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RESEARCH ARTICLE

ROLE OF SILICON STENT IN ENDOSCOPIC DCR

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ABSTRACT

Endoscopic DCR is preferred for its scarless, minimally invasive technique. Many modifications including placement of silicon stents has been done over the years to reduce the recurrence. Endonasal endoscopic and External DCR approaches have their own advantages and disadvantages. Endoscopic DCR is one of the several techniques to unblock the nasolacrimal duct. **Methods:** our study included 40 patients with epiphora having obstruction in the nasolacrimal duct. All the patients underwent Endoscopic DCR with silicon stent placement. Patients were followed postoperatively for a period of 6months -2 years. **Results:** Results of my study were compared with endoscopic DCR without stent and classical external DCR. We found that DCR with stent had less chances of recurrence and synechia formation. Results at 2 year follow up have been good with more than 90 percent symptoms relieved completely. **Conclusion:** Endoscopic DCR is a safe, cast effective alternative for external DCR in patients with nasolacrimal duct obstruction. We found that endoscopic DCR with stent had several advantages over more conventional external approach.

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INTRODUCTION

With the introduction of high resolution endoscopes, endoscopic endonasal DCR has begun to gain the popularity. Endoscopic DCR is proposed to be an alternative surgery to the external DCR operation in cases chronic dacryocystitis (Rice, 2010). Endoscopic DCR is indicated for patients diagnosed with nasolacrimal duct obstruction (Onerci et al., 2000). This can be caused by chronic stenosis (post saccal) of the nasolacrimal duct and can be congenital or acquired (Sprekelsen and Barberan, 1996). Nasolacrimal duct obstruction is a common but not serious condition (Mhapankar et al.). Presenting symptoms include excessive epiphora (tearing) and dacryosystitis (infection). Usually these cases have been refractory to conventional treatment such as warm compresses, massage and probing the nasal passage (Mladina et al., 2001). If NLDO is left untreated, these symptoms persist and may cause embarrassment to the patient (Ali and Ahmad). There seems to be greater prevalence in the elderly women than men. Sprekelsen et al. 1996 hypothesized that long term use of cosmetics may be an important factor (Sprekelsen et al. 1996). Platner in 1724, described the techniques of treating chronic dacryocystitis. Toti in 1904, introduced the technique of external DCR for patients with chronic dacryocystitis. Caldwell was the first to describe intranasal DCR in 1893. Mc Donough and Meiring described the endoscopic transnasal DCR.

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MATERIAL AND METHODS

A prospective study was conducted in the department of ENT Dr Ulhas Patil medical college Jalgaon from Jan 2016 to Jan 2019 in 40 patients. Complete ophthalmic and ENT examination was carried out in all the patients. Complete ophthalmic examination with emphasis on lacrimal sac and punctum, eyelid, conjunctiva, and corneal status. Diagnosis of chronic dacryocystitis was established by reflex of mucoid and mucopurulent discharge from the punctum on gentle pressure on the lacrimal sac. All the patients underwent syringing after instilling 4% xylocaine drops in the fornix for 3-5 minutes. Patients who had nasolacrimal duct obstruction were selected for the study. Meticulous ENT examination with special emphasis on the rhinitis, sinonasal polyposis, deviated nasal septum, hypertrophied turbinates, concha bullosa, tumors. Radiological examination including x-ray PNS and computed tomography nose and PNS was done. Endoscopic DCR was performed by the classical PJ Wormald technique. All the surgeries were done under local anesthesia. Nasal pack impregnated with 4% lignocaine and adrenaline (1:100000) solution was put in the nasal cavity prior to the procedure. Patient was kept in supine position with diseased eye of the patient were left uncovered. Anterior ethmoidal nerve block was given. Lateral wall of nose anterior and above the axilla of middle turbinate was infiltrated with 2% lignocaine and 1:100000 adrenaline solution. 0 degree, 4 mm endoscope were used for the procedure. C shaped incision was made using sickle knife in front of anterior attachment of middle turbinate. Posterior based mucoperiosteal flap was elevated using a

Freers elevator. Frontal process of maxilla, lacrimal crest and lacrimal bone exposed. The junction between the lacrimal bone and lacrimal crest was identified. Lacrimal crest was punched using the Kerrysons bone punch. Lacrimal sac was widely exposed after widening the bony defect above the axilla of middle turbinate. Punctum dilator was used to dilate the superior and inferior puncta. Tenting effect caused by the lacrimal probe the lacrimal sac was confirmed endoscopically. Vertical incision was given on the medial wall of the sac. Perpendicular cuts were made over both ends of the vertical incision taking care not to injure the lateral wall of the sac. Medial wall of the sac was completely marsupialised. Lacrimal intubation set were passed through superior and inferior puncta to bring the attached silicon stent through the common canaliculus which was tied in the nose. The mucoperiosteal flap was divided into two halves and placed over the inferior turbinate. A betadene soaked ANP was kept in the corresponding side of nose which was removed after 48 hours. Antibiotic eye drops were started. Follow up was done at 1 week post surgery and every 15 days for next three months, then monthly for six months and yearly thereafter. Stoma was checked endoscopically on follow up visits. Silicon stent was removed after 6-7 weeks.

RESULTS

In our study following observations were made. Out of 60 patients 33 patients were females and 27 were males. Majority of the patients were aged 40 -50 years. There were 29 newly diagnosed cases, 16 revision cases and 15 patients hav undergone external DCR. We observe that rt sided dacryocystitis was more common about more than 58 percent followed by left sided dacryocystitis about more than 25% followed by bilateral disease about more than 6 %.



Figure 1. Showing placement of silicon stent

The most common cause of revision was synaechiae formation or small stoma. Follow up period ranges from 6 months to 2 years. There were no major complications. More than 90 percent of patients have complete relief of symptoms at the end of the study. We observe at the end of the study the placement of stent and regular follow up will reduce the number of revision cases.



Figure 2. Exposure of lacrimal sac

DISCUSSION

Dacryocystitis is an inflammation of lacrimal sac leads to obstruction at the junction of the sac and nasolacrimal duct. Females are affected in 80 percent of cases. Rarely seen in males. Most patients are seen in third or fourth decade of life. Epiphora is commonest presentation seen in all cases of NLD block and chronic dacryocystitis. Mucoid or mucopurulent discharge from the medial canthal region are seen in most of the cases. Surgical scar mark on the face is one of the limitations of external DCR and as we know dacryocystitis is highly common in females so cosmesis is also very important to aspect to look. With the advancement in endoscopic surgery, nowadays endoscopic DCR is commonly performed in cases of nasolacrimal duct block and chronic dacryocystitis. Silicon stent has been proposed to maintain the patency of tract during postoperative period. Tan et al in their study observed that surgical outcome depend on the ostium size and the significant shrinkage of ostium happens in first 4 weeks post surgery (Tan Neil *et al.*, 2009). The extent of lacrimal sac exposure and size of ostium are the key points that determine the long term patency, (Ben Simon *et al.*, 2005) Wormald, in his study said adequate exposure of the lacrimal sac requires exposure above the level of the axilla of the middle turbinate using a drill to ensure surgical success Endoscopic DCR with stenting has many advantages as compared to conventional DCR. -avoids facial scarring, non division of medial canthal ligament, minimal tissue damage, preservation of lacrimal sac pump action, can be performed as a day care procedure under local anesthesia, reduced operative time, reduced morbidity, simultaneous treatment of the other nasal pathologies like deviated nasal septum and last but not least is cost effective. During the study we observe that the failure of endoscopic DCR especially in cases without stent placement was due to granulations or fibrosis, scarring of stoma, inadequate exposure of the lacrimal sac, damage to the lateral wall of the

lacrimal sac causing scarring and impaired canalicular function. Silicon stent placement can be done for patients with canalicular obstruction as well.

Conclusion

In endoscopic DCR placement of silicon stents maintain the patency of the canalicular function. Good results of endoscopic DCR lies in adequate exposure of the sac, wide stoma, meticulous follow up to look for synechiae or granulation and by treating intranasal pathologies simultaneously. Endoscopic DCR is a cost effective and a safe alternative for external DCR in patients with nasolacrimal duct obstruction. Good surgical outcome in our study was because of regular follow up.

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