new to give them a bigger hope.

Doctor patient relationship: In refractive Surgery, honest doctor-patient relationship is of paramount importance. Never give false hope to the patient. Give the patient complete details of the procedure & possible complications. You may give reference of internationally reported incidence of complications and statistics of last few years of your patient's record. Don't give high hope. You may use councilor to do marketing, but your approach should be purely professional and in greater interest of the patient. Today's patient's are intelligent and they would love your honest approach. Moreover when they get better results then expected, they are overjoyed. If you have given false hope, even after a reasonably done procedure, patient may be unsatisfied & create trouble. Even in a very busy set up, patient should have the feeling that he was given full care and made to understand the procedure very well.

Thus, this patient become your admirer and will promote your centre by praising it to others. In today's scenario, as you can't do much advertising, your satisfied patient remains the best bet. At the end of the day, patient should feel confident and have full faith in you. One unsatisfied patient can offset favors done by 20 satisfied patients.

Records speak for themselves: It is not important, how many procedure you did but, how often you could reduce, minimize or avoid complications. Your machinery, system & protocol should be such that no human error or lack of knowledge should play a detrimental role in success of the procedure. These records one should publish in Journals and speak about it in Conferences. They help to make good image of the centre.

Economy: The price of the procedure should be affordable for community of patients intended. Further lowering the price may not be good idea but may create doubts in the mind of patient.

However in camps, subsidized rates can be offered at community centers etc to make this procedure available to the underprivileged class. Even this amount earned is good enough as additional revenue to meet up the regular maintenance.

Don't Criticize Colleagues: Every surgeon can have complications. One should not criticize work done some where else. One must show sincere efforts to cure him and can gain confidence of the patient. If condition is untreatable, one must talk to the operating surgeon and make a joint approach to tackle the problem. Patient would be satisfied & respect your honesty. Moreover when your unsatisfied patient goes to other ophthalmologists, they will also have a considerate view. Remember 'The sting of a bee is a convincing argument that spring has arrived, but the feel of a butterfly's wing tells the same story in a much better way'.

Ambience & comfort: Refractive Surgery is synonymous with hi-fi life style thinking. The interiors are to be designed to suit the comfort of young people and should be soothing to the eyes. Reclining lazy chairs, ambience and comfort level to the patient are important to make them feel cool and tension free.

*Courteous and disciplined staffs:*The staff should be specially trained to deal such patients. They have to be courteous & encouraging to the patient. They should be polite and quickly responsive. There should not be unnecessary delay in procedure, so that, patients are throughout engaged. Aptly described by some that they should be given treatment of 'business class' while flying on 'economy tickets'.

How to get going? It is important for any Lasik centre to have referrals. It is not possible to survive only on your practice. To get maximum referral from Doctors, one has to develop good relationship and trust.

To ensure that your chain of doctors remain intact, you have to constantly upgrade the skill and results and give most economically viable proposition. The art of communication, honesty and respect to colleagues go a big way. Moreover if your set up is situated away from your main clinical area, it gives more confidence to the

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referring doctor. The referring doctor is always looking for Lasik Centers, where their patients get best treatment but are not drifted to other eye surgeons.

Tap the untapped resources: Paramedical professionals like optometrist; optician etc can be a potentially strong source of referral. Regular C.M.E., education and post operative care sessions can be organized at your set up for these professionals to guide their patients. They can be a great boost to your practice.

Innovative thinking: To ensure that there is a regular inflow of patients, it is very important to have a dedicated team of Ophthalmologists referring regularly. You can't buy loyalty. Why not then make them your partners. Have some investment from 5, 10 or 20 Ophthalmologists and make a common Lasik Centre. Slots can be fixed for different doctors & economic modalities can be framed. Thus even if you don't have much financial recourses, you can make a great business proposition. The biggest skill lies in the art of handling colleagues. Their egos, expectations and financial remuneration have to be crafted to utmost perfection to get this group going. If one puts his life's hard earning into Lasik Centre and then suppose it doesn't pick up, it could be very frustrating and also it doesn't make a good business sense.

The person who could gather colleagues into good understanding with reasonable capital & loan can make a success story. Replica of same module may be made at others places and a big chain can be formed to tell the story of Rags to Riches.

Thus developing good refractive practice requires so many elements and even if few of them are achieved, it can be a great success story.

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- **Techniques in Ophthalmology**

Sutures and Needles in Ophthalmology

Malvika Gupta DO, *Anuj Mehta* MS, *K.P.S.Malik* MS

A Suture is any material to hold a wound together in good apposition until such time as the natural healing process is sufficiently well established to make the support from the suture material unnecessary and redundant.

Ideal Suture Material

- Have good handling characteristics
- Not induce a significant tissue reaction
- Allow secure knots
- Have adequate tensile strength
- Not cut through tissue
- Be sterile, not support bacterial growth
- Be non-electrolytic
- Be non-allergenic/ carcinogenic
- Cheap
- Easy sterilization

Types of Sutures

Sutures maybe Natural or Synthetic. Natural materials (Table 1) are *absorbable* materials such as Catgut (Plain or chromic) or *non-absorbable* like Silk, Linen or Stainless Steel Wire. Synthetic materials (Table 2) include *absorbable* materials such as Polyglycolic Acid (Dexon), Polyglactin (Vicryl), Polydioxone (PDS) & Polyglyconate (Maxon) and *non-absorbable* materials like Polyamide (Nylon), Polyester (Dacron) & Polypropylene (Prolene).

Sutures maybe Monofilament or Multifilament

Monofilament

- Easy passage through tissues due to its low frictional coefficient.
- Minimal tissue reactivity.
- Excellent elasticity. High strength
- Exceptional for skin closures.
- Smooth surface will not support Bacterial growth

Multifilament

- Composed of tightly braided filaments.
- Easy passage through tissues due to its low frictional coefficient.
- Minimal tissue reactivity.
- Coated to improve handling.
- Excellent elasticity.
- Exceptional for skin closures.

Suture Characteristics

Suture materials vary in their physical characteristics

- Monofilament sutures (e.g. polypropylene) are smooth. They slide well in tissues but if handled inappropriately they can fracture.
- Multifilament sutures (e.g. polyglactin) are braided. They have a greater surface area. They are easier to handle and knot well.
- Some suture materials have a 'memory' (e.g. polypropylene) i.e.return to their former shape when tension is removed.
- Absorbable suture are broken down by either proteolysis (e.g. Catgut) or hydrolysis (e.g. Vicryl, Dexon)

Classes of Sutures

- *Class I* - Silk or synthetic fibers of monofilament, twisted, or braided construction
- *Class II* - Cotton or linen fibers or coated natural or synthetic fibers in which the coating contributes to suture thickness without adding strength
- *Class III* - Metal wire of monofilament or multifilament construction

Suture Size and Diameters

Suture Size	Average Minimum (mm)	Individual Minimum (mm)
11-0	0.007	0.005
10-0	0.014	0.010
9-0	0.021	0.015
8-0	0.050	0.025
7-0	0.080	0.040
6-0	0.170	0.080
5-0	0.230	0.110
4-0	0.450	0.230
3-0	0.680	0.340
2-0	1.100	0.450
0	1.500	0.450
1	1.800	0.600
2+	1.800	0.700

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Table 1: Natural Suture Materials				
Features	**Absorbable**		**Non-absorbable**	
	Plain Catgut	**Chromic Catgut**	**Silk**	**Surgical Steel Wire**
Description	Monofilament, is a highly purified connective tissue, derived from submucosa of cattle intestine	Is treated with chromium salt solution to resist body enzymes	Braided, is composed of an organic protein, fibrin.	composed of high quality stainless steel.
Tissue reaction	Moderate	Moderate	Moderate	Moderate
Tensile strength	Maintained for 7-10 days	maintained for 10-14 days	Reduced with absorption of moisture. Total loss within 1 year	Minimal loss over time
Degradation	Enzymatic	Enzymatic, 90 days	None	none
Others	ties down securely, holds uniformly, predictably	ties down securely, holds uniformly, Chromic coating decreases tissue reaction	As Silk is a natural fiber, it elicits an acute inflammatory reaction, which is followed by gradual encapsulation of the suture by fibrous connective tissue (occurring usually in 14-21 days).	

Needles: Shapes and Types

All needles are made of stainless steel.

Choice of Needle depends on:

- Requirement of specific procedure
- Nature of tissue to be sutured
- Accessibility of operative area
- Surgeon's preference

The ideal suture needles should have the following properties:

a. enough rigidity to prevent easy bending

b. sufficient length so that it can be grasped by the needle holder during passage and retrieved without causing damage to the tissue

c. sufficient diameter to create a tract for the suture knot to be burried

d. as atraumatic as possible

There are three parts of a suture needle (Figure 1):

1. **swage** (connection point for the suture)
2. **the body**
3. **point**

A suture needle has 5 geometries:

1. *length:* distance of the circumference from the swage to the point

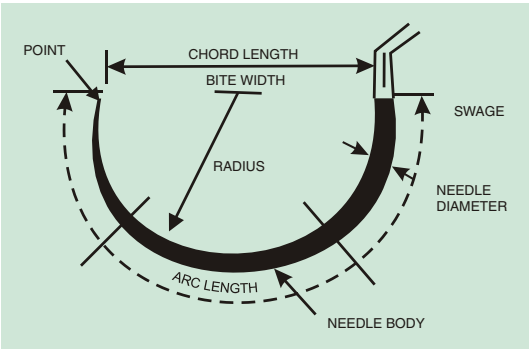

Figure 1: *Diagram anatomy of a needle*

2. *chord length:* distance of the straight line from the swage to the point (which determines the width of the bite)
3. *radius:* length of the line from the center of the circle
4. *needle diameter:* measured in mils (1/1000 of an inch) and 1 mil is about 25 um. A smaller diameter needle required less force and cause less trauma during passage through the tissue (Figure 2).
5. *bicurve:* two radii on a needle, the radius near the point is usually shorter than the radius of the body near the swage

Table 2: Synthetic suture materials

	Absorbable			Non-absorbable			
Features	**Poly glycolic Acid (Dexon)**	**Polyglactin (Vicryl)**	**Poly dioxone (PDS)**	**Poly amide (Nylon)**	**Polyester (Dacron)**		**Poly-propylene (Prolene)**
Description	Is composed of 100% glycolide	Braided, coated, is composed of copolymers made from 90% glycolide and 10% L-lactide	Is composed of the polyester (p-dioxanone)	Mono/ multi filament, Is composed of the long chain aliphatic polymers Nylon 6 & 6.6	Uncoated : mersiline braided composed of Poly ethylene terephthalate	Coated: Ethibond composed of Poly (ethylene terephthalate	composed of a synth linear polyolefin
Tissue reaction	Mild	Mild	Minimal	Minimal	Min	Non reactive	Non- reactive
Tensile strength	84% at 2 weeks, 23% at 4 weeks	Twice as strong as chromic catgut 65% - 14 days 40% - 21days 10% - 35 days		Progressive hydrolysis may cause loss in tensile strength up to 20% per year	Not known to loose tensile strength in vivo	Not known to loose tensile strength in vivo	Maintains tensile strength up to two y
Degradation	Hydrolysis	Hydrolysis, absorption completed by 70 days	Hydrolysis, absorption completed within 200 days	None	None	None	None
Others		Good handling & knotting, smooth passage through tissue, resists fraying		available in either black or blue	Extremely strong, not weakened by wetting, knots hold securely	Extremely strong, Not weakened by wetting, knots hold securely, Excellent handling, Dyed green	minimal acute inflammatory reacti in the tissue, followe by gradual encapsulation of the suture by fibrous tis Polypropylene sutur resists infection

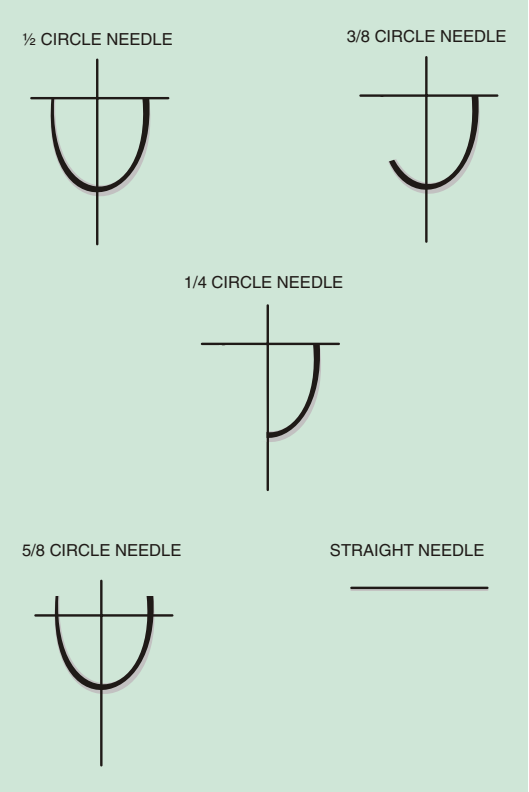

Figure 2: *Diameters of a needle body*

Shape of the needle

- Governed by the accessibility of the tissue to be sutured
- The more confined the operative area, the greater the curvature required

Types of Needles

There are many different types of needles available in ophthalmology surgery and they can be grouped into four main types according to the point configuration (i.e. the shape of the point) (Figure 3):

a. cutting, b. reverse cutting, c. taper point, d. spatula

They may also be classified as: (Table 3)

1. Round Bodied Needles (Figure 4)
- Intestinal
- Heavy needle
- Blunt point
2. Round Bodied/Cutting Needles (Figure 4)
- Trocar point
- Taper cut
3. Cutting Needles
- Conventional cutting (Figure 4)
- Reverse cutting (Figure 5)
- Slim blade (Figure 5)
4. Micropoint Needles (Figure 5)
- Reverse cutting
- Spatulated needles

Do's and Don'ts

- Use appropriate size of needle holder
- Needle should be grasped in an area about ½ to ¼ of the distance from swaged area
- Do not damage taper points or cutting edges when using the needle holder to pull out the needle
- Do not force a dull needle through the tissue- get a new one
- Avoid using eyed needles as it leaves large holes because of double suture it carries. Higher chances of needle loss
- Too many throws increases foreign body size which can cause stitch abscesses
- Intra-cuticular rather than subcuticular sutures causing hypertrophic scars
- Holding monofilament sutures with instruments reduces tensile strength by over 50%
- Holding butt of needle causes needle and suture breakage

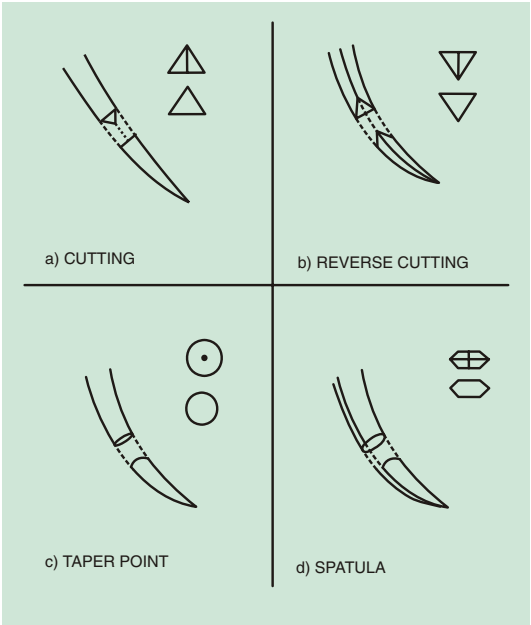

Figure 3: *Point configurations of a needle*

Table 3: Types of Needles				
Type of needle	**Design**	**Passage through tissue**	**Suturing outcome**	**Application**
Round Body	Designed to separate tissue fibres, rather than cut them	After the passage of needle the tissue closes tightly around it	Leak proof suture line	For soft, easily penetrable surgery
Round bodied/ Cutting needles • Trocar point • Taper cut	Trocar: cutting head which merges into robust round body. Taper cut: Initial reverse cutting tip with round body	produce the smallest hole of all needles penetrate with minimum resistance	Leak proof suture line, cut at the tip only and so are atraumatic	useful in iris repair and good for tough tissues like fascias, calcified or sclerotic tissue
Conventional cutting needles	have triangular cross section with apex on the inside of needle curvature, upto half length of needle	cut at tips and edges of the needle	suture canal extends superficial to path of the needle tip. They may pull out tissue during needle passage	used for skin, fascia, aponeurosis etc
Reverse Cutting	triangular in cross section, having the apex cutting edge on the outside of the needle	cut at tips and edges of needle	suture canal extends deep to the path of needle tip. Accidental perforations can occur	ideal for oculoplastic surgery/ suturing skin grafts, as the needle allows easy passage through epidermis
Slim Blade Needle	basically a small conventional cutting needle with an elongated cutting blade providing smooth controlled penetration			
Micropoint needles • Reverse cutiing • Spatula needle	have a thin, flat profile.	they cut at tip and sides parallel to the tissue plane	allow needle to split the tissue plane and avoid accidental perforation	specially used for ophthalmic anterior segment surgery

Sutures in Ophthalmology

Cataract

- 3/8 circle, spatulated needle; polyamide; monofilament

Squint

- ¼ Circle, Conventional cutting/spatulated, micro-point, coated vicryl, 6-0

DCR

- 5/8 circle, taper cut, 5-0 chromic catgut

Scleral fixatiom

- 10-0 prolene, 16 mm straight needle, double armed

Iris Repair

- 10-0 prolene, double armed, one straight needle, second needle curved micropoint/round bodied 3/8 circle needle

Buckling/Encirclage

- 4-0, Ethibond, with ¼ circle needle spatulated

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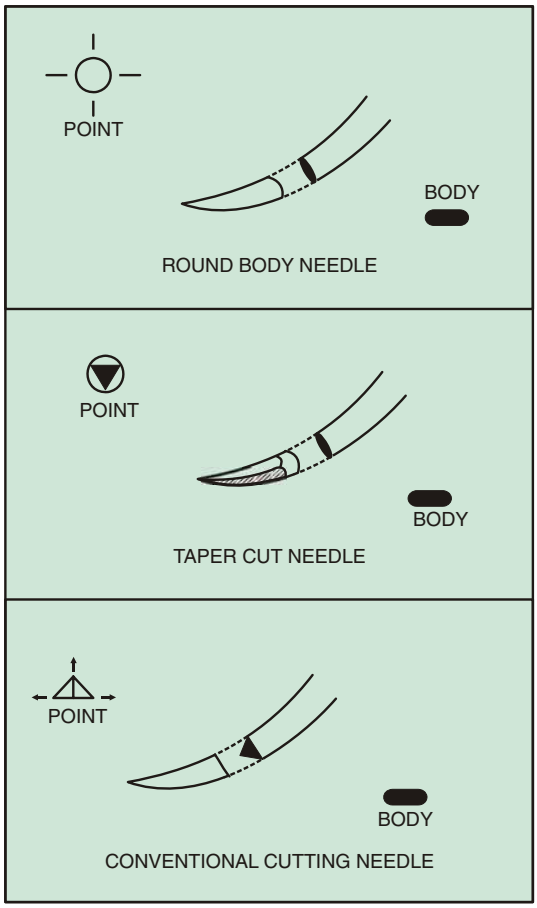

Figure 4: *Cross-section of various types of Needles I*

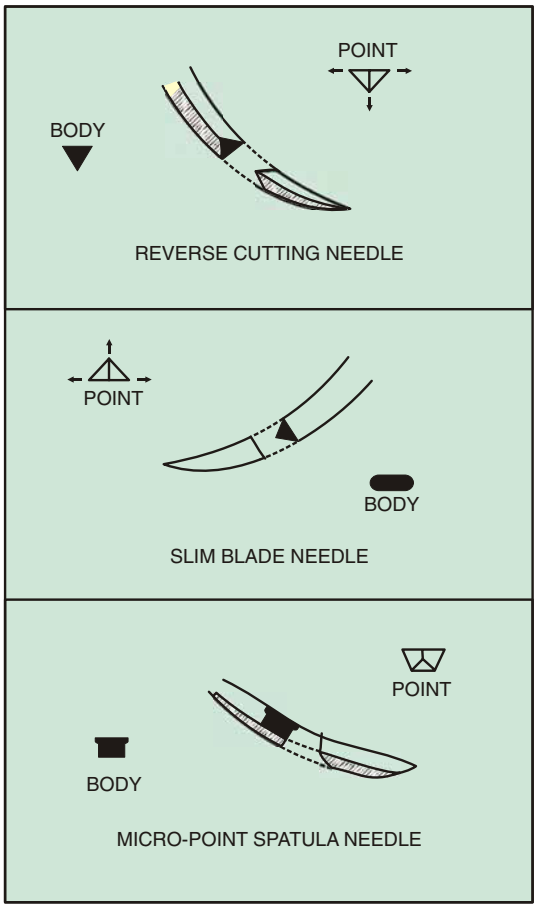

Figure 5: *Cross-section of various types of Needles II*

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Preservatives Used in Ophthalmic Preparations

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Drugs for various ocular diseases are most commonly prescribed as topical solutions or drops. An integral part of most of these formulations is a preservative. Preservatives are necessary in multidose containers to inhibit contamination by potentially pathogenic micro-organisms. It has been shown that bacterial contamination of a solution can occur if it is used at least twice daily for one or two weeks.[1] The preservatives also help in prolonging shelf life of the active drug by preventing biodegradation. Preservative-free drugs in multidose containers are more at risk of contamination, especially in elderly patients and with improper administration technique associated with fingertip touch.[2]

A preservative is said to be effective when it has passed the minimum standard of preservative performance which is usually tested by Preservative Effectiveness Test. In this test a standard concentration of common bacteria is prepared, and is tested against each preservative. The inoculated tubes are incubated at 20 or 25 degrees Celsius for four weeks and are examined weekly. The preservative is considered effective if there is reduction of the bacterial concentration to 0.1 percent or less of the initial concentration after two weeks and the concentration of yeasts and moulds is kept at or below their original concentration for the remaining two weeks.[1]

Preservatives used in ophthalmic solutions can be of various types such as detergent, oxidizing, and ionic-buffered preservatives. Some of the preservatives commonly used in the formulation of eye drops are benzalkonium chloride, EDTA, chlorobutanol, polyquaternium-1, polyhexamethylene biguanide, sorbic acid, stabilized oxychloro complex, sodium perborate, SofZia etc. Of these benzalkonium chloride is used in more than 70% of the ophthalmic solutions.

Benzalkonium Chloride

Benzalkonium Chloride (BAK), a quaternary ammonium compound, has been the gold standard of preservatives since it was first introduced to ophthalmology in the 1940s and still remains the most common antimicrobial preservative used in ophthalmic solutions. It is a highly efficacious preservative against a broad range of microbes. It also facilitates the penetration of the active drug into anterior chamber. It is chemically stable at variable temperature.[3,4]

BAK is a detergent type preservative; it alters the permeability of the microbial cell membranes resulting in leakage of the intracellular components and death of microbes.

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It rapidly kills a wide range of microorganisms and has also been found to be effective against adenovirus.[5] Its addition to an antibiotic solution further enhances the antibacterial actions of the antibiotic. For example , it enhances the potency of gatifloxacin and decreases the propensity to select fluoroquinolone-resistant *S.aureus* strains.[6,7,8] It improves the ocular penetration of a drug in a transscleral drug delivery system without producing toxic reactions.[9]

The concentration of BAK in a particular solution is one of the most important factors affecting patient's compliance in the treatment of primary open angle glaucoma.[10] It is well tolerated up to concentrations of 0.005%.[11] The levels of BAK used in ophthalmic solutions are not likely to cause significant direct toxicity to epithelium of corneae which are otherwise normal.[12] It doesn't appear to have significant adverse effects unless its frequency of use exceeds four to six times daily. Chances of toxicity increases with increase in concentration of BAK. Multiple number of eye drops used during a particular period also increases the exposure to BAK.

Ocular surface adverse effects may occur with the injudicious use of BAK containing formulations. The toxic effects of BAK are because of interference with the membrane function and energy production.[13] BAK induces ATP release and myosin light chain dephosphorylation in corneal epithelial cells. The dephosphorylation and impaired contraction of actin affects the normal cytoskeletal functions necessary for the maintenance of epithelial barrier integrity.[14]

Another mechanism of epithelial damage is the increase in apoptosis by BAK. Ocular cells repeatedly exposed to BAK can overexpress Apo 2.7, which is the the marker for apoptosis. The positive charge of quaternary ammonium surfactants is involved with onset of the apoptotic process.[15] Thymosin beta 4 has been shown to overcome the apoptotic side effect of BAK, and may be a useful additive to BAK containing solutions.[16] Short-term exposure to BAK has also shown to alter the precorneal mucin.[17]

The ocular surface adverse effects due to damage of the corneal epithelium by BAK, are most likely to be seen in the patients of dry eye syndrome, because these patients have already diminished secretion of natural tears and BAK in the drop instilled is not diluted sufficiently leading to stronger concentration than expected normally. The another factor responsible for these adverse effects in this group of patients is the increased likelihood by these patients to use the drops more frequently than prescribed.

Sorbate (sorbic acid)

Sorbic acid interferes with the microbial cellular function by causing acidification. It also depletes the microbial cell energy stores by activating energy dependent ion pumps. It has limited antimicrobial activity. Rarely punctate keratitis may result from the use of sorbate. It may be used for sensitive eyes and for contact lenses.[4]

Chlorbutanol

Chlorbutanol is an alcohol based detergent preservative having broad spectrum antimicrobial action. It works by altering the permeability of the microbial cell leading to cell death. Chlorbutanol is used as a preservative agent in artificial tears. It may cause corneal epithelial damage and ocular irritation. It can become unstable when kept at room temperature for prolonged duration.[3]

Polyquaternium-1

Polyquaternium-1 is a polymeric quaternary ammonium antimicrobial preservative derived from BAK. It is a detergent-type preservative. It has mainly antibacterial activity with less efficacy against fungi and amoeba. It can significantly decrease conjunctival goblet cells and the aqueous tear film production but the damage is superficial and the effect on corneal epithelial cells is less pronounced than with BAK.[18, 19]

Polyhexamethylene Biguanide

Polyhexamethylene biguanide (PHMB) is generally used in contact lens solutions. It acts by adversely altering the permeability of microbial cell wall. It also binds with the microbial DNA and causes DNA disruption by adversely affecting transcription.[20] It is highly efficacious against acanthamoeba. It is also effective against bacteria and to a lesser extent against fungi.

Edetate Disodium

Edetate disodium (EDTA) is a chelating agent and can help preserve a solution by binding to small amount of heavy metals. It also helps BAK synergistically in inhibiting gram positive bacteria when used in eye preparations.[21] Along with thiomerosal and BAK it has also been shown to be effective against Acanthamoeba trophozoites and cysts.[22]

Sodium perborate

Sodium perborate was one of the first oxidative-type preservatives to be used. It causes oxidative damage to microbial cell membranes, alters the protein synthesis, and disrupts enzymatic function. On coming in contact with aqueous environment, it releases hydrogen peroxide which is a potent microbicidal making this preservative effective at low concentrations. It has good antibacterial and antifungal activity. [3, 23]

Stabilized Oxychloro Complex

Stabilized oxychloro complex (Purite) is a relatively well tolerated, non-irritant preservative. It damages the bacterial protein synthesis by oxidative injury through its oxychloro molecules. It has a broad antimicrobial spectrum. It has also viricidal activity. When it comes in contact with light. It has good safety profile because it disintegrates into components such as sodium, chloride, water and oxygen which are normally present in tears.[23]

SofZia

SofZia is an ionic buffered preservative. It is composed of boric acid, propylene glycol, sorbitol and zinc chloride. Its mechanism of action is similar to oxidizing preservatives. The distinguishing feature is that it actively acts as a preservative in the container but becomes inactive after instillation into the eye when it is exposed to cations that are normally encountered in the tear film of the eye. This is thought to induce fewer corneal changes and less conjunctival inflammation compared with more conventional preservatives such as BAK.[3, 24]

But the solutions are not without problems

No molecule used to alleviate or help in alleviating the physical suffering comes without the risk of causing harm and preservatives are no exceptions. Though it is difficult to ascertain which of the various ingredients present in the solution could have caused the ocular surface adverse reaction, the preservative is most likely to be blamed for this. The damage by ophthalmic solutions to human corneal endothelial cells (HCECs), corneal epithelia and conjunctival epithelia has been shown to decrease in the absence of preservative.[25]

The reactions to preservatives can be irritant or allergic. Quaternary ammoniums (benzalkonium chloride) are most commonly associated with irritant toxic reactions whereas the organomercurials (thimerosal) and the alcohols (chlorbutanol) have the highest association with allergic responses. The allergy for the alcohols such as chlorobutanol also appears to be actually an irritant effect whereas the organomercurials may truly cause allergic reaction interacting as neoantigens with the immune system.[26]

In a study the order of decreasing toxicity of some of the commonly used concentrations was: stabilized thimerosal (0.0025%) > benzalkonium chloride (0.025%) > chlorobutanol (0.25%) > methyl paraben (0.01%) > sodium perborate (0.0025%) approximately EDTA (0.01%).[27]

Non-preserved solutions

Preservative free preparations as unit-dose eye drops are also being used nowadays . These preparations are safe to use in patients, especially with frequent dosing. They may be the better choice for immediate post-operative period, due to the increased viscosity and pH buffering. A study suggested that unit-dose eye drops remain free of microbial air contamination for up to 24 hours after the first opening.[28] Compared to preserved eye drops, preservative free eye drops are significantly less associated with ocular symptoms and signs of irritation.[29]

Data suggest that preservative-free antiglaucoma treatments have clinically relevant benefits for patients.[30, 31] Preservative-free beta-blockers may be preferable for long-term hypotensive therapy to prevent ocular surface inflammation. The use of preservatives in timolol 0.5% eye drops was seen to cause tear film instability and ocular surface inflammatory changes resulting in a reduction of breakup time and an increase of IL-1beta tear concentrations.[32]

The preservative-free drugs can definitely minimize the toxicity associated with chronic preservative exposure, but they have their own disadvantages. Non-preserved drugs are only available in unit-dose vials, which may be more difficult for a patient to use correctly. Unit-dose vials are also more expensive than multidose containers. These factors can affect compliance and can compromise the outcome of a therapy where strict adherence is needed to the long term treatment regimen.

Conclusion

In some ocular conditions ophthalmic preparations need to be administered for a longer time in order to safeguard their efficacy. In conditions like dry eye and glaucoma, medications may have to be administered for a long time. In such conditions prolong use of preservative may lead to changes in the pre-corneal tear film and may aggravate conditions like dry eye.

Potential better preservatives are being explored to get the ideal balance of full antimicrobial efficacy without any untoward effects. There is a trend towards moving away from the detergent type preservatives. The use of unit-dose bottles is on the rise. Despite having the advantage of being devoid of preservative toxicity, it doesn't need much imagination to see that preservative free vials cannot replace the multidose vials in routine long term therapeutic regimens. We can only maximize the benefits by avoiding over exposure and by attending to the ocular surface adverse reactions early and aggressively. Formulations with prolonged duration of action reducing the need for repeated dosing, should be preferred. Number of additional eye drops in a prescription should be minimized. Various factors such as the ease of administration, patient compliance, duration, number of preparations in the regimen and the cost of the treatment of ophthalmic agents should be considered for rationale prescribing of the specific ophthalmic preparations containing preservatives.

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An Unusual Case of Choroidoretinopathy

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A 66 years old female came with c/o watering and irritation >1 month for which she went to an ophthalmologist. Was told she had some problem in the L/E retina & started on oral and topical drugs (steroids), also given one sub-tenon injection L/E after a week of treatment.

She came to the operating surgeon for 2nd opinion with past h/o B/L uneventful cataract surgery. There was no h/o DV/ decreased field of vision/ pain/ redness/ flashes/ floaters/ night blindness/ high myopia/ photophobia/ trauma. Systemic history was not significant.

OS Ocular Examination

Anterior segment was WNL except for pseudophakia with intact posterior capsule. In fundus examination the disc is normal with few drusenoid deposits and ILM folds nasally at macula. There is a demarcation line seen below disc and macula. The inferior half of retina is atrophic with hyperpigmented and hypopigmeted changes, through which the choroidal vasculature can be seen. Retinal vasculature is normal. Superior half of retina is normal. These findings are very well evident in fundus angiography.

OCT macula shows thickened retina with ERM which is adherent to the underlying retina at places and RPE changes due to the drusenoid deposits.

Diagnosis

OS Pseudophakia with ARMD with macular ERM with spontaneously reattached retina inferiorly (Choroiditis???)

Discussion

There is Unilateral presentation with hemiretinal involvement of inferior half of retina and a clear demarcation line running horizontally below the disc & macula. No unifocal/ multifocal lesions seen.

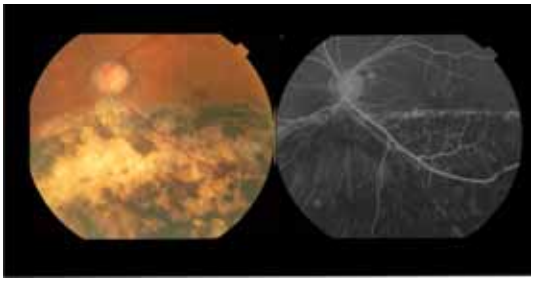

Figure 1: *OS Fundus photograph with corresponding FFA picture*

Bharti Eye Hospitals
Greater Kailash-I, New Delhi

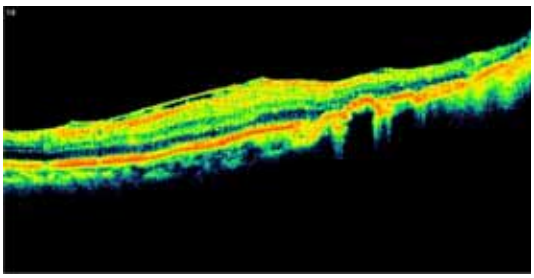

Figure 2: *OCT- Macula*

Shallow serous inferior RD spontaneously reattached, sometimes can happen in few people with or without any predisposing factors.

Inferior RD *- Detachment is shallow, and its upper boundary is bound down by chorioretinal changes, which constitute the most striking sign*

The reattached, flat retina is generally changed to a paler, yellow gray; choroidal markings are more distinct and irregular retinal pigmentation is present. Branching white subretinal lines may be present.

Conclusion

Spontaneous reattachment of RD should be included in differential diagnoses of patients with diffuse retinal pigmentary alterations within a sharply demarcated margin in unilateral eyes

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An Unusual Case of Electrocution Cataract

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A 7 year old male child first presented to us on 12 Dec 08 with decreased vision both eyes RE more than LE. The diminution of vision was gradual painless progressive for last 2 months. There was no history of wearing glasses, no family H/O refractive error There was h/o electric shock one year back on 25/11/07. He sustained electric burn injury of the left hand and scalp when he accidently touched a live transformer wire of 11,000 volts (high voltage) in his society complex. The child was treated for burn injury by the team of plastic and vascular surgeon. He suffered from gangrenous left upper limb (distal part) for which amputation was done at the mid arm level. Child was advised to wear upper limb prosthesis with yearly change.

Ocular Examination

- BCVA –RE 6/24 LE-6/6 P. Near vision-RE - N 36, LE- N6
- COVER TEST- orthotropic
- Extra ocular movements-WNL

Anterior segment examination

Lids, conjunctiva, cornea, iris ,pupils were WNL. LENS-RE revealed anterior and posterior sub capsular opacity. LE – revealed early anterior sub capsular vacuoles in the mid peripheral area.

Posterior segment- WNL

Based on the history of high voltage electric shock with scalp scar and amputated left distal upper limb Diagnosis of BE electrocution cataract RE>>LE was made.

Figure 1: *Child Rehabilitated After Catarct Surgery*

Paediatric Ophthalmology and Strabismus Services,
Center For Sight Group of Hospitals,
Safdurjung Enclave, New Delhi

His RE phaco- aspiration of cataract with IOL was done .His postoperative period was uneventful and his visual recovery in RE was 6/6 unaided and n/6 for near with add +3.0D, and he was advised for regular checkups. Five months later the child started having decrease vision in LE also, dilated anterior segment examination revealed anterior and posterior sub capsular cataract. Le cataract aspiration with IOL was done on 14/10/09.

Post operative period was uneventful and the child is on regular follow ups. Presently the child is having 6/6 VA for distance and near vision of N6 with add +3.0D.

Discussion

Electrical injuries are caused by alternating currents which fix the victim by tetanic spasms is more dangerous. Longer the duration of contact with high voltage, greater the tissue destruction. Current is most concentrated at the contact (entry) and ground points (exit) and the greatest destruction occurs at these points. A high voltage current in scientific definition is >1000 volts. In high voltage current accidents, the victim usually does not grasp the conductor. The high voltage current takes direct path instead a path of least resistance taken by low voltage current.

The earliest cataract reported with lightening shock was in 1722 by Saint Yves. A wide range of voltages 220-50,000, results in cataract

Figure 2: *Left Prosthetic Limb*

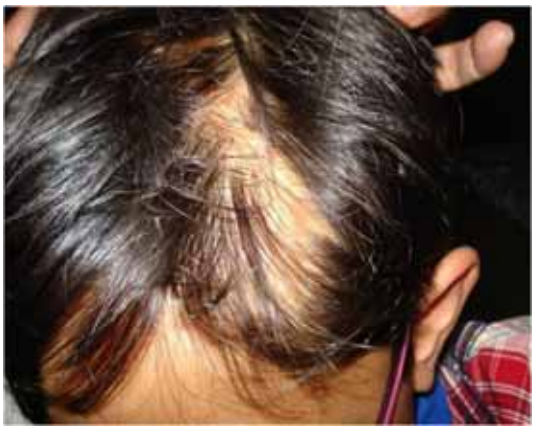

Figure 3: *Left Scalp Wound*

in 5%-20% cases of electric injuries. Latency period may be from immediate to years later.

Testicular as Lenticular

Proximity of injury to the eye. usually the same side is affected first but, is bilateral. The Proposed mechanism are Mechanical damage to lens fibres, Circulatory and nutritional disturbances (Kirbuchi et al), Change in permeability of lens capsule (Kuwabara et al). Protein coagulating effect. Exact pathogenesis of testicular opacification is unclear.

Anterior Segment Injuries

- Thermal keratopathy
- Uveitis
- Hyphema
- Anterior and posterior subcapsular cataracts,

Posterior Segment Injuries

- Retinal odema/dettachment/hemorrhage
- CME, lightening maculopathy, macular hole/cyst
- CRVO/CRAO
- Vitreous hemorrhage

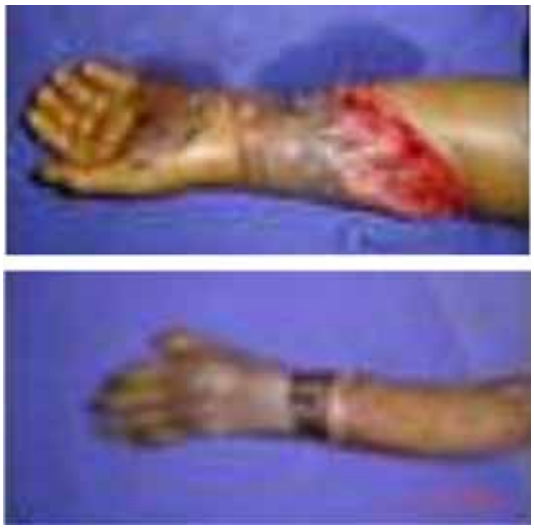

Figure 4: *Left Upper Limb Exit Wound*

Neurological Injuries

- Thermal pappilitis
- Optic neuropathy
- Anisocoria /loss of pupillary reflex
- Horners syndrome
- Multiple cranial nerve palsies
- Nystagmus

A general awareness needs to be created among medical practitioners. Every patient of electrocution injury once recovered from the initial burn trauma has to be referred to an ophthalmologist for comprehensive eye screening. A regular screening of these patients are required, as the latent period is variable for cataract development and regular screening ensures early detection of cataract and timely intervention. Both distance and near vision needs to be seen in children. Timely rehabilitation affects the quality of life!!!

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Persistent ocular hypertension following intravitreal bevacizumab and ranibizumab injections

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PURPOSE

To study ocular hypertension (OHT) following intravitreal injections of bevacizumab and/or ranibizumab in patients with age-related macular degeneration (AMD).

METHODS

Retrospective case series. Patients with AMD who were treated at a tertiary referral center with intravitreal bevacizumab and/or ranibizumab injections from January 1, 2006 to December 31, 2008 were studied. The development of OHT following these injections was investigated.

RESULTS

Four out of 116 patients with AMD (3.45%) developed sustained elevated intraocular pressure (IOP) after multiple intravitreal injections of bevacizumab 1.5 mg/0.06 mL and/or ranibizumab 0.5 mg/0.05 mL.

An analysis of 4 cases revealed: None of the patients had a previous diagnosis or family history of glaucoma/OHT. Two patients had both bevacizumab and ranibizumab injections. Two patients developed OHT after recent intravitreal ranibizumab and 2 patients after recent intravitreal bevacizumab injection. Two patients were pseudophakic with a history of YAG capsulotomy. The range of preinjection IOP was 8-15 mmHg (mean, 13 mmHg).

The range of postinjection IOP was 28-36 mmHg (mean, 31.75 mmHg). The range of IOP increase was 17-21 mmHg (mean, 18.75 mmHg). Mean number of pan-anti-VEGF injections prior to OHT was 13.3 (range, 3-19). A disrupted posterior capsule might predispose patients to the development of OHT.

CONCLUSIONS

Persistent OHT may occur after intravitreal anti-VEGF injection in patients with no previous diagnosis of glaucoma or OHT. OHT may persist across several visits and patients may require IOP-lowering therapy. Sustained elevation in IOP usually occurs after multiple injections.

Evaluation of VEGF and IGF-1 plasma levels in preterm infants—potential correlation with retinopathy of prematurity, clinical implications

MachaliÅ„ska A, Modrzejewska M, Dziedziejko V, Kotowski M, Safranow K, Herbowska A, Karczewicz D.

Klin Oczna. 2009;111(10-12):302-6.

PURPOSE

Insulin-like growth factor-1 plays an important role in fetal growth and development, and its level increases with gestational age. The latest reports show that IGF-1 can directly influence the production of VEGF and regulate the development of blood vessels. Thus, the aim of the study was to evaluate the plasma concentrations of IGF-1 and VEGF as well as analyze their mutual correlation in preterm infants with retinopathy of prematurity (ROP), compared with preterm infants without ROP and full-term babies.

MATERIAL AND METHODS

To address this issue, peripheral blood samples (PB) were analyzed and collected 10 weeks after delivery from: 25 preterm infants with proliferative stage of retinopathy of prematurity (ROP) and neovascularization (stage 3 or more advanced), 25 preterm infants without ROP, and 25 healthy full-term control infants. Plasma concentrations of VEGF and IGF-1 were measured using high-sensitivity enzyme-linked immunosorbent assay (ELISA) kits.

RESULTS

Increased concentrations of VEGF ($p < 0.05$), were found in the PB of the preterm infants with ROP compared with the preterm babies without retinopathy as well as with the full-term control infants, in whom the lowest levels of the growth factor were observed. The plasma concentrations of IGF-1 in the preterm infants were significantly lower than those of the full-term babies ($p < 0.001$). After adjustment for gestational age as a independent variable, a tendency to higher concentrations of IGF-1 was observed in the preterm infants with ROP.

CONCLUSIONS

Disturbances in the interactions of VEGF and IGF-1 at early stages of ROP, leading to uncontrolled increases in their levels in the proliferative phase of disease, can play an important role in the pathogenesis of retinopathy of prematurity.

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Newer Classification of Corneal Dystrophies

The International Committee for Classification of Corneal Dystrophies (IC3D) was developed to incorporate the traditional classification of corneal dystrophies with new genetic, clinical, and pathologic information. The anatomic classification continues to group dystrophies according to the predominant corneal layer involved. Each dystrophy carries a template summarizing genetic, clinical, and pathologic information. A category number from 1 through 4 is assigned depicting the level of evidence supporting the existence of the particular dystrophy.

Category 1	Category 2	Category 3	Category 4
Gene mapped; Specific mutations known.	Genetic locus mapped onto a specific chromosome; gene not identified	Well defined dystrophy; genetic locus not known	Newly described, suspected dystrophies; not established as distinct entities

The category assigned to a specific corneal dystrophy can be expected to change over time as knowledge advances.Eventually, all valid corneal dystrophies should attain the classification of category 1.

Genetics of corneal dystrophy

	Inheritance	Gene locus	Gene	IC3D Category
ANTERIOR CORNEAL DYSTROPHIES				
Meesmann dystrophy	AD	12q13	*KRT3*	1
Meesmann dystrophy	AD	17q12	*KRT12*	1
Stocker-Holt dystrophy	AD	17q12	*KRT12*	1
Granular corneal dystrophy type III (Reis-Bücklers dystrophy)	AD	5q31	*TGFBI*	1
Thiel-Behnke dystrophy	AD	5q31	*TGFBI*	1
Thiel-Behnke dystrophy	AD	10q23;q24	Unknown	2
Gelatinous droplike corneal dystrophy	AR	1p32	*TACSTD2 (M1S1)*	1
Subepithelial mucinous corneal dystrophy	AD	Unknown	Unknown	4
Lisch epithelial dystrophy	XR	Xp22.3	Unknown	2
Epithelial recurrent erosion dystrophy	AD	Unknown	Unknown	3
CORNEAL STROMAL DYSTROPHIES				
Macular corneal dystrophy	AR	16q22	*CHST6*	1
Granular corneal dystrophy type I	AD	5q31	*TGFBI*	1
Granular corneal dystrophy type II Avellino dystrophy	AD	5q31	*TGFBI*	1
Lattice corneal dystrophy type I and variants	AD	5q31	*TGFBI*	1
Lattice corneal dystrophy type II	AD	9q34	*GSN*	1
Fleck dystrophy	AD	2q35	*PIP5K3*	1
Schnyder corneal dystrophy	AD	1p34.1–p36	*UBIAD1*	1
Posterior amorphous corneal dystrophy	AD	Unknown	Unknown	3
Congenital stromal dystrophy	AD	12q13.2	*DCN*	1
POSTERIOR DYSTROPHIES				
Fuchs dystrophy (early onset)	AD	1p34.3	*COL8A*	1
Fuchs dystrophy (late onset)	AD	13pTel-13q12.13	Unknown	2
Fuchs dystrophy (late onset)	AD	18q21.2–q21.32	Unknown	2
Fuchs dystrophy (late onset)	?	20p13-p12	*SLC4A11*	1
Fuchs dystrophy (late onset)	?	10p11.2	*TCF8*	1
Posterior polymorphous dystrophy type 1	AD	20p11.2	Unknown	2
Posterior polymorphous dystrophy type 2	AD	1p34.3-p32.3	*COL8A2*	1
Posterior polymorphous dystrophy type 3	AD	10p11.2	*TCF8*	1
Congenital endothelial dystrophy type 1	AD	20p11.2-q11.2	Unknown	2
Congenital endothelial dystrophy type 2	AR	20p13-p12	*SLC4A11*	1
X-linked endothelial corneal dystrophy	XR	Unknown	Unknown	2

Reference: *Weiss JS, Møller HU, Lisch W et al The IC3D classification of the corneal dystrophies. Cornea. 2008 Dec;27 Suppl 2:S1-83.*

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