

FRONTALIS SLING OPERATION WITH FASCIA LATA FOR SEVERE CONGENITAL PTOSIS

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ABSTRACT

Objective: To determine and document the effectiveness and impact of frontalis sling procedure with fascia lata in the management of severe congenital ptosis.

Design: A descriptive study.

Place and Duration of Study: Combined Military hospitals of Pakistan Army (CMH Jhelum, Quetta, Lahore, Multan and Peshawar) from August 1991 to March 2005 (with a tenure of 3 to 4 years in each hospital).

Patients and Methods: Six cases of severe congenital ptosis with levator palpebrae superioris function of 4mm or less were selected while working in general eye clinics. Preoperatively careful history and examination was carried out and bilateral frontalis sling procedure with fascia lata was performed under general anesthesia on these patients. Post-operatively, cosmetic appearances, functional evaluation and complications were assessed.

Results: All these patients had satisfactory cosmetic and functional results except one who had slight lid asymmetry after a prolonged follow up.

Conclusion: Frontalis sling procedure with fascia lata gives satisfying and acceptable results in most of the cases of severe congenital ptosis.

Keywords: Congenital ptosis (blepharoptosis), frontalis sling, brow suspension, fascia lata

INTRODUCTION

Congenital ptosis is an uncommon disorder. It is usually classified into three grades: mild (2mm), moderate (3mm) and severe (4mm or more) according to the amount of ptosis. Surgical correction is usually dependent upon the levator palpebrae superioris function which is graded as normal (15mm or more), good (12mm or more), fair (5-11mm), and poor (4mm or less) [1-3]. Severe congenital ptosis is usually operated in one of the following three ways [1]. Frontalis sling with fascia lata, whether

autogenous, homogenous or heterogeneous, whether fresh or stored [2]. Frontalis sling with artificial materials like, silicon bands, artificial sutures, merselene mesh [3]. Maximum levator resection. Each procedure has got its merits and demerits. Lot of work has been done in other parts of the world, specially the Western countries [4,5]. However, the literature in Pakistan on severe congenital ptosis and its management is scanty and is limited only to the last two procedures [6-10]. After thorough search of literature on Medlip and Pak Medinet, no study exists in Pakistan exclusively for severe cases of congenital ptosis treated with the fascia lata frontalis sling procedure. An

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experience of six such patients operated and managed in our general ophthalmic surgery set up is reported.

PATIENTS AND METHODS

This descriptive study was undertaken in different Combined Military hospitals of Pakistan Army (CMH Jhelum, Quetta, Lahore, Multan and Peshawar) from August 1991 to March 2005, for a tenure of 3 to 4 years in each hospital with some interest in oculoplastic surgery. A record of all the patients reporting to the out-door patient department were seen and the patients with congenital ptosis having levator function less than four millimeter were isolated. Preoperatively, careful history and examination were carried out. History included the age of onset of ptosis, its duration, reviewing old photographs when felt necessary, asking about diplopia, and variability of ptosis during the day and excessive tiredness. Question of any marital problems from the adult patients and heredofamilial predisposition from all the patients were also asked. Examination included the check up of visual acuity, pupillary examination, determination of the margin- reflex distance, palpebral fissure height between the upper and the lower lid margins, the levator function (as measured by the lid excursion from extreme lower gaze position to extreme up gaze position, while frontalis action was prevented), upper lid crease, laterality, extra-ocular muscle movements and the associated signs like testing of fatiguability, jaw-winking phenomenon, Bell's phenomenon, corneal sensitivity, and the tear film stability. Special note of frontalis muscle contraction and backwards head tilt was also made. In this manner, congenital ptosis cases with poor levator function of less than 4mm, whether unilateral or bilateral and with normal extra-ocular muscle balance were included in the study. All the cases of acquired origin, congenital cases of mild to moderate degree, Marcus Gunn jaw-winking syndrome, third

nerve misdirection and of subnormal vision, poor tear film and poor Bell's phenomena were excluded from the study. Those patients who had severe unilateral congenital ptosis but refused bilateral frontalis sling procedure were also excluded from the study. In this manner, six patients were selected for the surgery. The patients so selected were prepared for the operation under general anesthesia. Informed consent was taken with special reference to a discussion of lagophthalmos, exposure keratopathy, sleeping with eyes open, infection of the fascia lata sites, problems of the donor site in the leg, and the problems of general anesthesia. Preoperatively, photographs were also taken for documentation purpose after due permission. All these patients had been planned for frontalis sling procedure with fascia lata. After general anesthesia, donor site was prepared on the outer side of the thigh. Ten centimeter incision was made along a line extending from head of fibula to the anterior superior iliac spine beginning 3-5cm above the knee joint. Glistening fascia lata was exposed and 10cm × 1.2cm long strip was taken out under direct vision. The fascia lata so obtained was subdivided into four strips, each 2.5mm wide, and soaked in saline solution. The wound was closed in two layers, the deeper one with 2/0 chromic catgut and the skin with 4/0 black silk sutures after achieving the hemostasis. Then the attention was directed to the eyelids to be elevated for which upper face and forehead were prepared. Crawford technique was used for the insertion of fascia lata over the lids and the brow in all the patients because of better and permanent effects, less recurrence rate and less chance of post-operative infections [11]. Non-absorbable 5/0 white Ethibond suture was used for tying fascia lata to the deeper tissues of brow upto periosteum and 6/0 vicryl was used for skin closure. Frost suture was placed and a pressure dressing was applied for 24 hours. Post-operatively, traction sutures were removed. Cornea was protected with frequent instillation of lubricant eye drops (Tears Naturale, Alcon, 4

Table: Findings, complications and follow up of the patients having severe congenital ptosis and treated with fascia lata frontalis slings.

Patient No.	1	2	3	4	5	6
Age (years)	25	23	5	29	30	10
Sex	F	F	M	M	M	M
Family History	-ve	++	-ve	-ve	-ve	-ve
Laterality	Bil	Bil	Bil	Bil	Bil	Uni(R)
Amount of Ptosis (mm)	6	5.5	5	5.5	5	R6,L0
LPS Functions (mm)	3	3.5	3	3.5	4	R3,L15
Palpebral Fissure (mm)	4	4	4.5	4.5	5	R4,L10
Forehead Wrinkles	+ve	+ve	+ve	+ve	+ve	R only
Backward Head Tilt	+ve	+ve	+ve	+ve	+ve	+ve
Complications: Early	Nil	Exp	Exp	Nil	Nil	Exp R
Late	Nil	Nil	Nil	Nil	Nil	Nil
Type of Fascia Lata	Aut	Aut	Hom	Aut	Aut	Aut
Follow-up Period	1Y	2Y	6 m	8 Y	9m	10m
Final Outcome:	G	G	G	Fair	G	Fair

Aut: autogenous; Bil: bilateral; Exp: exposure keratopathy; F: female; G: Good; Hom: homogenous; L: left side; M: male; m: months; R: right side; Uni: unilateral; Y: year; +ve: present; ++: strongly present; -ve: not present.

hourly and Solcseryl eye gel, ICN, 8 hourly) and 1% Chloramphenicol eye ointment (Neo-Phenicol PDH) 12 hourly. Tablet Mefanemic acid (Ponstan Park-Devis) 2 tablets thrice daily and Tablet Erythrocin (Abbott) 250 mg twice daily were also given. The eyes were padded for initial few nights. Corneal protection routine was taught to the patients, parents and nurses. With the time, edema and lagophthalmos decreased. Stitches of the donor leg site and the brow were removed after 10-14 days. Post-operative photographs were also taken for comparison with the preoperative ones. Follow up period was between six months (earliest to lose follow up) and eight years (still in contact for follow up purpose).

RESULTS

Six patients were operated with frontalis slings with fascia lata. Age group ranged from 5 to 30 years. Four were males and 2 were females. Five patients had bilateral congenital ptosis while one had a unilateral problem. Five patients had no familial predisposition while one female had strong positive family history in which her 2 other siblings were also having ptosis. Five had autogenous fascia lata slings from their own thighs; while one child had received fascia lata from his father (hence general anesthesia



Fig.1: Before and after the operation.



Fig.2: Before and after the operation.

had to be given to seven individuals). Four were adults who were unmarried before the operation. Two children were brought by their fathers, purely for the cosmetic reasons. All these patients adjusted rapidly to the

fascial eyelid/frontalis suspension. They learnt to open their eyes with frontalis muscle contraction and close with orbicularis muscle contraction. There was lagophthalmos and tenderness over the incision sites within first few days but all these patients opened and closed their eyes in relatively normal manner and slept with eyes closed after about 2 to 3 months of operation. No significant complications were found. Three patients had slight exposure keratopathy in initial three weeks which were treated successfully. Five patients had beautiful cosmetic results. Only one had slight lid asymmetry after follow up period of 8 years (1mm over-correction on one side and 1mm under-correction on the other side). There was no frontalis muscle contraction and no abnormal head posture was noted in any of them. Their findings have been summarized in (table). Their pre-operative and post-operative photographs are shown in (fig. 1-6).

DISCUSSION

The levator palpebrae superioris muscles act as the primary elevator of the lids. Frontalis muscles act as accessory elevator of the lids which overtake the elevating function of the levator palpebrae superioris if latter is dystrophic as in congenital ptosis. The main aim of frontalis sling (brow suspension) operation is to enhance the lid elevating effects of frontalis muscles so that eyes open by the frontalis contraction and close by orbicularis contraction [12,13].

In this study, all the four adults were unmarried before the operation. They underwent operation due to cosmetic disfiguration which was a cause of hindrance in their marital settlement. In all these patients the fascia lata was taken out without the help of Masson or Crawford's stripper. Scar on the thigh was not a problem for these patients because of peculiar cultural dress which might have been a problem in the West. Interestingly, exposure keratopathy was confined to the right (affected) eye in the right sided unilateral ptosis; otherwise, both

the eyes were affected in the remaining two cases that had bilateral ptosis. Final outcome



Fig.3: Before and after the operation.

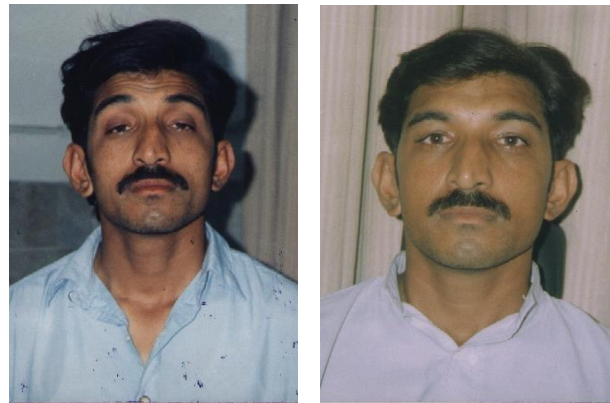


Fig.4: Before and after the operation.

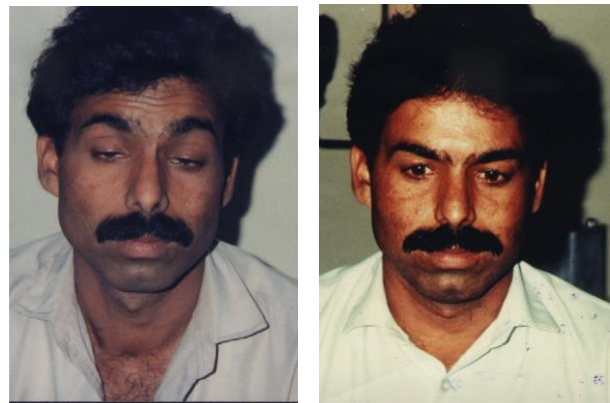


Fig.5: Before and after the operation.



Fig.6: Before and after the operation.

was satisfactory having good lid symmetry and functional blink mechanism except one who had slight asymmetrical lid levels of one millimeter but himself was satisfied and not willing for further surgery.

Ptosis is an important topic of the oculoplastic surgery. Papers have appeared in the Pakistani literature during the last few years showing the management of congenital ptosis [6-10,14,15]. Hussain (1995) had treated seven cases of severe congenital ptosis but with silicon band and followed up to one to two years. Silicon material was thought to be a good alternative to the fascia lata because of easy availability, low cost, easy insertion and reasonable results. Though one of the cases in this study got infected, the author seemed to be satisfied with his results [6]. Mahmood had operated twelve cases of congenital ptosis with poor levator function. Eight of them were of severe degree, all unilateral and treated with maximum levator resection. He achieved good results in up to 77% and fair in 15% cases in primary gaze position. No mention was made of lid asymmetry or lagophthalmos in the down gaze and the duration of the follow up was also not mentioned [14]. Zafar ul Islam et al (1997) had treated three patients with fascia lata slings out of his total twenty-five operated cases [9]. However, due to different approaches in the techniques of management of severe congenital ptosis cases in different centres, no uniformity and correlation existed amongst these regional studies.

CONCLUSION

Frontalis sling operation with the fascia lata can be used in our patients of severe congenital ptosis with satisfactory and permanent results in the long run. However, further work is required to establish its consistent outcome in our setup.

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