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Research Article

Failed Dacryocystorhinostomy – Dealing with care to succeed!

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Abstract: Most of the workers have reported a very good success rate of dacryocystorhinostomy (DCR) operation. We have discussed the technique of re-operation in patients with previously unsuccessful DCR in our prospective study where 39 cases of failed DCR were operated. We have also determined the factors responsible for the failure of primary DCR and present the results of the management of failed cases. Out of 39 cases, twenty five patients were female. Cases were in age group from 12 to 55 years. The cause of failure in most of the cases in our series was due to the occurrence of scarring within the anastomosis. 92.4% have obtained a successful functional outcome. Thus our study emphasizes that failure of DCR is largely a preventable problem and in cases with a previous failed surgery, re-anastomosis can be easily performed with some modification to give satisfactory outcome in most cases.
Keywords: Filed dacryocystorhinostomy.

INTRODUCTION

The management of obstructive lesions occurring in the lacrimal drainage apparatus has a history dating back to antiquity. The operation of dacryocystorhinostomy (DCR) is designed to affect the drainage of tears from the lacrimal sac into the middle meatus of nose through a short circuit made in lacrimal bone and nasal mucosa. If surgery is performed carefully and with a thorough knowledge of anatomical details of the area, the chances of success are very good. Most of series have reported a failure rate of less than 10% [1-4]. The failure of DCR usually results from a faulty technique or inappropriate selection of cases. The failure of dacryocystorhinostomy causes nuisance to both for the patient and the treating ophthalmic surgeon.

The purpose of this study is to describe our technique of re-operation (Revision DCR) and present the results of management of the cases. The patient were examined and investigated for factors responsible for the failure of primary operation. This knowledge offers valuable information for minimizing further pitfalls.

EXPERIMENTAL SECTION

It was a prospective study in which 39 cases of failed DCR were operated. The cases of canalicular blockage were excluded. A thorough history was taken from the patient with special reference to the post-operative nasal bleeding and nasal inflammation. A thorough nasal checkup was also under taken by ENT specialist to exclude any nasal pathology.

Besides routine clinical examination, pre-operative assessment included investigations like syringing, diagnostic probing and dacryocystography. The patients were discharged on seventh day post-operatively and were seen at weekly interval for one month, thereafter at monthly interval for six months. The absence of symptoms and patency on syringing were considered as evidence of success of revised surgery.

The main aim of surgery was to re-anastomose the nasal mucosa with remnant part of the sac. Most of the cases were done under local infiltration with 2% lignocaine with adrenalin (1:100000). Nasal packs were also soaked with same anesthetic solution and packing done 5-10 minutes prior to incision. Children and apprehensive patients were operated under general anaesthesia but these cases also had local infiltration and nose packing in the same way to minimize bleeding.

Methylene blue was injected through lower punctum in order to stain remaining lacrimal sac. The skin incision was given over the previous scar mark. Skin and subcutaneous tissue was undermined. The upper margin of the previous bony ostium was felt and the bony ostium was exposed by blunt and careful dissection. Then the tissue was separated downward along the plane of the bony ostium to expose the previous anterior flap. This certainly minimizes the damage of the flap during dissection. The mucoperiosteum was separated from the edge of the rhinostomy, to which it is usually adherent, by means of periosteum elevator. The periosteum was separated from the bone and the ostium was enlarged inferiorly about 4-5mm wide to expose the virgin nasal mucosa and if needed superiorly also. An incision was made at the site of anastomosis extending from the freshly exposed nasal mucosa to enter the nasal cavity and

anterior flap was made. A canalicular probe was passed through the lower punctum and the remnants of the sac were recognized with the help of blue dye injected at the beginning of surgery. The sac was separated from the surrounding tissue. The interior of rhinostomy is inspected and cleared off all the fibrous tissue. New anterior flap of sac was fashioned involving the previous part of sac flap and newly exposed portion of the sac. After removing the nasal packs a probe was passed through the nasal cavity to confirm the communication between the nasal cavity and anastomosing site and to exclude the previous faulty anastomosis with the ethmoidal air cells. It is usually not possible to form posterior flap of the sac in the freshly exposed sac remnant. However, if it was possible then posterior flaps were sutured with 6/0 vicryl. Then number six size rubber catheter was passed over the posterior flaps through nostril and stitched to the surrounding tissue. The advantage of this tube is to facilitate the drainage of blood and keep the flaps separate. The anterior flaps are stitched together with interrupted 6/0 vicryl without having any tension. Lastly the wound is closed as in routine DCR surgery.

RESULTS AND DISCUSSION

Out of 39 cases, twenty five patients were female and fourteen were male, age ranging from 12 to 55 years (table 1).

Table 1: Age & Sex Distribution

Age Group (Years)	Male	Female
11-20	-	1
21-30	1	4
31-40	4	9
41-50	6	7
51-60	4	3

Patients reported to us with complaints of persistent epiphora, chronic conjunctivitis or even with regurgitation of pus even after surgery. Dacryocystography revealed the site of obstruction as well as condition of the remnant part of the sac. In most of the cases the site of obstruction was at the site of rhinostomy.

There was no regurgitation of fluid on syringing at the time of discharge from hospital in all the 39 revised cases. But with subsequent follow up 3 cases again develop the same problem along with regurgitation of fluid on syringing. The follow up of the cases varies from 6 months to 2years. 92.4% cases had success of secondary surgery.

On a careful analysis, some important factors responsible for failure detected were:

1. Granulation tissue from the nasal mucosa closing the rhinostomy.
2. Small size of the bony ostium.
3. Inadequate size and fashioning of anastomotic flaps leading to kinking of the canaliculus.
4. Lack of tensile apposition of flaps/ sagging of anterior flap.
5. Partial thickness of lacrimal sac flap (in case of thick sac walls like in long standing case of dacryocystitis).

DCR is the operation of choice for re-establishment of lacrimal drainage in cases of chronic dacryocystitis. Most of the workers have reported a very good success rate of DCR operation ranging from 94-97% [5-7]. Failure in most of the cases results either due to inappropriate selection of cases or improperly performed surgery. If we analyze the causes of failure it becomes apparent that in most of the cases failure can be avoided.

The cause of failure in most of the cases in our series was due to the occurrence of scarring within the anastomosis. It might be attributed to the improperly sutured, un-sutured or improperly fashioned flaps. The second common cause of failure was the abnormal size and site of the bony ostium. In our series partial thickness of lacrimal sac has been a new and interesting cause of the failure, which has not been reported in literature to the best of our knowledge. Some of the workers have attributed it to bone regrowth following primary surgery especially in cases of children 3, 5. However if a mucosal edge to edge anastomosis was performed at the time of primary operation it is unlikely, that bony regrowth could proceed across an established tissue plane. Abnormal site of ostium i.e. either too low or too high may also cause failure. A too low ostium may not bypass a mid or upper sac obstruction, whereas a too high ostium forces tears to defy gravity, and leaves nasolacrimal duct as blind pouch, vulnerable to infection.

Other causes of the failure of primary DCR included connection of nasal mucosa with diverticulum of the sac and not with then sac proper, connection of sac to ethmoidal air sinuses, interference with the middle turbinate.

This study emphasizes the factors necessary for further increasing the functional success rate in DCR. Proper nasal packing is a must. Though it appears to be a minor precaution but it is actually very critical to reduce bleeding during surgery which obviously makes the surgeon very comfortable. The sac must be opened from the nasolacrimal duct to its fundus to make proper size of the flaps. Proper recognition of lacrimal sac/ sac remnants is important. The bony ostium must be sufficiently large (8-10 millimeters in diameter) to allow the sac to be completely incorporated with the nasal mucosa. Full thickness flaps should be properly fashioned out of lacrimal and nasal mucosa. The anterior flap must be sutured to muscle to prevent sagging of flap.

CONCLUSION

We can state that the failure of DCR is largely a preventable problem. Re-anastomosis can be easily performed in cases with a previous failed surgery to obtain a successful functional result.

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