Research Article :

IMPLANT DCR

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Introduction

Dacryocystitis is a common eye disease in ophthalmic practice. The condition is usually unilateral and occurs secondary to obstruction of the nasolacrimal duct (NLDO). Patients present with watering of the eye and, swelling in the Lacrimal sac area owing to accumulation of Muco-purulent or purulent discharge. The disease can be chronic, acute, or acute-on-chronic.

Dacryocystorhinostomy (DCR) is the operation of choice for relieving symptoms because it enables drainage of tears to by-pass the obstruction in the nasolacrimal duct. In this procedure, the lacrimal sac is anatomized with the nasal mucosa in the middle meatus. This procedure may be performed externally through a skin approach (external DCR) or internally via the nose (endonasal DCR). Implant DCR involves placing a silicon implant through the skin connecting the medial wall of the lacrimal sac and the middle meatus of the nose.

The PAWAR intra cystic implant© has been developed by Dr. M.D Pawar, an ophthalmic surgeon from Nagpur, India. This is a new method for treatment of Epiphora due to obstruction of lacrimal passage. The main aim behind the design is to make treatment of Epiphora simple, quick and effective by using this implant better success rates have been obtained. This implant can be used in cases where conventional treatment is contraindicated.

IMPLANT

The Pawar Intracystic implant is made of a silicon elastomer with maximum tissue compatibility and minimal thrombo-genicity .The length of the implant varies from 12.0 to 15.0 mm, with an outer diameter of 2.5 to 3.0 mm and an inner diameter of 2 .0 to 2.5 mm. The upper end has a funnel-shaped collar and the implant is beveled at the lower end. The upper end of the implant rests on the inner wall of the lacrimal sac. The implant has multiple openings of 1-mm diameter at the proximal and distal ends, which act as extra drainage channels.

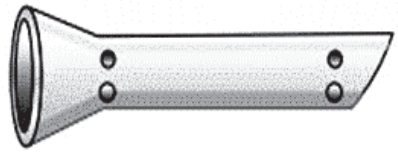


Figure 1 Pawar Intracystic Implant (Schematic representation)

Following three types of implants are available:

1. Large Implant for New Ostium
2. Large Implant for Naso lacrimal duct.
3. Small implant for Conjunctivo-dacrocysto-rhinostomy operation (with both puncta are blocked)

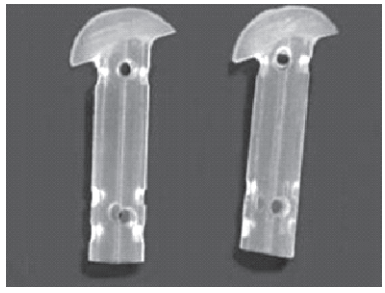


Figure 2 Pawar Intracystic Implant

The implant is supplied in sterilized packets; each containing a single piece .The

implant should be washed with distilled water/ normal saline before use.

STERILISATION OF IMPLANT

The Pawar Intra cystic Implant is supplied packed in blister peel open pack, ready to use and sterilized by ethylene oxide. Each pack contains one implant. The Implant should be used once only. However if needed it can be re sterilized by autoclaving .In a clean environment and with gloved hands remove implant from its package. It should be rinsed with distilled water and then autoclaved by using one of the following methods:

1. High Speed autoclave for 10 minutes at 131 C (2 kg/cm2)

2. Standard autoclave for 30 minutes at 121 C (2 kg/cm2)

INSTRUMENTS

Apart from the usual instruments used in conventional external DCR, certain special instruments are needed in this surgical procedure.

Figure 3 Diagrammatic representation of Special instruments used in PAWAR Implant DCR.

Figure 4 Total instruments used in Pawar DCR

OPERATIVE PROCEDURE

Position of patient and anesthesia are similar to as used in conventional DCR. Exposure of sac is carried out exactly as that for conventional DCR.

Figure 5 local infiltrative anaesthesia

STEPS

1. Skin incision

Figure 6 Skin Incision

2. A vertical incision around 3 mm long is made in the anterior wall of the lacrimal sac.

Figure 7 Incision over anterior wall of lacrimal Sac

3. The ostium is created by using perforator in the lower part of the lacrimal Fossa.

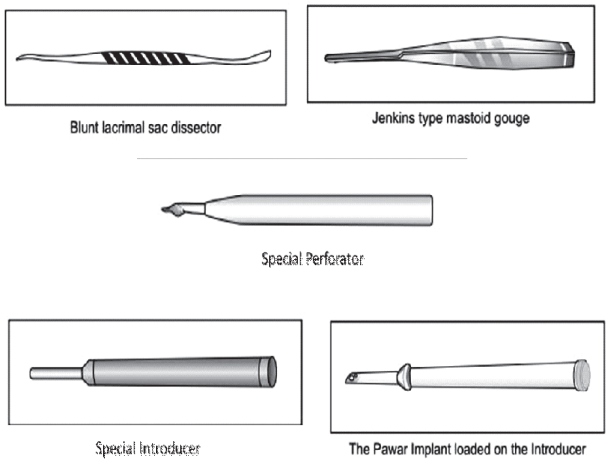
Figure 8 Fashioning of ostium at lacrimal Fossa using special perforator

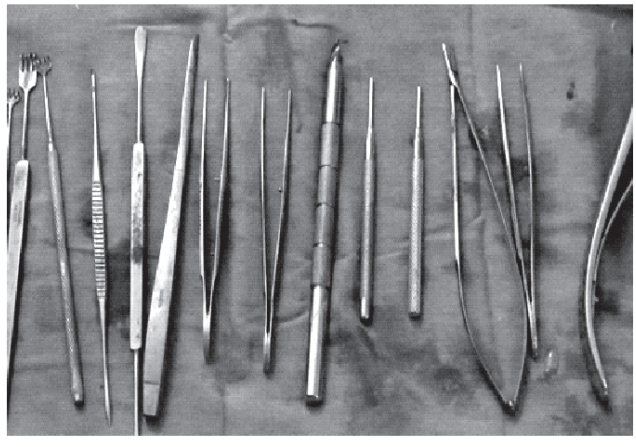
The instrument passes through the posterior wall of the lacrimal sac, lacrimal bone and nasal mucosa. The instrument points towards posterior, medial and lower direction.

Figure 9 Schematic diagram showing direction of perforator

Figure 10 Anatomical disposition of the new ostium

4. Now the implant is introduced through the anterior opening of the lacrimal sac in to the nasal cavity negotiating the





posteromedial wall of the lacrimal sac and newly fashioned ostium. It is placed in such a way that it points towards posterior, medial and lower directions similar to the direction of perforator.

Figure 11 Insertion of Implant with the help of applicator into the newly fashioned Ostium

The wider portion (collar) lies in the cavity of the sac and the other end in the middle meatus or lower meatus of the nose.

Figure 12 Withdrawal of applicator after placing the implant in-situ

5. Saline is injected through the funnel of the implant. Observe air bubbles from the nostril via the implant.

Figure 13 Injection of Saline through the implant to confirm its position as well as to clear off tissue debris and clot

The position of the implant should be confirmed visually also by inspecting the nostril by using nasal speculum. The pointed portion of the implant should project in the nasal cavity. The sac and surgical field is irrigated with normal saline and 1:1000 adrenalin. The wound is closed with 6/0 chromic catgut in layers. Immediately after the closure on table itself the punctum is dilated and syringing is performed.

Figure 14 Confirming proper placement of Implant

Figure 15 Schematic representation of In-situ position of Pawar Implant

POST OPERATIVE CARE

a. Patient is kept on oral antibiotic and anti inflammatory drugs for 3 days.

b. Topical antibiotic drops are instilled for the period of one month.

c. Decongestive nasal drops are used in the nostril of operated side four to six times in a day for one week.

d. First syringing is done on the third day and repeated once a week for four weeks.

POST OPERATIVE COMPLICATION

a. Hemorrhage- During operation, bleeding points should be taken care of Wound, during operation, may be irrigated with 1:1000 adrenalin.

b. Infection.

c. Blockage of implant lumen and failure of DCR

a. Blockage in immediate post operative phase is mostly due to clot or improper insertion of implant through the mucosa. Sometimes the implant does not pass through the nasal mucosa and nasal tenting occurs. On table tests may show correct procedure but as the mucosa heals the implant is blocked.

b. Late blockage of nasal passage via implant is due to infection and granulation tissue formation in 2% of the cases. Persistent infection may warrant removal of device.

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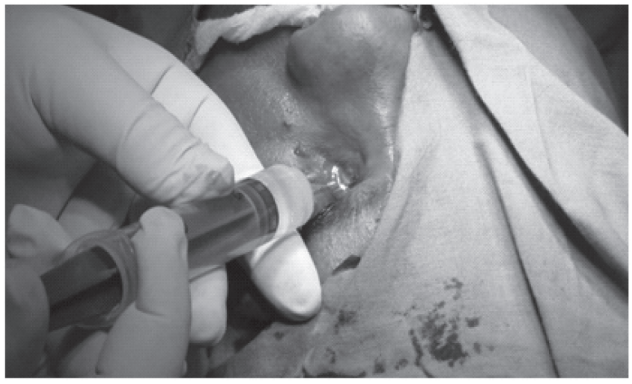

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Figure 6 Skin Incision

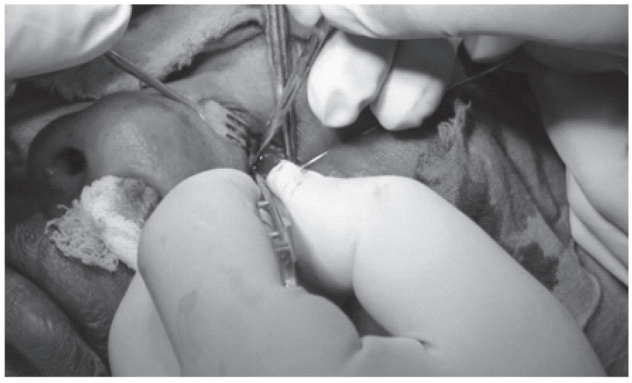
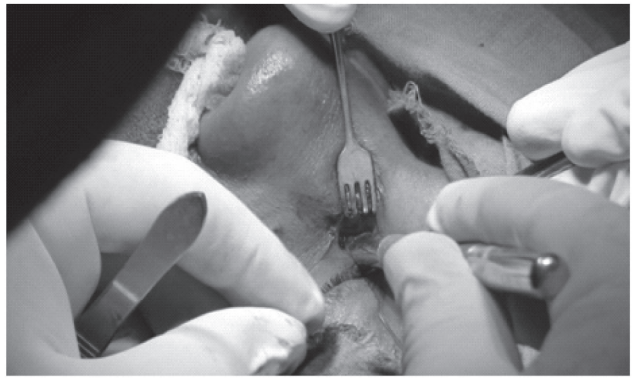


Figure 7 Incision over anterior wall of lacrimal Sac



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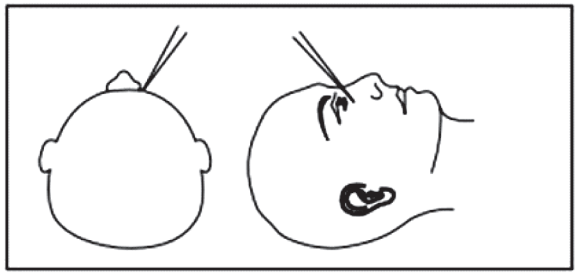

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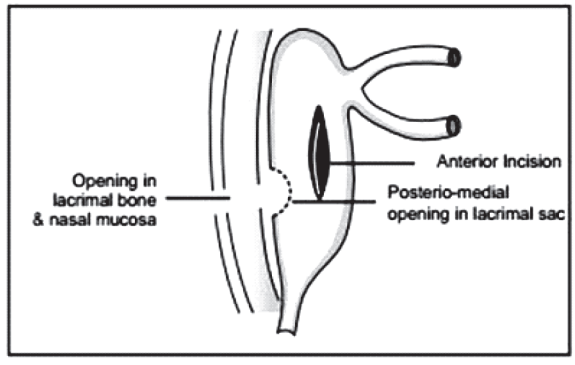

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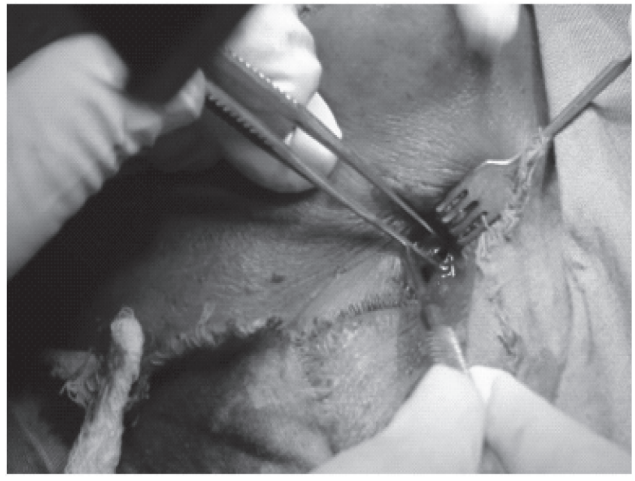

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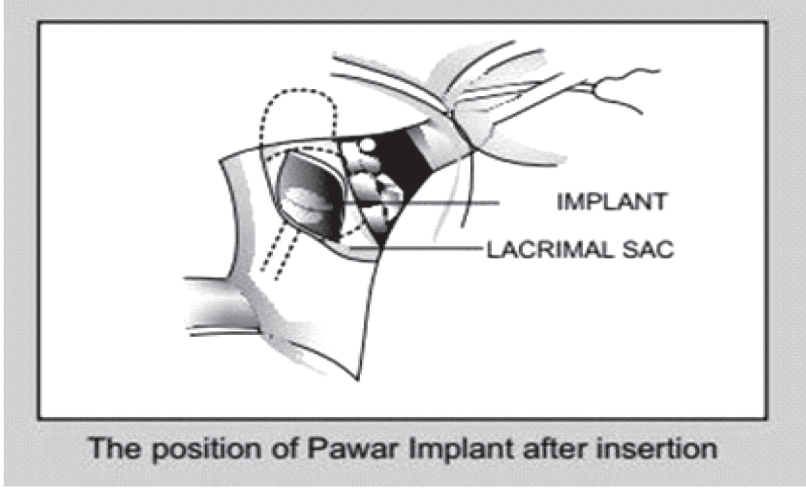

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