ORIGINAL ARTICLE

To compare the success rate of External Dacryocystorhinostomy with and without Silicon Intubation in patients of nasolacrimal duct obstruction

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ABSTRACT

Aim: To compare the success rate of External Dacryocystorhinostomy with and without Silicon Intubation in patients of nasolacrimal duct obstruction.

Methods: A prospective comparative study was done on 80 patients at DHQ Hospital / Gujranwala Medical College between 1st January 2013 and 31st December 2014. All the patients were divided in two groups with the help of random number table. 40 patients in Group A underwent Dacryocystorhinostomy with silicon intubation and 40 patients in Group B underwent Dacryocystorhinostomy without silicon intubation.

Results: At the end of my study the success rate was 80.0% in group A (Dacryocystorhinostomy without silicon intubation) and 92.5% in group B (Dacryocystorhinostomy with silicon intubation) in total of 80 patients with 40 patients in each group. The p value was less than 0.05 and by conventional criteria; this difference is considered to be extremely statistically significant

Conclusion: There are more chances of success of External Dacrocystorhinostomy with silicon intubation than External Dacrocystorhinostomy without silicon intubation in patients of nasolacrimal duct obstruction.

Keywords: Dacryocystorhinostomy, silicon intubation, nasolacrimal

INTRODUCTION

Tears are secreted by the main and accessory lacrimal glands and after bathing the ocular surface, are drained into the nasal cavity through the lacrimal drainage system. Epiphora is excessive tearing which is the result of any functional or anatomical obstruction of this lacrimal drainage system[1]. Epiphora remains one of the most bothersome complaints of obstruction of lacrimal drainage system with social implications. Chronic dacryocystitis is infection of the lacrimal sac which is usually secondary to permanent closure of the nasolacrimal duct[2].

Almost a century ago in 1904, a French Ophthalmologist Adeo Toti[3], introduced an operation which he called Dacryocystorhinostomy (DCR) for the treatment of obstructive epiphora[4]. He proposed that after creating an external approach to the lacrimal sac, its portion near to the canaliculi should be preserved and absorbed into the nose, by creating a window in the lateral wall of the nose thus bypassing the nasolacrimal duct which is the most common site of obstruction. Dupuy Dutemps and Bourguet introduced anastomosis of the flaps of the lacrimal sac and nasal mucosa. Suturing of nasal mucosa with the lacrimal sac was suggested by Ohm. Iliff suggested placing a rubber catheter into the sac. Routine use of silicone tube as a useful adjunct to external DCR procedure was advocated by Older. Numerous modifications in various surgical steps of the original DCR operation has been introduced over the years for a better surgical outcome without really altering its basic concept. These procedures include standard external dacryocystorhinostomy1 (External-DCR), DCR with silicon tube stenting , endoscopic DCR [5], and endonasal endoscopic Laser DCR[6]. External DCR is the most popular operation done for nasolacrimal duct obstruction and the gold standard by which other methods can be measured and compared[6]. The role of silicon intubation during DCR surgery has been discussed several times in the recent literature with conflicting opinions. Reports show success rate of 92.6% in DCR with intubation as compared to 77.5% in DCR without silicon intubation. In DHQ Hospital/ Gujranwala Medical College, we perform External Dacrocystorhinostomy with silicon intubation more often than External Dacrocystorhinostomy without silicon intubation in patients of nasolacrimal duct obstruction.

In our study, we compared the results of standard DCR with the results of DCR with silicon

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intubation of the lacrimal passage to find out the better successful procedure for the treatment of Pakistani patients of nasolacrimal duct obstruction.

MATERIAL AND METHODS:

Eighty (80) patients with chronic dacryocystitis fulfilling the inclusion criteria were selected for the study from the outpatient department of DHQ Hospital/ Gujranwala Medical College. After taking the informed consent, these patients were divided into two groups with the help of random number table. Group A (standard group consisting of 40 patients) underwent standard surgical procedure of External Dacrocystorhinostomy and Group B (intubation group consisting of 40 patients) underwent Dacrocystorhinostomy along with intubation of lacrimal canaliculi with silicon tubes. All the patients were then assessed by performing lacrimal sac regurgitation test, probing and syringing and nasal examination. All the cases in both the groups were performed under local anesthesia by the same surgeon in six months.

DCR with and without silicon intubation was performed in eighty patients between the ages of 20 & 65 years. All operations were done under local anaesthesia (Infra trochlear and infra orbital infiltrations) with 2% xylocaine and bupivacaine 0.5% in equal proprotion. Ipsilateral nasal packing was done. 10 to 12 mm long incision 8-10 mm medial to medial canthus was made with No : 15 BP Knife . Sub cutaneous tissue and orbicularis muscle were deepened. Medial Canthal tendon was incised at its middle. Bleeding points were cauterised. Periostium overlying, frontal process of maxilla was exposed. Periostium of anterior lacrimal crest was incised. Lacrimal sac was exposed and dissected away from lacrimal fossa. Lacrimal bone was broken after removal of nose pack using plain forceps. Bony ostium 15mmx 15mm size was made using Kerrison bone puch. Nasal Mucosal flap was not fashioned. Lacrimal sac was incised vertically, along the postero medial aspect below upwards vertically using No: 11 BP Knife, keeping the medial wall of the lacrimal sac under stretch having introduced a lacrimal probe tip into the sac through the lower punctum and canaliculus, into a large anterior flap and a smaller posterior flap in H-shape. Nasal flaps were fashioned in the same manner. At this stage the probe was withdrawn and a fine silicon tube 2 mm diameter was passed through the punctum into the lower canaliculus, under the anterior flap of lacrimal sac into the nasal cavity through the bony ostium to make sure that the sac wall was properly opened. This also helped to wash out blood and debris through syringing during the immediate postoperative period. The large anterior flap of sac was freely mobilized and sutured to the anterior flap of the nasal mucosa with two to three interrupted sutures using 6/0 polyglactin, in such a way that both the anterior flaps bridged over the bony ostium. The cut ends of the Medial palpebral ligament was sutured together and wound was closed in layers. Post operative treatement included systemic antibiotics and non-steroidal anti-inflammatory agents, vit.C & B complex, topical ciprofloxacin eye drops QID, nasal decongestant drops bid for seven days. First post operative syringing was done on next day. After being discharged from the ward, the follow up examination was scheduled after one week, six weeks and six months of the surgery and syringing was repeated to assess the patency of the lacrimal system. Success was defined as subjective disappearance of epiphora. All this information was recorded in a pre-designed Proforma

RESULTS

A total of 80 patients were operated. Their ages ranged from 20 to65 years and 16(20%) were male and female were 64(80%). Mean age was 42.49 years with standard deviation of + 11.129 years. All the patients were having acquired nasolacrimal duct obstruction. 40 patients in Group A underwent conventional Dacryocystorhinostomy without silicon intubation and 40 patients in Group B underwent Dacryocystorhinostomy with silicon intubation.

In group A, postoperative success was 80%. In group B, postoperative success was 92.5%. Both groups were compared by using chi-square test at 5% confidence interval and degree of freedom 1, chi-square test supports the hypothesis that there are more chances of success of external dacrocystorhinostomy with silicon intubation than External Dacrocystorhinostomy without silicon intubation in patients of nasolacrimal duct obstruction. The p value was less than 0.05 and by conventional criteria this difference is considered to be statistically extremely significant.

DISCUSSION

Epiphora is excessive tearing which is the result of any functional or anatomical obstruction of this lacrimal drainage system. Chronic dacryocystitis is chronic infection of the lacrimal sac which is usually secondary to permanent closure of the nasolacrimal duct. The aim of the surgery is successful outcome in the form of disappearance of epiphora which is the major presenting complaint.

Despite the long history of the procedure, there is a debate about various steps of dacryocysto-

rhinostomy. Issues such as whether or not to suture the flaps which flaps to suture, how to place certain sutures where to place the incision, and whether the external or endoscopic approach is better continue to be debated in the literature. Various tools are advocated for the removal of bone. While these are exciting developments we continue to rely on bone punch for bone removal. Bone punch are reliable, low cost technology, widely available instruments that do not require any extra set up time unlike any powered tools described above. External DCR were noted a very successful procedure. It remains our preferred primary procedure in the treatment of nasolacrimal duct obstruction and chronic dacryocystitis due to high success rate, reasonable operative time and patient comfort. An additional benefit to the classic external DCR is that it does not require expensive high technology equipment and can therefore be performed in places with developing medical infrastructure. Success of the surgery is assessed both subjectively and objectively. Subjectively, resolution of epiphora is considered to be success. Objectively, restoration of unobstructed flow with irrigation confirms the patency of the system. These two definitions of surgical success must be kept in mind when reviewing literature and comparing various procedures and modifications. The most frequent complication in case of uneventful procedure is post operative primary failure and excessive scarring. Differences in surgical technique and analysis of surgical outcome make it difficult to compare reports but it is generally recognized that Daryocystorhinostomy with silicon intubation is better than Daryocystorhinostomy without silicon intubation. In 1982, Older observed a success rate of 94% (by formal Jones testing) in 70 patients with nasolacrimal duct obstruction, suturing only an anterior flap of nasal mucosa to the periosteum near the anterior lacrimal crest and routinely intubating with silicone rubber. Rosen et al described their experience of routinely intubating 253 cases, suturing anterior flaps and excising posterior flaps. After 6 months of intubation, they described an overall success rate of 91.3%, success being defined by the absence of symptoms, postoperative irrigation not being performed. In Pakistan, there is similar study in which post-operative success of 94.7% was noted in a group of patient with dacryocystorhinostomy (DCR) with silicon intubation and other group was without intubation where success rate was 77.8%.

In the setting of canalicular diseasehttp://onlinelibrary.wiley.com/doi/10.1111/j.1442-9071.2009.02094.x/full-b17 intubation is mandatory. Other situations prompting intubation include previous acute dacryocystitis, poor flap creation, revision surgery, excessive bleeding, inflammatory disease and small sacs.

In our study, a total of 80 patients were operated. Their ages ranged from 20 to 65 years and 16(20%) were male and female were 64(80%). Mean age was 42.49 years with standard deviation of + 11.129 years. All the patients were having acquired nasolacrimal duct obstruction. 40 patients in Group A underwent conventional Dacryocystorhinostomy without silicon intubation and 40 patients in Group B underwent Dacryocystorhinostomy with silicon intubation.

CONCLUSION

There are more chances of success of external dacrocystorhinostomy with silicon intubation than external dacrocystorhinostomy without silicon intubation in patients of nasolacrimal duct obstruction. So we should improve our surgical technique of external dacrocystorhinostomy and should use silicon intubation in all cases of external dacrocystorhinostomy as it affects the surgical outcome significantly.

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