

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 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 showed satisfactory correction

2 eyes 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 **Abbreviation:** Levator palpebrae superioris - (LPS)

31 **Introduction**

32 Congenital Ptosis is the abnormal drooping of the upper lid since birth. This
33 cosmetic blemish poses a challenge to ophthalmic surgeons. severe
34 congenital ptosis with minimum to poor levator action is controversial. Brow
35 suspension – Unilateral/Bilateral, and Levator Palpebrae Superioris (LPS)
36 resection are various options.

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

39 **Subjects and Methods:**

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

44 History included-

- 45 • Time of onset of ptosis
- 46 • h/o birth/injury /illness
- 47 • h/o improvement or worsening
- 48 • h/o any previous eye/other surgery.

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

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

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

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

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

59 OR difference from normal in bilateral ptosis

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

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

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

65 Poor levator function- 0-5 mm

66 Fair levator function- 5-8 mm

67 Good levator function- 8 mm or more.

68 Normal is 13 – 17 mm

69 Extraocular muscle function, particularly of SR was noted. Bell's phenomenon,

70 Corneal sensations were noted. Vision uncorrected and corrected was

71 recorded. Conjunctiva and Fundi were examined. Blood investigations and

72 Anaesthesia fitness was done. Proper consent taken, after realistic goals and
73 expectations set with the patients and the parents.

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76 **Procedure -**

77 Under standby/ General Anaesthesia, Levator resection was carried out with skin
78 approach. Lid crease was marked.

79 Lid guard inserted – upperlid made taut and eyeball protected. Incision made,
80 Orbicularis was split. Lower skin incision was undermined, Tarsus cleaned. Upper
81 skin was undermined. Orbital septum identified, separated, fat retracted. Levator
82 fibres (LPS aponeurosis) cut from insertion on anterior surface of tarsus. LPS belly
83 dissected from conjunctiva, marked and cut depending on severity of ptosis. Three
84 vicryl 6-0 sutures were passed and sutured to tarsus. Excess skin excised if
85 required. Lid crease forming sutures applied to skin and LPS. Frost suture applied.
86 Antibiotic e/o and patch applied. First dressing in 24 hrs. Artificial tear drops instilled
87 hourly by day and ointment at night.

88 On fifth day traction suture in lower lid removed after lid action was resumed. Follow
89 up was done at 1 wk, 6 wks, 6 mths and 1 yr. Postop. Ptosis correction, lid position,
90 contour, lidlag and any other complications were noted.

91 Results of ptosis correction were grouped as :

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

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

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

97 **Observations:**

98 49 patients had congenital simple ptosis. 46 patients had unilateral congenital
99 ptosis. 3 of them had bilateral congenital ptosis.

100 In all 52 eyes were operated upon. Moderate ptosis. was seen in 38 eyes.

101 Severe ptosis. was seen in 14 eyes.

102 All had poor LPS action—nil to 5 mm.

103 Age grps.

104 < 10 yrs.— 4 pts.

105 10-25 yrs.-41pts.

106 25-50 yrs.-4pts.

107 Mean age—19.5 yrs.

108 Sex ratio

109 Males-26

110 Females-23

111 Preoperatively 2 patients had some kind of small surgery probably Fasanella servat
112 done in a plastic surgery camp.

113 1 patient had a suture cyst with abscess on conjunctival side.

114 Postop. results were very encouraging

115 43 eyes (82.69%) showed good correction. 7 eyes (13.46%) showed
116 satisfactory correction. 2 cases showed minor temporal lid drooping. One young
117 male had some fluid collection repeatedly at the stitch site, which was given hot
118 compresses, antibiotics and was drained which made it Ok. One had minor
119 entropion —only the lashes were directed down. Early lidlag was observed in
120 patients with large resection, later it was not much.

121 2 eyes (3.84%) showed poor correction, 1 had undercorrection seen after 6
122 mths.,this pt. had unilateral congenital moderate ptosis with 3 mm. LPS action,
123 the muscle was re-resected.

124 1 had overcorrection for which marginal myectomies were done and the muscle
125 relaxed, thus lid was corrected.

126 **Discussion:**

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

130 Perfect postop. Result should be

- 131 • a more normal symmetrical lift of upper lid
- 132 • adequate mobility when blinking
- 133 • a normal good lid contour and fold
- 134 • no diplopia/ sight threatening complications
- 135 • complete cover of eye on lid closure.

136 True Congenital ptosis occurs from levator muscle dystrophy .

- 137 • Unilateral Brow suspension :T/t of choice by many
- 138 • Bilateral Brow suspension after excision of Levator on normal side also done for
139 more symmetric results.

Brow suspension	Levator resection
Cosmetically disfiguring- lid lag.	Normal symmetrical lift
Relative Immobility of ulid	Adequate mobility while blinking
Infection and granuloma formation	No sight threatening complications
Gradual recurrence	Most physiological operation.

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142 Brow suspension with a number of materials like nonabsorbable sutures, silicone
143 slings , skin, muscle strips, banked/ fresh Fascia lata strips have been used for
144 suspension. But these procedures produce cosmetically disfiguring results due to
145 unilateral lidlag in downgaze and ptosis on upgaze. The lid remaining open in sleep
146 also worries the patient. Relative immobility of upperlid is a constant defect. Brow
147 suspension with nonabsorbable sutures caused infection and granuloma
148 formation and cicatricial bands formed at suture sites. Gradual recurrences of ptosis
149 were also reported.

150 Crawford (1977) with Fascia lata sling reported 12% granulomatous reactions and
151 10% recurrence rates.¹

152 Tillett and Tillett (1966) used silicon sling, believed elasticity allows lid to close
153 against its tension – temporary results.²

154 Katowitz (1979) in his frontalis sling with Supramid 4-0 in 55 cases reported 29 %
155 gradual droop.³

156 Blaskovics(1923), Illiff(1954), Berke(1959), Jones(1964) studied levator resection and
157 proved it to be effective⁴.

158 When the LPS muscle is present, the most reasonable and physiological
159 operation is to shorten it by partial resection. This gives the best functional and
160 cosmetic result.^{5,6,7,8}

161 Maximum levator resections could be performed easily with external approach
162 surgery. This also preserved tear producing structures and mullers muscle.^{9,10}

163 Abdulla Mujaini et al , in their study treated 7 similar patients successfully with no
164 complications and recommended this as an ideal procedure.¹¹

165 We had a similar result in larger sample size . We also did this in bilateral congenital
166 ptosis with very satisfying results.

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.

CONCLUSION—

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

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226 **Table1: Laterality**

227 49 patients had congenital simple ptosis

228 .All had poor LPS action nil to 4 mm.

229

Unilateral Ptosis	46
Bilateral Ptosis	3

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231 **Table 2: Severity of Ptosis**

232 52 eyes were operated upon.

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

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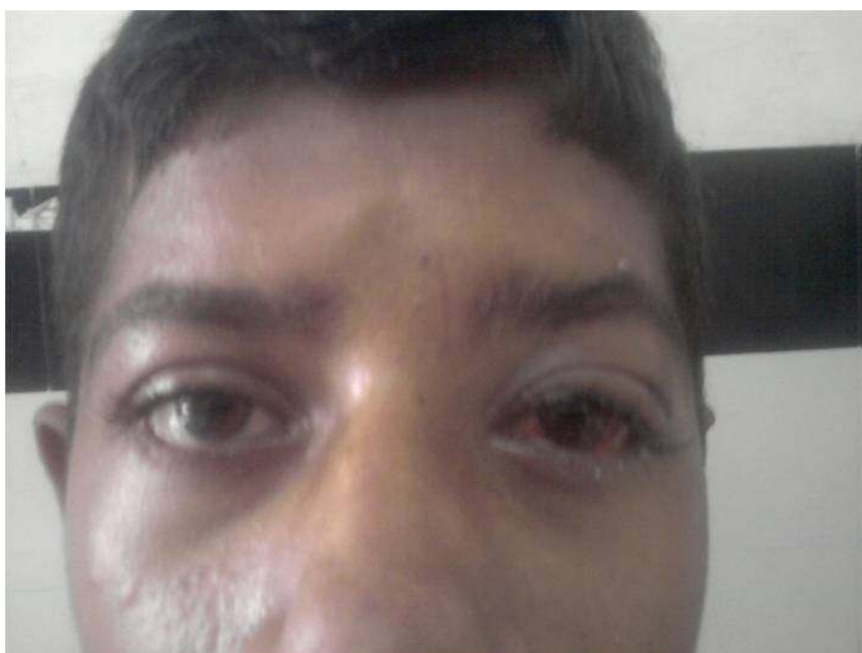
234 Legends

235 Figure 1. (LE) Severe Ptosis with nil LPS

236 Figure 2. Postop (LE)

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

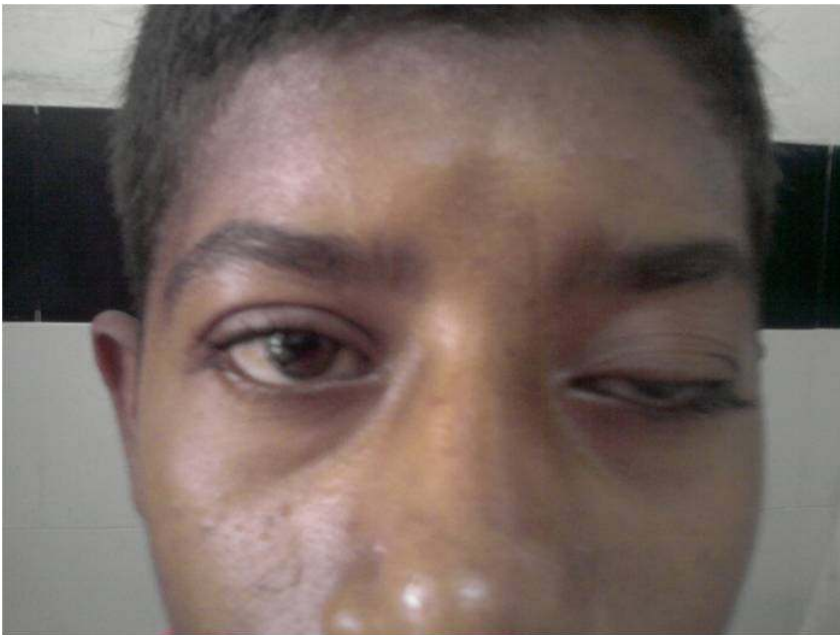
238 Figure 4. Postop (LE)



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