

Original Research Article

Title- My experience with Levator Resection Surgery in Congenital Ptosis

Abstract

Aims: To assess the effectiveness of Levator resection surgery in patients with moderate to severe congenital ptosis with poor Levator function.

Methods and Material:

Settings and Design: A prospective, observational, single institutional study done in 2003-2010 at a referral Government College draining poor patients.

52 eyes of 49 pts with moderate to severe ptosis were selected. All had poor Levator Palpebrae Superioris (LPS) action. Marcus Gunn ptosis and Acquired Ptosis were excluded. These underwent Levator resection surgery through skin approach. LPS was resected according to severity of ptosis.

Postoperative ptosis correction, lid position, contour, lid lag and any other

complications were noted. Results of ptosis correction were grouped as :

1. Good if postop. Lid height was within 1mm. of the desired height or with respect to the opposite lid.

2. Satisfactory if 1-2 mm. undercorrection was seen.

3. Poor if > 2 mm undercorrection occurred or any other cosmetic blemish like lagophthalmos, notching of lid border or abnormal lid fold.

Follow up was done at 1wk, 6 wks, 6 mths, then yearly till 5 years.

Results: 43 eyes (82.69%) showed good correction, with good primary eye lid position and no corneal complications.

7 eyes (13.46%) showed satisfactory correction

2 eyes (3.84%) showed poor correction. 1- overcorrection, 1- undercorrection

Conclusions: Levator resection surgery is an effective procedure of choice even for congenital ptosis with poor LPS action.

29 **Key-words:** Congenital Ptosis, Levator Palpebrae Superioris, Levator resection

30 **Introduction**

31 Congenital Ptosis is the abnormal drooping of the upper eyelid since birth.

32 This cosmetic blemish poses a challenge to ophthalmic surgeons.

33 Management of severe congenital ptosis with minimum to poor levator action is
34 controversial. Brow suspension – Unilateral/Bilateral, and Levator Palpebrae
35 Superioris (LPS) resection are various options.

36 Our objective was to study the results of LPS resection surgery in congenital
37 simple ptosis with poor LPS action.

38 **Subjects and Methods:**

39 **Patients** having moderate to severe congenital simple Ptosis , a total 49 patients
40 were selected for the study. It was a prospective observational study. The
41 Institutional Ethics committee permitted for the study. Marcus Gunn Ptosis and
42 Acquired Ptosis were not included. A thorough history was recorded from the patient
43 or the parent.

44 History included-Time of onset of ptosis,any h/o birth/injury /illness,any h/o
45 improvement or worsening,h/o any previous eye/other surgery.

46 Examination included inspecting whether ptosis was unilateral or bilateral. Function
47 of orbicularis muscle was assessed by having the patient open and close his eyes.

48 Presence or absence of upper lid crease and fold were noted, even a faint lid crease
49 when the patient looks upward, indicated some degree of levator action. The height
50 of lid crease on the normal side was measured and compared to that of ptotic eyelid.

51 The degree of ptosis was noted by noting the position of the ptotic lid margin
 52 with respect to the limbus and the pupil. This was noted when the eye was in
 53 upgaze, downgaze and primary gaze.

54 Normal palpebral aperture = 9-10mm in primary gaze.

55 Amount of ptosis = difference in palpebral apertures in unilateral ptosis

56 OR difference from normal in bilateral ptosis

57 MRD1 = margin reflex distance, normal 4-5mm

58 Ptosis was moderate if lid drooped 3 mm and severe if it drooped 4 mm or more.

59 Levator function was measured by Berke's method. Lid excursion from
 60 extreme downgaze to extreme upgaze after frontalis action was eliminated by
 61 pressing the thumb tightly over the upper brow in mm.

62 Poor levator function was 0-5 mm, Fair levator function was 5-8 mm, Good levator
 63 function was 8 mm or more, and 13 – 17 mm lid excursion was considered normal.

64 Extraocular muscle function, particularly of Superior Rectus (SR) was noted.

65 Bell's phenomenon, Corneal sensations were noted. Vision uncorrected and
 66 best corrected was recorded. Conjunctiva and Fundi were examined. Blood
 67 investigations and Anaesthesia fitness was done. Proper consent taken, after
 68 realistic goals and expectations were set with the patients and the parents.

69 **Procedure -**

70 Under standby/ general anaesthesia, Levator resection was carried out with skin
 71 approach. Lid crease was marked. Lid guard was inserted – upper lid made taut
 72 and eyeball protected. Incision was made at the crease, Orbicularis was split. Lower
 73 skin incision was undermined, Tarsus cleaned. Upper skin was undermined. Orbital
 74 septum was identified, separated, and prolapsed fat retracted. The underneath
 75 Levator fibres (LPS aponeurosis) was identified. Local anaesthetic was injected

76 between conjunctiva and LPS. LPS cut from insertion on anterior surface of tarsus.
 77 LPS belly dissected from conjunctiva, marked, measured with Vernier's callipers and
 78 cut depending on severity of ptosis. Three vicryl 6-0 sutures were passed and
 79 sutured to tarsus, care being taken to maintain a good lid contour. Excess skin was
 80 excised if required. Lid crease forming sutures applied to skin and LPS. Frost
 81 suture applied to lift the lower lid. Antibiotic eye ointment and patch applied. First
 82 dressing was done in 24 hrs. Artificial tear drops were instilled hourly by day and
 83 ointment at night.

84 On the fifth day, traction suture in lower lid was removed after lid action was
 85 resumed. Follow up was done at 1 wk, 6 wks, 6 mths and 1 yr. Postoperative -
 86 Ptosis correction, lid position, contour, lid lag and any other complications were
 87 noted.

88 Results of ptosis correction were grouped as :

89 1. Good if postop. lid height was within 1mm. of the desired height or with respect to
 90 the opposite lid.

91 2. Satisfactory if 1-2 mm. undercorrection was seen.

92 3. Poor if > 2 mm undercorrection occurred or any other cosmetic blemish like
 93 lagophthalmos, notching of lid border or abnormal lid fold was seen.

94 **Results:** 49 patients had congenital simple ptosis. 46 patients had unilateral
 95 congenital ptosis. 3 of them had bilateral congenital ptosis.

96 In all 52 eyes were operated upon. Moderate ptosis was seen in 38 eyes. Severe
 97 ptosis was seen in 14 eyes. All had poor LPS action—nil to 5 mm.

98 Age grps: There were 4 patients less than 10 years of age, 41 patients in 10-25 years
 99 age group, and 4 patients in 25-50 years of age. The mean age was 19.5 years

100 Sex ratio: 26 patients were males and 23 were females.

101 Preoperatively 2 patients had some kind of small surgery, probably Fasanella
 102 Servat done in a plastic surgery camp.1 patient had a conjunctival suture cyst with
 103 abscess .

104 The amount of LPS resection was decided depending on severity of ptosis. For
 105 Severe ptosis 24-27mm LPS was resected and for Moderate ptosis. 22-25 mm LPS
 106 was resected.

107 Postop. results were very encouraging. 43 eyes (82.69%) showed good correction.
 108 7 eyes (13.46%) showed satisfactory correction. 2 cases showed minor temporal
 109 lid drooping. One young male had some fluid collection repeatedly at the stitch site,
 110 which was given hot compresses, antibiotics and was drained. One had minor
 111 **trichiasis** , the lashes were directed down. Early lidlag was observed in patients with
 112 large resection which was not seen later .

113 Two eyes (3.84%) showed poor correction, 1 had undercorrection seen after 6
 114 mths.,this patient had unilateral congenital moderate ptosis with 3 mm. LPS
 115 action, the muscle was re-resected,1 had overcorrection for which marginal
 116 myectomies were done and the muscle relaxed, thus lid was corrected.

117 **Discussion:**

118 Management of unilateral moderate to severe congenital ptosis with nil to poor
 119 levator action is controversial. Ideal ptosis surgery should be both anatomically and
 120 physiologically acceptable without endangering the vision.

121 Perfect postop. result should be a more normal symmetrical lift of upper
 122 lid,adequate mobility when blinking,a normal good lid contour and fold,no diplopia or
 123 any sight threatening complications,and a complete cover of eye on lid closure.

124 True Congenital ptosis occurs from levator muscle dystrophy .

125 Unilateral Brow suspension is the treatment of choice by many .Bilateral Brow
 126 suspension after excision of Levator on normal side also done for more symmetric
 127 results.
 128 Brow suspension procedures produce cosmetically disfiguring results due to
 129 unilateral lidlag in downgaze and ptosis on upgaze. The lid remaining open in sleep
 130 also worries the patient. Relative immobility of upperlid is a constant defect. Brow
 131 suspension with nonabsorbable sutures caused infection and granuloma
 132 formation and cicatricial bands formed at suture sites. Gradual recurrences of
 133 ptosis were also reported. Hence , we undertook LPS resection in severe ptosis with
 134 poor LPS action too.
 135 Blaskovics(1923), Illiff(1954), Berke(1959),Jones(1964) studied levator resection and
 136 proved it to be effective¹.
 137 When the LPS muscle is present, the most reasonable and physiological
 138 operation is to shorten it by partial resection. This gives the best functional and
 139 cosmetic result.^{2,3,4,5} Maximum levator resections could be performed easily with
 140 external approach surgery. This also preserved tear producing structures and
 141 mullers muscle^{6,7}
 142 Abdulla Mujaini et al , in their study treated 7 similar patients successfully with no
 143 complications and recommended this as an ideal procedure.⁸
 144 Press UP,et al,intheir study on 44 patients,showed good results in 36 (81.81%)and
 145 concluded that maximal levator resection is the treatment of choice in congenital
 146 ptosis with poor LPS function.⁹
 147 Mete A ,Cruz AA,Mauriello JA, Epstein GA,in their studies also gave successful
 148 cosmetic and functional results with maximal Levator resection for primary congenital
 149 ptosis with poor levator function^{10,11,12,13}.

We had a similar encouraging result in a larger sample size . We also did this in bilateral congenital ptosis with very satisfying results. Proper dissection of the LPS muscle and its resection with severing of medial and lateral horns was important for effective results. Correct placement of sutures on the tarsal plate took care of the lid contour.

We didn't face any sight threatening complication.

Our study shows that even moderate to severe unilateral/bilateral congenital ptosis can be operated for levator resection surgery irrespective of poor levator action giving good cosmetic result, good eyelid movement and closure without compromising corneal protection and is the most physiological operation.

CONCLUSION—

LPS resection is an effective procedure of choice even for congenital ptosis with poor LPS action.

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Table 1: Severity of Ptosis

52 eyes were operated upon.

Severity	Eyes	LPS resection done
Moderate Ptosis	38	22-25 mm
Severe Ptosis	14	24-27mm

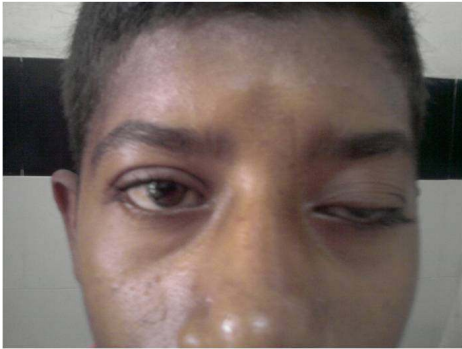
Figure 1. (LE) Severe Ptosis with nil LPS



Figure 2. Postop (LE)



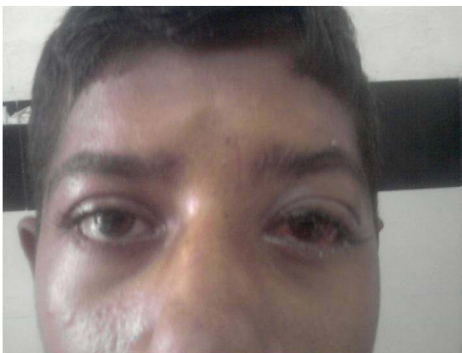
Figure 3. (LE) Severe Ptosis with 2 mm LPS



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229 Figure 4. Postop (LE)



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232 Fig.5. Dissected Levator muscle

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