

RESEARCH ARTICLE

PROSPECTIVE RANDOMIZED COMPARATIVE STUDY OF EXTERNAL DACRYOCYSTORHINOSTOMY AND ENDONASAL ENDOSCOPIC DACRYOCYSTORHINOSTOMY

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ABSTRACT

Aims and objectives: To compare the success rate and complications between external and endonasal DCR.

Materials and methods: The study included 50 cases in 49 patients. They were randomized into 2 groups. Group A for external DCR and group B for endonasal DCR. Post op evaluation was done after 1st & 2nd week and 2nd & 3rd month for presence or absence of watering or discharge and patency of sac was assessed by syringing.

Results: We had equal success in group A and group B of 22 cases each (88%). Most common cause of failure in group A was excessive scarring whereas in group B was obstruction of rhinostomy by granulation tissue.

Discussion: The primary success rate with external or endonasal DCR is found to be the same. The complications in both the procedures were very few and occurred at a very low rate.

Conclusion: Both methods represent good alternatives of treatment for Primary nasolacrimal sac and duct obstruction or chronic dacryocystitis..

Key Words: Dacryocystitis, Dacryocystorhinostomy, Scarring, Nasolacrimal duct

INTRODUCTION

Lacrimal system starts with lacrimal gland situated in dorsolateral part of orbital cavity and drains into conjunctival sac via many excretory ducts (Clemente *et al.*, 1985). The tear film serves as a blanket of moisture over corneal surface preventing dryness of eyes. Blinking causes tear collection at the medial canthus. Orbicularis oculi and lacrimal muscle relaxation directs fluid from puncta and canaliculus into the lacrimal sac as a negative pressure is created in it. Contraction of these muscles causes fluid to be pushed into NLD situated in the anterolateral wall of nose passing anteroinferiorly and opening into inferior meatus. Epiphora can result due to lacrimal pump failure or intraluminal or extraluminal obstruction of NLD.

Stasis of secretions causes inflammation of duct. Recurrent blockage causes complete adhesions and permanent blockage, resulting in dacryocystitis. The traditional surgical approach to distal obstruction of the nasolacrimal duct system has been by external skin incision described by Addeo Toti in 1904. The lacrimal sac is opened into the nasal cavity by suturing the mucosal flaps. The presence of cutaneous scar, CSF rhinorrhea and functional interference with lacrimal pump are a few disadvantages of this procedure. Intranasal DCR was described by Caldwell in 1893. It further improved with the use of endoscopes. Complications are rare and post op hemorrhage is almost nil.

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MATERIALS AND METHODS

Prospective randomized comparative study of external dacryocystorhinostomy and endonasal endoscopic dacryocystorhinostomy was carried out in Goa Medical College, Bambolim. The study included 50 cases in 49 patients. They were randomized into 2 groups. Group A for external DCR and group B for endonasal DCR. All symptomatic epiphora cases diagnosed for primary nasolacrimal sac or duct obstruction or chronic dacryocystitis were included. Patients excluded were those with canalicular obstruction, eyelid abnormalities, post trauma, post radiotherapy and failed DCR. A detailed ocular and anterior rhinoscopy examination was done preoperatively. The patency of NLD was assessed by lacrimal syringing. Routine blood and urine investigations were done for all patients. All patients underwent dacryocystography. Pre op topical ciprofloxacin and nasal decongestants were given to all patients for one day.

Technique of external DCR

Procedure was done under local anesthesia. A curvilinear incision was given medial to angular vein. Orbicularis muscle was separated and fascia incised. Lacrimal sac was exposed and separated. Periosteum was incised at anterior lacrimal crest and bone punched out. An anterior nasal mucosal and lacrimal sac flap was raised and sutured to each other.

Technique of endonasal DCR

Procedure was done under general anesthesia. A posteriorly based nasal mucosal flap was elevated exposing the transnasal

portion of maxilla and lacrimal bone. Anterior lacrimal crest was punched out and lacrimal bone removed exposing the Lacrimal sac. The sac was confirmed by probing through lower punctum and watching for tenting of medial wall of sac. The sac then incised with sickle knife and the anterior and posterior flaps of medial wall of the sac were punched out and marsupialised into lateral wall of nose. Post op evaluation was done after 1st & 2nd week and 2nd & 3rd month for presence or absence of watering or discharge and patency of sac was assessed by syringing.

RESULTS

The success rate was defined by reestablishment of a patent nasolacrimal duct system. We had equal success in group A and group B of 22 cases each (88%). Most common cause of failure in group A was excessive scarring (8%) whereas in group B was obstruction of rhinostomy by granulation tissue (8%).

DISCUSSION

The primary success rate with external or endonasal DCR is found to be the same which is comparable to studies conducted by Karim *et al.*, 2011 and Zaidi *et al.*, 2011. Early studies have proven that ocular origin for inflammation of lacrimal system is less common than a nasal origin. The most common causes being ethmoidal sinusitis, maxillary sinusitis, hypertrophied turbinates, high septal deviation and acute infection in nasal cavity (Garfin, 1942). In our study 10 cases (20.4%) had deviated nasal septum, 2 cases (4%) with middle turbinate hypertrophy, 4 cases (8.2%) with deviated nasal septum and inferior turbinate hypertrophy and 2 cases (4%) of deviated nasal septum with spur. In our study the commonest cause was idiopathic, nasal origin being less common.

Complications

in both the procedures were very few and occurred at a very low rate. In external procedure they were namely hemorrhage,

accidental entry into ethmoidal cells and in endoscopic procedure they were hemorrhage and intra nasal synechiae. Failure was considered if epiphora reoccurred or the lacrimal passage was found to be blocked after lacrimal syringing. These patients underwent nasal endoscopy. In group A, 2 patients ie 8% of failed cases showed synechiae formation between inferior and middle turbinate and septum and 1 case showed closed and inferiorly located ostium. In group B, 2 patients ie 8% showed obstruction at rhinostomy site by granulation tissue and 1 case showed collapsed and fibrosed sac.

CONCLUSION

Both methods represent good alternatives of treatment for primary nasolacrimal sac and duct obstruction or chronic dacryocystitis as their success rates are comparable and complication rates are minimal.

REFERENCES

- Clemente, C.D., Lea and Febige. 1985. Gray's anatomy of the human body, 30thedn, Philadelphia.
- Toti, A. 1904. Nuovo Metodo Conservatore di curaradicalmente le suppurazioni croniche del sacco lacrimale; 10: 385-387.
- Caldwell, G. 1893. American Journal of Ophthalmology; 10: 189-193.
- Ghabrial, K., Lynch, T.F. and Tang, B. 2011. A comparison of external and endoscopic endonasal dacryocystorhinostomy for acquired nasolacrimal duct obstruction, Clinical Ophthalmology, 5: 979-989.
- Zaidi, F.H., Symanski, S., Olver, J.M. and Eye. 2011. A clinical trial of endoscopic vs external dacryocystorhinostomy for partial nasolacrimal duct obstruction, 25: 1219-1224
- Garfin, S.W. 1942. Etiology of dacryocystitis and epiphora, arch ophthalmol, 27: 167-188.
