Ocular surface squamous neoplasia (OSSN) comprises a wide spectrum of dysplastic alterations of the squamous epithelium of the surface of the eye, e.g. the cornea and the conjunctiva ranging from "precancerous" lesions to bona fide invasive carcinoma. In the former case they are classified as carcinoma-in situ lesions in conjunctival-corneal intra-epithelial neoplasia (CCIN) and in the later in invasive squamous cell carcinoma (SCC). The clinical presentation of Ocular surface squamous neoplasia (OSSN) varies across a wide spectrum and is classified based on the degree of epithelial and stromal infiltration. The epithelial infiltration can range from mild to severe dysplasia to full-thickness epithelial dysplasia (carcinoma in situ) and invasive squamous cell carcinoma, when tumor cells invade through the epithelial basement membrane and into the conjunctival and or corneal stroma.

Various terms were used to describe these neoplasms, including epithelial plaque, Bowenoid epithelioma, and precancerous epithelioma. Pizzarello and Jakobiec proposed a terminology that parallels the gynecologic pathology terms for intraepithelial neoplasia. They classified conjunctival intraepithelial neoplasms as mild, moderate, and severe dysplasia based on the extent of involvement. Lesions that involve the basal one-third of the conjunctiva are classified as mild, those involving the inner two-thirds are classified as moderate, and lesions that are full thickness are termed severe dysplasia. OSSN is reported to be a relatively common neoplasia of the ocular surface, particularly in areas with high ultraviolet light B rays exposure. Other risk factors have been reported to be advanced age and male sex, mutation of the p53 tumor suppressor gene, immunosuppression in organ transplant recipients, smoking, and in some settings, HPV infection. In Africa, OSSN is lately more commonly reported. It seems to be more aggressive, and more likely to affect young people, especially females. In parallel with the dramatic increase of HIV in Africa, several countries have noted a sharp rise in the incidence of OSSN in HIV infected individuals. OSSN is currently the most common ocular tumor among adults in Africa.

**Therapeutic options:** Surgical excision is the traditional therapy for OSSN. Surgical excision involves excision of the lesion with wide surgical margins. Surgery can be followed by adjunctive cryotherapy to reduce the recurrence rate. Recurrence rates after surgical excision have been reported as high as 33% with clear surgical margins and of up to 56% with positive surgical margins. Due to the reported high recurrence rates, adjunctive medical interventions for OSSN have been proposed. Local medical therapy has the advantage of treating the entire ocular surface, avoiding wide excision, which poses the risk of stem cell deficiency and long term ocular surface problems. Mitomycin C, 5-fluorouracil, and interferon alpha 2b have been found to be effective in the management of OSSN. IFNa2b drops are well tolerated and have minimal side effects. On the contrary Mitomycin C eye drops usually cause epithelial toxicity, reactive conjunctivitis, photophobia and severe discomfort. Therefore a local chemotherapy regime is usually preferred usually as one week on, and then one week off, that gives opportunity for corneal and conjunctival epithelial regeneration and recovery. IFNa2b drops generally are well tolerated when used 4 times daily until tumor resolution. A drawback to treatment with IFNa2b drops, however, is that the time to tumor resolution can be prolonged. Reduction of recurrences with the post-operative use of topical mitomycin C has been published. Once the histopathological diagnosis of OSSN has been established after excision of the suspected lesions, adjuvant medical therapy is advised irrespective of whether or not the surgical margins are positive.

It has been proposed that the presence or absence of positive surgical margins has no predictive ability with respect to the likelihood of developing recurrent tumors in the absence of adjuvant therapy. This suggests that equal concern is required for postoperative management of tumors that have been histopathologically reported having clear margin resection (R0) and those having tumor infiltration in the resection margins (R1). The demonstration that adjuvantive therapy with mitomycin C greatly reduces the recurrence rate with positive surgical margins and significantly reduces the recurrence rate in those with negative margins suggests that such treatment should be provided in all histopathologically confirmed cases of intraepithelial neoplasia. The intraoperative use of mitomycin C (such as in glaucoma surgery) has also been proposed to reduce the recurrence rate. This observation warrants further investigation in a prospective clinical trial before a recommendation can be made as to whether or not it should replace the postoperative use as the treatment of choice for the disorder.

Several reports have also confirmed the clinical efficacy of topical 5-FU in the treatment of preinvasive ocular surface neoplasia. The 1% dose of 5-FU used in clinical studies appears to be well-tolerated in the vast majority of patients. These authors used 5-FU four times daily for 14–21 days cycles with no long-term side effects. Milena demonstrated that topical chemotherapy with 5-FU alone was effective in eradicating OSSN in patients without major and/or long-term side effects. In addition, 5-FU may have a more favorable side effect profile than topical mitomycin C, although more studies are needed to validate this potential advantage.

**References:**


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