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A prospective study of aponeurotic ptosis and its management at tertiary eye hospital

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Abstract

Introduction: Ptosis is an upper eyelid problem which is seen in children and adults. Ptosis can reduce the visual fields and affect the quality of life. In adults, ptosis are due to an abnormality in the levator aponeurosis. Levator aponeurosis advancement surgery is done for aponeurotic ptosis.

Aim: To study the incidence, clinical feature and surgical outcome of aponeurotic ptosis in this study population.

Materials and Methods: This hospital based prospective one year study included all patients with a clinical diagnosis of aponeurotic ptosis(26 case with 33 ptosis) who were subjected to complete examination of ptosis. Levator advancement surgery through the transcutaneous approach was performed in 30 aponeurotic ptosis and followed up for 6 months.

Results: Aponeurotic ptosis (23.85%) is common among the acquired ptosis. Majority of aponeurotic patients were male (61.54%) and between the age group of 20-45 yrs. 30 ptosis were corrected surgically by levator aponeurotic advancement surgery (transcutaneous approach). 87% of cases had good success rate at 6 month follow up.

Conclusion: Aponeurotic levator advancement through transcutaneous approach gives good results functionally and cosmetically. In this procedure excess skin can be excised and creating future lid crease is easier. Levator advancement can be combined with blepharoplasty. This procedure can be performed not only by the plastic surgeon but also by the general ophthalmologist.

Keywords: Aponeurotic ptosis, Blepharoplasty, Incidence, Levator advancement, Transcutaneous approach

Introduction

Ptosis is an upper eyelid problem which is seen in children and adults.(1) Majority of ptosis in children are congenital. In adults, ptosis are due to an abnormality in the aponeurosis of levator. Ptosis can reduce the visual fields and affect the quality of life.(2,3) A previous studies review shows that in children, the prevalence of ptosis is 1% and in adults, the prevalence is 10%.(4,5) Ptosis can be unilateral or bilateral. Ptosis may be classified as mild (1-2 mm), moderate (3-4 mm), and severe (>4 mm).(6) Acquired ptosis can be classified into myogenic, neurogenic, mechanical and aponeurotic Ptosis.(7) Majority of acquired ptosis cases are due to aponeurotic changes such as dehiscence or disinsertion. In aponeurotic ptosis, the lid creases are higher due to disinsertion of aponeurosis to the tarsus.(8) Characteristics of aponeurotic ptosis are normal levator function, an elevated eyelid crease and deep superior sulcus. Indication for ptosis surgery are cosmetic reasons and visual disturbance. Ptosis surgery depends on amount of ptosis and levator function. Levator aponeurosis advancement is done to correct aponeurotic ptosis.(9)

Aim of the Study

To study the characteristics of aponeurotic ptosis in the study population.

Objectives

To study the following parameters in patients with aponeurotic ptosis.

1. Incidence of aponeurotic ptosis in the study population.
2. To study the clinical features of aponeurotic ptosis.
3. To study the surgical outcome of aponeutotic ptosis.

Inclusion criteria: All patients with clinical diagnosis of aponeurotic ptosis.

Exclusion criteria: congenital ptosis, myogenic ptosis, neurogenic ptosis and mechanical ptosis.

Materials and Methods

This hospital based prospective study was done from January 2016 to December 2016, at the Department of ophthalmology, Thanjavur Medical College, Thanjavur. All patients with a clinical diagnosis of aponeurotic ptosis were subjected to detailed ocular examination, complete examination of ptosis. Ptosis was examined thoroughly with special emphasis on the degree of ptosis, the amount of levator functions, Bells phenomenon and corneal sensation. Adequate and appropriate investigation were done before taking up the patient for surgery.

Based on the amount of levator function and degree of ptosis, surgical procedures were planned and performed for aponeurotic ptosis. Levator advancement surgery through the transcutaneous approach (external) was performed for all mild, moderate and severe aponeurotic ptosis with good levator function.

Postoperative evaluation was done on fifth postoperative day, at 1 month and at 6 month. Patients

were evaluated at 6months to determine the success rate and recurrence rate.

Surgical technique: The possibility of postoperative ptosis in the contralateral eyelid was assessed. In all cases of unilateral ptosis. It is assessed by lifting the eyelid to the desired level with one finger and observing any changes on the countra lateral eyelid height before surgery.

Technique of levator aponeurotic advancement surgery performed in this study was transcutaneous approach. The incision was marked along the eyelid crease symmetric to contralateral crease. The marking is extended nasally of to the area just above the upper punctum to avoid redundant skin in the medial canthal area.

The incision is made with a 15 Bard parker blade. Inferior skin flap is dissected in the central portion of the eyelid exposes the anterior surface of the tarsus. The edge of the dehiscent levator aponeurosis is seen as a white line of tissue superior to the upper border of the tarsus between the orbital fat and mullers muscle. The entire septum is incised horizontally. Once the levator has been exposed a double armed suture is passed through the central tarsus with partial thickness bites 1-2 mm below the superior tarsal. A central 5mm broad based bite is passed through the tarsus for better eyelid contour.

Results

Incidence of ptosis during the study period was 109 of which congenital ptosis -60 cases (55.05%), aponeurotic ptosis 26 (23.85 %) cases, myogenic ptosis -9 (8.25%) cases, neurogenic ptosis -11(10.09%)cases and mechanical ptosis 3(2.76%). 26 cases of aponeurotic ptosis were analysed in this study. Aponeurotic ptosis is most common among the acquired ptosis in this study (Table 1).

Table 1: Incidence of ptosis

Type of ptosis	Number of patients	Percentage
Cognetinal ptosis	60	55.05%
Aponeurotic ptosis	26	23.85%
Myogenic ptosis	9	8.25%
Neurogenic ptosis	11	10.09%
Mechanical ptosis	3	2.76%
Total	109	100%

Among 26 aponeurotic ptosis patients taken up in this study, 16 patients were male (61.54%) and 10 patients were female (38.46%). Male predominance was found in this study (Table 2). Majority of aponeurotic patients were in the age group of 20years to 45 years (Table 3). 19(73.08%) patients had unilateral ptosis and 7 (26.92%) patients had bilateral ptosis. Therefore 26 aponeurotic patients had 33 ptosis eyelid. Right eye was involved in 10 (38.46%) cases, left eye was involved in 9(34.61%) cases and both eyes were involved in 7(26.2%) cases. Predominance of RE involvement was seen in the study compare to the left eye (Table 4).

Table 2: Sex distribution of aponeurotic ptosis

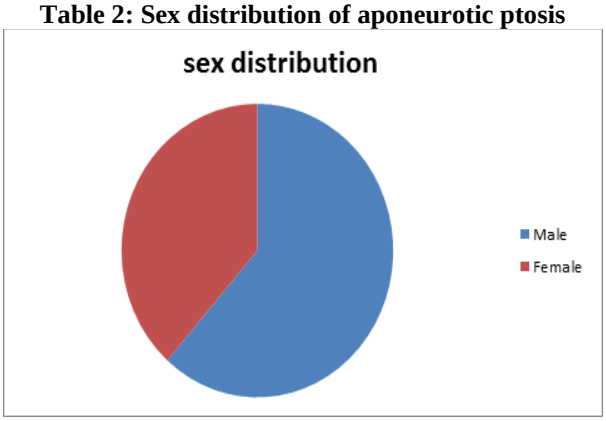

Table 3: Age distribution of Aponeurotic ptosis

Age	Number of patients	Percentage
1-15 years	3	11.54%
16-30 years	8	30.76%
31-45 years	6	23.09%
46-60 years	5	19.23%
61-75 years	3	11.53%
>75 years	1	3.84%
Total patients	26	100%

Table 4: Eye distribution of Aponeurotic ptosis

Eye distribution	Number of patients	Number of eyes
Right eye ptosis	10(38.46%)	10(30.31%)
Left eye ptosis	9(34.61%)	9(27.27%)
Both eye ptosis	7(26.92%)	14(42.42%)
Total patients	26(100%)	33(100%)

Mild degree of ptosis (1-2mm) was found in 4 cases (15.38%), moderate degree (3 mm) in 16 cases (61.54%) and severe ptosis (4 mm and above) 6 cases (23.08%). Majority of cases found to have moderate degree of ptosis (Table 5). All 26 aponeuotic ptosis patients (33ptosis eyelids) had good levator function, adequate Bells phenomenon, intact corneal sensation. Among 26 patients with 33 ptosis, 30 ptosis were corrected surgically and 3 cases of bilateral ptosis did not get operated for the other eye.

Table 5: Degree of Aponeurotic ptosis

Degree of ptosis	Number of patients	Number of eyes
Mild ptosis	4(15.38%)	6(18.18%)
Moderate ptosis	16(61.54%)	18(54.54%)
Severe ptosis	6(23.08%)	9(27.28%)
Total	26(100%)	33(100%)

Out of 30 ptosis which are treated surgically using the technique of levator aponeurotic advancement through transcutaneous approach, 3 ptosis were operated under general anaesthesia and 27 ptosis were operated under local anesthesia. 18 cases of male and 12 cases of female underwent ptosis surgery. Majority of cases were in the age group of 20 years to 45 years. Most probably due to the awareness and cosmetic consciousness in the age group and also the lack of interest for cosmetic correction in older age group.

In our study, three suture technique was used for levator advancement in 22 ptosis and single broad based mattress suture technique was done in 7 ptosis cases. Combined procedure of levator advancement and Blepharoplasty was done in one ptosis (Table 6). The success rate of the surgery was considered as good if the corrected ptosis lid is within 1 mm of the height of the contralateral side. 87% of cases had good success rate at 6 month follow up.

Table 6: Surgical management of aponeurotic ptosis

Type of surgery	Number of patients	Number of eyes
Levator aponeurotic advancement (three suture technique)	22	73.34%
Levator aponeurotic advancement (single suture technique)	7	23.33%
Combined procedure of levator advancement and Blepharoplasty	1	3.33%
Total	30	100%

Totally four patients had postoperative complications which was detected during follow up visits. One patient had a conjunctival prolapsed, one patient developed dermatochalasis and two patients had mild lid peaking.

Discussion

27 ptosis were operated under local anesthesia. It gives the greatest advantage to the surgeon, because on the table the eyelid skin incision which form futures skin crease can be marked by comparing it with contra lateral eyelid. The final suture adjustments can also be made by asking that patient to open both eyes and the surgeon can access the eyelid height and contour. In this study local anaesthesia is advantageous than general anaestesia which is similar to Anderson RI et al study.[10]

In this study, three suture technique was used for levator advancement in 22 ptosis. 3 suture technique gave good cosmetic results in this study which is comparable with Ibrar Hussain et al study.[11]

7 aponeurotic ptosis underwent single broad based mattress suture technique for levator advancement. This eliminates the need for medial and lateral suture. Making the procedure easier to perform and results in better contour of eyelid in our study which is comparable with Lilu-D et al study.[12]

Most of the aponeurotic ptosis cases had a thinned out aponeurosis in our study which is comparable with Hosal Banu M.M.D et al study.[13]

3 mild ptosis, 18 moderate ptosis and 9 severe ptosis were corrected surgically through anterior transcutaneous approach in this study. Advantages of this technique are better exposure of the tissue, lid need not be everted, greater access to levator aponeurosis, aponeurosis can be identified clearly and blepharoplasty can be combined with levator advancement procedures which is comparable with, Shovlin JP et al.[14]

One ptosis was performed with combined procedure of levator advancement and blepharoplasty. Combined procedure can also be done using a transcutaneous approach which is comparable with Wilkins R et al study.[15]

Conclusion

Aponeurotic ptosis is the most common among the acquired ptosis. Majority of the patients belong to the age group of 20-45 yrs of age. Aponeurotic ptosis surgery- levator advancement, transcutaneous approach gives good results functionally and cosmetically. In this procedure excess skin can be excised and forming a future lid crease is easier. Levator advancement can be combined with blepharoplasty. This procedure can be performed not only y the plastic surgeon but also y the general ophthalmologist.

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