Ocular Surface Squamous Neoplasia(OSSN): The Small Malignancy that Looms at Large

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Summary: *The Ocular Surface Squamous Neoplasia (OSSN) is not an uncommon condition. The differential diagnosis of OSSN includes pterygium, pinguecula, papilloma, episcleritis, amelanotic nevus, malignant melanoma. The diagnosis of OSSN is mostly clinical and hence it becomes imperative to differentiate it from the relatively benign conditions. The management of OSSN is dependent on the clinical grading and depth of invasion of the neoplasia. Topical chemotherapy and surgical excision are the two modes of treatment in our armamentarium. Recent studies have shown an excellent response to topical Interferon α2b (IFN- α2b).*

The Ocular Surface Squamous Neoplasia (OSSN) is a broad term including conjunctival intraepithelial neoplastic lesions (CIN) and invasive squamous cell carcinoma (SCC) of conjunctiva and cornea[1]. CIN includes varying grades of dysplasia, ranging from mild, moderate, severe dysplasia to carcinoma in situ[2].Their importance lies in the fact that they can mimic benign lesions like pterygium or even chronic conjunctivitis.

The term Ocular Surface Squamous Neoplasia (OSSN) was coined by LEE and HIRST which has three grades:

I. Benign dysplasia:
   - Papilloma
   - Pseudotheliomatous hyperplasia
   - Benign hereditary intraepithelial dyskeratosis

II. Preinvasive OSSN.
   - Conjunctival/corneal carcinoma in situ

III. Invasive OSSN
   - Squamous carcinoma
   - Mucoepidermoid carcinoma

Morphologically there are three types of lesions gelatinous, nodular or diffuse[3].

CASE PROFILE

CASE 1

(Figure 1A) shows a small OSSN of pigmented variety measuring 3mm x 3mm and abutting the nasal limbus. Patient was started on Topical IFN- α2b (Inj. Relifer on where 0.5ml contains 3 million IU and is mixed with 2.5 ml solution of polyvinyl alcohol eye drops to obtain a final concentration of 1 million IU/ml) 4 times daily and clinical resolution was evident at 4 weeks and complete resolution occurred by 12 weeks (Figure 1B). The Topical IFN- α2b was then tapered off and the patient has remained asymptomatic without evidence of any recurrence since then.

CASE 2

(Figure 2A) shows another small OSSN of pigmented variety measuring 4mm x 4mm on nasal side. Patient was started on same Topical IFN- α2b regimen and clinical resolution was evident at 6 weeks (Figure 2B) with complete resolution by 12 weeks (Figure 2C).

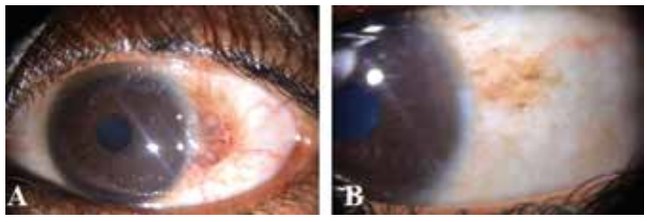

Figure 1A: *Small OSSN of pigmented variety measuring 3mm x 3mm and abutting the nasal limbus.* ***Figure 1B:*** *Complete resolution at 12 weeks.*

Figure 2A: *Small OSSN of pigmented variety measuring 4mm x 4mm on nasal side.****Figure 2B:*** *Clinical resolution was evident at 6 weeks.* ***Figure 2C:*** *Complete resolution by 12 weeks.*

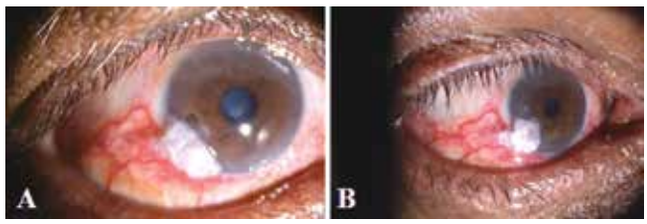

Figure 3A: *Small OSSN measuring 6 mm x 4mm which also involved the cornea.* ***Figure 3B:*** *No improvement even after 12 weeks of topical immunotherapy.*

CASE 3

(Figure 3A) shows a patient who had a small OSSN measuring 6 mm x 4mm which also involved the cornea. Patient was started on Topical IFN- α2b 4 times daily using same regimen. However even after 12 weeks, the improvement was minimal (Figure 3B). It was excised en-bloc using no-touch

technique and histophathology proved it to be microinvasive squamous cell carcinoma. Patient was given adjuvent chemotherapy in the form of topical Mitomycin C and there is no evidence of any recurrence even after 6 months of treatment.

COMMENT

The IFN- α2b is low-molecular weight glycoprotein, produced by leukocytes, has antineoplastic and antiviral properties[4]. IFN- α2b can be administered via topical drops, subconjunctival injections or intralesional injections. Topical IFN- α2b is preferred for OSSN, which are relative thinner, for complete tumour control (immunotherapy) while combination therapy with topical and injection IFN- α2b is used for partial reduction of thicker and extensive OSSN (immunoreduction).

With topical application, clinical resolution usually takes place with a mean treatment time of about 12 weeks. Subconjunctival injection combined with topical IFN- α2b for noninvasive OSSN has a faster time to resolution, about six weeks.

A typical regimen consists of topical IFN- α2b drops with a concentration of 1-3 million IU/mL, applied four times daily; or subconjunctival injections of 3 million IU/0.5 mL, administered weekly. Intralesional IFN- α2b (10 million IU/ml) has been used in giant OSSN (≥6 limbal clock-hours).

Topical IFN- α2b application leads to complete resolution with good prognosis in most Benign and Pre-invasive OSSN i.e. Type I and II. In Invasive i.e Type III or very large pre invasive OSSN a trial of topical chemotherapy should be attempted, which may reduce the size of the lesion making it amenable to complete surgical excision.

REFERENCES

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