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Cytological Features After Mitomycin C Therapy for Primary or Recurrent Ocular Surface Squamous Neoplasia

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Purpose: To evaluate the cytological features of the corneal-conjunctival epithelium after topical Mitomycin C (MMC) therapy, a chemotherapeutic agent for ocular surface neoplasia, by impression cytology (IC). **Methods**: Corneal-conjunctival IC was performed after topical anesthesia with an acetate cellulose paper in patients who were treated with 0.02% topical MMC qid for 2 to 4 weeks for primary or recurrent corneal-conjunctival intraepithelial neoplasia (CCIN) or squamous cell carcinoma (SCC). Patients were divided into 2 groups: Group I: patients with primary CCIN with atypical cells proven by IC and Group II: patients with recurrent CCIN or SCC with previous surgical excision. All patients underwent clinical evaluation after topical treatment. IC specimens were obtained from 5 days to 18 months following MMC therapy and were analyzed under microscopy after PAS, HE and Papanicolaou staining. **Results**: 19 patients were included, 8 patients on Group I and 11 on Group II. The mean age was 58,6 yo in group I and 51,8 yo in group II. One patient of group I and all patients of group II had clinical suspicion of recurrence after MMC. On group I, squamous metaplasia with decreased nuclear/cytoplasmic ratio (N/C) and goblet cell loss was observed in all subjects after therapy and all eyes were free of atypical cells, except the one who had clinical signs of recurrent disease. On group II, atypical cells with increased N/C ratio suggesting persistent neoplasia were observed in 9 patients and squamous metaplasia with goblet cell loss was exhibited in 7 patients. Cytomegaly with normal N/C ratio, cytoplasmic vacuolation, binucleation and multinucleation were observed in rare cells after 15 to 30 days MMC end in 2 patients of each group. Inflammatory cell infiltration was absent on group I and was observed in 5 patients on group II. **Conclusion**: Cytomegaly and cytoplasmic vacuolation can occur in the ocular surface epithelium after MMC therapy for primary or recurrent squamous neoplasia. N/C ratio of epithelial cells did differentiate MMC-related changes from dysplastic or malign cells. IC can confirm persistent neoplasia after MMC treatment of recurrent tumors.