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Role of Toti's Procedure with Adjunctive Use of Mitomycin C in Management of Unsuccessful Dacryocystorhinostomy (DCR)

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ABSTRACT
AIM: *Prospective study to assess the success rate of repeat Dacryocystorhinostomy (DCR) surgery done with Mitomycin C (MMC) syringing on first postoperative day.*
METHOD: *43 patients qualifying inclusion criteria for repeat DCR were included. On first postoperative day sac syringing with 1 ml of 0.2mg/ml MMC was done in newly formed passage and near bone osteum. These patients were followed up for one year.*
RESULT: *Out of 43 patients, 42 patients were symptom free and patent on syringing at the end of follow up period of 12 months.*
CONCLUSION: *Result suggests that our modified technique had high success rate and reliability.*
KEY WORDS:- *Toti's procedure, Dacryocystorhinostomy, Mitomycin C.*

INTRODUCTION

Dacryocystorhinostomy (DCR) is among the common oculoplasty surgeries performed for managing epiphora due to nasolacrimal duct obstruction. In different study series, the frequency of recurrent epiphora after DCR surgery is reported as 5% to 17% [1]. However, there is always a possibility of failure. For revision surgeries, use of Mitomycin C and creating a proper osteum are the most important factors for a successful surgery. As a result, the repeat-DCR procedure, is recommended as highly appropriate revision surgery for failed DCRs, has a high success rate, strengthened by Mitomycin C and creation of a proper osteum.

AIM: A prospective study to assess the success rate of repeat DCR surgery by Toti`s rhinostomy with Mitomycin C syringing of first postoperative day in newly formed passage for the treatment of failed DCR.

METHODS

43 consecutive patients (male 21, female 22) qualifying in inclusion criteria for repeat DCR were included. Patients of failed DCR with a positive ROPLAS, above the age of 16 years, patent upper, lower and common canaliculus were included in the study.

Patients with acute attack, history of nasal or orbital trauma, with canaliculus obstruction and with any nasal pathology causing epiphora were excluded. Patients with diabetes, hypertension and coronary arterial disease were excluded.

Skin incision was made through the original scar. Intervening scar tissue was excised and 8mm Arruga bone trephine was used to make osteum in lacrimal bone and passage in nasal mucosa. Methylene blue was used to recognize sac. Remaining medial half of the sac and upper portion of the nasolacrimal duct were removed so that the lateral half of the sac remains as a disc with punctum in its middle. If the common canaliculus was obstructed, it was intubated, passed through newly formed passage and secured within the nose. Orbicularis and tendon were repositioned with an absorbable suture, and the skin was closed with an interrupted nylon sutures. On first postoperative day sac syringing with 1 ml of 0.2mg/ml MMC was done in newly formed passage and near bone osteum. These patients were followed up for one year. The success criteria were symptomatic relief from epiphora and a patent nasolacrimal duct upon syringing.

RESULTS

42 patients were symptom free and patent on syringing out of 43 patients at end of follow up period of one year. The study was done during the period of March 2012 to February 2016.No noticeable conjunctival and corneal complications observed during intra operative, postoperative or during follow up period were noticed. Two cases of epistaxis were seen, which was relieved by nasal packing.

DISCUSSION

One of the most frequent causes of DCR failure is obstruction closure of the osteotomy site [2]. If the failed DCR surgery was an external DCR (E-DCR) it was obviously harder to recreate flaps than for the other failed DCR techniques, because of the existence of granulation and fibrotic tissue. They have excessive granulation tissue at the surgical area, especially surrounding the sac and previous flaps. Repeat external DCR surgeries have reported 85% anatomical success and 78% both anatomical and functional success[3]. Our success rate is compatible with that of primary operated DCR. In previous failed E-DCR, Emine A et al detected excessive granulation tissue at the operation site as the main reason for failure [4]

MMC is widely used systemically for the treatment of malignancies, and has gained popularity as topical adjunctive therapy in ocular and adnexal surgery over the past 2 decades. In ophthalmic medicine, it is principally used to inhibit the wound healing response and reduce scarring of surgically fashioned ostia. Hence, it has been used as adjunctive therapy in various ocular surgeries, such as glaucoma filtering surgeries, dacryocystorhin-ostomy, corneal refractive surgery and surgeries for ocular cicatrisation [5]. Thus, if we can inhibit fibrous tissue growth and scarring by applying anti proliferative agents over the osteum and nearby site, the failure rate may be decreased. Because of the known anti fibroblastic properties of MMC, It was used in the study. MMC is effective even if applied 0.2mg/ml for 30 seconds [6]. A single topical application has measurable effect on cell proliferation and cellular morphology for up to 36 hours. External-DCR, when compared with endo nasal endoscopic DCR (EESC-DCR), appears to give a higher, although not statistically significant, primary success rate [7, 8].

CONCLUSION

Our result has 97.65 % success. Under H0, i.e. P1 = P2 the value of the test statistics Z was calculated and found to be more than 2, which means H0 is to be rejected in favour of alternative, p1>p2 at level of significance 0.05 (p value< 0.05). So, statistically our result was superior to the earlier result.

So, we can conclude that failed external DCR can be easily managed by simple Toti's procedure with adjunctive use of Mitomycin C (MMC).

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