Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v31i4.5319

EFFICIENCY OF BROW SUSPENSION WITH AUTOGENOUS FASCIA LATA IN SIMPLE CONGENITAL PTOSIS

Dr. Noman Ahmed Shaikh[1*], Dr. Asadullah Jatoi[2], Dr. Mona Liza Mahesar[3]

[1*]MBBS, MCPS, FCPS (Ophthalmology), Assistant Professor Institute Of Ophthalmology LUMHS Jamshoro. drdnas@gmail.com, 0333-3426369
[2]MBBS, FCPS (Ophthalmology), FCPS(Vitreo Retinal), Assistant Professor Institute Of Ophthalmology LUMHS Jamshoro.drasadullahjatoi@gmail.com, 0333-2764665
[3]MBBS, MS (Ophthalmology), Assistant Professor Institute Of Ophthalmology LUMHS Jamshoro. mona.mahesar23@gmail.com, 0334-2661411

***Corresponding Author:** Dr. Noman Ahmed Shaikh
*MBBS, MCPS, FCPS (Ophthalmology), Assistant Professor Institute Of Ophthalmology LUMHS Jamshoro. drdnas@gmail.com, 0333-3426369

Abstract

Purpose: To study the Efficiency of brow suspension with autogenous Fascia Lata in simple congenital ptosis

Study Design: Quasi-Experimental study

Place and Duration of Study: The detailed research was conducted in the Institute of Ophthalmology, Liaquat University Hospital Jamshoro, between January 2020 and June 2021.

Material and Methods: This study included 11 subjects presenting with clinical symptoms of unilateral and bilateral ptosis along with poor levator function (<5mm). We carried out frontalis suspension surgery using autogenous fascia lata. After taking their consent, Patients' mean age, standard deviation, post-operative results were recorded. All the patients were followed up at 4 and 6 weeks, and results were evaluated using SPSS Version.20.

Results: The mean age of the subjects was 17.08± 3.629 years, where males to females percentages are 42% to 58%.The mean Inter palpebral fissure height (IPFH) was recorded to be 5.416 ±1.505 mm, and mean MRD (marginal reflex distance) recorded was -0.666 ± 1.073 mm while post-surgery the IPFH was 9.4167 ±1.312 and MRD was 3.45 ± 0.655 mm at 05-6 weeks. All the patients got relieved from congenital ptosis with the frontalis brow suspension technique.

Conclusion: There were no notable complications in the patient's and frontalis suspension is suggested to be a cost-effective and successful procedure for treating poor levator muscle functions.

Keywords: Congenital ptosis, amblyopia, Eyelid surgery, IPFH (Inter palpebral fissure height), MRD(marginal reflex distance)

Introduction

Ptosis Surgery was first cited by an Arabian ophthalmologist as reported by Rycroft for the eyelid treatments of Ptosis. [1]A droopy eyelid is a low condition that usually occurs in the early years of development and is known as congenital Ptosis. Usually, in ptosis surgery, this loosening of eyelids results from some malfunctioning nerve or muscles of eyelids that can be unilateral or bilateral.[2,16] In isolation; however, congenital Ptosis can lead to both recessive and dominant conditions and can develop other systemic issues too. Due to the damage of this function and uncharacteristic posturing, patients can suffer from visual problems like uncorrected astigmatism or deprivation amblyopia.[3]
The incidence of this condition has been estimated at -3% although some other research suggest it to be 26.54% in children and 18.7% of the population has been reported to have refractive errors.[4] However, etiology is not known to most; the most prevalent form of congenital Ptosis is myogenic Ptosis. Patients are diagnosed when the upper lid goes as down as the lower limbus and stays up when patients face down. Depending on the functionality of the levator (which could be less than 4mm), one of the best surgical methods is brow suspension of the upper lid onto the front muscle, which subsequently elevates the eyelid. Nowadays, fascia lata is known as the most effective material used in surgery; however, it was defined by Payr. Later on, in 1956, Crawford went through modifications and employed the technique.[5,6]In our study, we will be concentrating on the efficacy of brow suspension with autogenous fascia lata in simple congenital Ptosis.

Material and Methodology

The detailed research study was carried out in the Institute of Ophthalmology, Liaquat University Hospital Jamshoro, between January 2020 to June 2021. This study included 11 subjects presenting with clinical symptoms of unilateral and bilateral Ptosis along with poor levator function (<5mm). We carried out frontalis suspension surgery using autogenous fascia lata. After taking their consent, the Patient's mean age, standard deviation, and the valuation of the variables age-group and gender with the outcome of the procedure were performed using the P-value with a significant level of 5%. All the patients were followed up at 4 and 6 weeks, and data pre and post-operation were recorded through photographic evidence, and the outcomes were evaluated after 4- 6 weeks which included noting MRD (marginal reflex distance) and Inter palpebral fissure height (IPFH) and complications using SPSS version 20.

Exclusion Criteria;

- Patients with a pre-condition of poor bell's phenomenon
- Patients with Horner syndrome
- Patients with external ophthalmoplegia that is progressive and chronic
- Patients with Myasthenia gravis
- Patients with Marcus Gunn jaw winking syndrome and Blepharophimosis syndrome
- Patients having a history of traumatic Ptosis

All procedures were conducted under general anesthesia.
One team carried out the procedure after putting the patient supine after giving him the general anesthesia. The technique used was Crawford for brow suspension, and autologous fascia lata was employed to crop patients' thigh mass. Three 1.5mm incisions were made two mm above the lash line through skin orbicularis to reach the tarsal plate. One was at the level of the medial limbus, and the other was at the lateral limbus. The third was at the papillary line with the eye in the primary position. Another two 1.5 mm stab incisions were made after aligning the medial and lateral canthus and positioning it on the top of the hairline. Subsequently, the 3rd stab cut was made 8mm overhead the two brow incisions. After being harvested from the thigh, Fascia lata was passed in the muscular sub-plan and protected by a knot in the superior incision. All the incisions above the brow were sutured with 4/0 vicryl. Patients were suggested to take antibiotics and analgesics orally, while topical ointments were also used for recovery for 15 days.

Results

In our research, a total of 11 patients were included, with the mean age of the subjects being 17.08± 3.629 years with males to female percentages of 42% to 58%. The maximum age in the year was 22, and the minimum was observed to be 12-year-old. (Table-1)

Demographics	Variable	Total Population
	Mean Age ± SD	17.08± 3.629
	Max	22
	Min	12
	Gender, No (%)	M:5 (42%) ,F: 7 (58%)

Table-1: Demographics of Patients

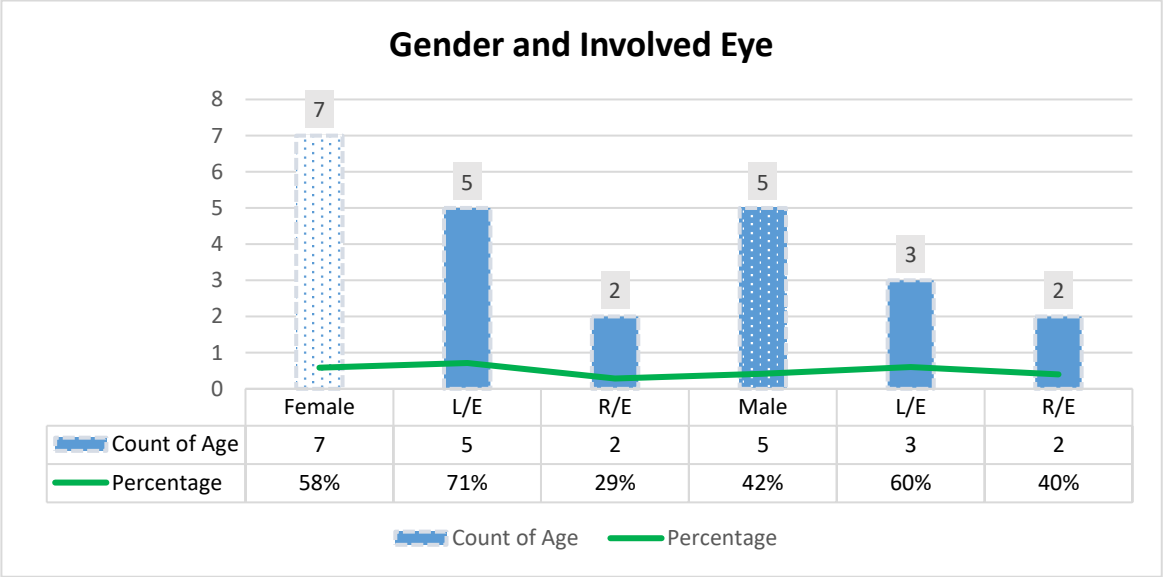

Figure-1: Gender and Involved Eye Frequency distribution

Amongst the total 7 females, 71% (5) were left eye and 29% (2) were right eye and out of the 5 male patients, 60% (3) were left eye and 40% (2) were right eye i.e., all were unilateral in our data. (Figure-1)

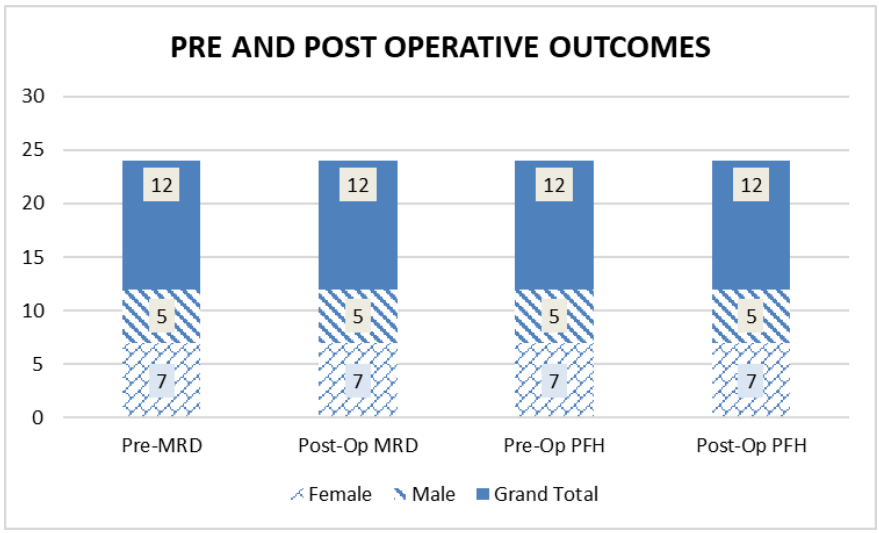

Figure-2: Pre- and Post-Operative Outcomes

Amongst the Patient who underwent the Ptosis surgery, patients' mean (average) time for the relief was five to six weeks, and the standard deviation was 1.42 weeks. The mean Inter palpebral fissure height (IPFH) was recorded to be 5.416 ±1.505 mm, and mean MRD recorded was -0.666 ± 1.073 mm while post-surgery, the IPFH was 9.4167 ±1.312 and MRD was 3.45 ± 0.655 mm at 04-06 weeks. All the patients got relieved from congenital ptosis with frontalis brow suspension technique after the surgery with chi-square value of pre-post PFH to be 0.4186 and p-value being 0.517613 while chi-square value in MRD is -0.0162 with p-value being 1gender wise which is also significant as its more than 0.05.

Discussion

One of the most common conditions of Ptosis is Congenital Ptosis, and unarguably the most significant challenge faced by the ophthalmologist is the correction of Ptosis adequately to improve its function and cosmetic outlooks. [7]

Depending on the ease, experience, and comfort of the surgeon and the degree of the condition of Ptosis clinically observed, there are various methods that are selected for the surgery of the congenital Ptosis. However, brow suspension with autogenous fascia lata is very common due to the effectiveness and success rate of the procedure. [8,13]

Commonly about 70% of cases are reported to be unilateral, and very few are bilateral and can be treated in isolation and even occur along with other diseases. [7]

Farhan Ali and Colleagues[9] reported 29% bilateral and 71% unilateral cases in his study, with 67% male and 33% females in a population of 62. underwent ptosis surgery. However, in our research of 11 subjects, all cases were unilateral and male 42% and female 58% with a mean age of 17.08± 3.629 years (12years to 22 years) while Alper et al. found the mean age to be 11.3 ± 8.6 years (3months to 26 years). Similarly, Lee et al., in their research, found the age bracket between 2 to 5 years, and Garcia et al. research of 8 patients showed 1.8 ± 0.6 years who underwent frontalis suspension.
Kasturi Bhattacharjee et al., cited by Farhan ali [9] showed that IPFH and MRD were both statistically and clinically significant. While Farhan Ali and colleagues reported preoperative means of 4.40±0.910mm and mean MRD was 0.50 ± 1.00 mm as statistically important to rise in IPFH and MRD after surgery. Comparatively, our patients showed mean IPFH of 5.416 ±1.505 mm and mean MRD of -0.666 ± 1.073 mm was also statistically important with a P-value of 1 as it more than 0.05. Our study reported no complications, and the technique corrected all 11 subjects that presented with congenital Ptosis. Similarly, Kashif Ali [11]and colleagues also reported promising outcomes of the procedure using autogenous fascia Lata. Even Yoon et al. [12] recorded outstanding autogenous fascia Lata results in contour, symmetry, and cosmetic results.
Moreover, Chung H [13] also reported better cosmetic results in frontalis suspension surgery using autologous fascia lata. Although Khan A et al. [14] showed relatively 93% results in their study, their study showed comparison with silicon rods to be less effective. At the same time, Jubbal and friends [15] showed unilateral congenital Ptosis in 65% of his subjects, mainly left-side cases being more common than right-sided Ptosis.
The study conducted by Nora and friends reported a significant improvement in the levels of MRD1 and VFH in patients, while Young found postoperative surgical effects to be similar in patients who chose between Levator resection and sling operation . [18]
According to various studies, congenital eyelid problems are not very common and can get tricky for surgeons with regard to cosmetic expectations of the procedure. [16]

Conclusion

There were no notable complications in the patient’s and frontalis suspension is suggested to be a cost-effective and successful procedure for treating poor levator muscle functions.

References

1. Gonzalez, M.O., & Durairaj, V. (2011). The History of Ptosis Surgery**.**
2. Wang, Y., Xu, Y., Liu, X. et al. Amblyopia, Strabismus and Refractive Errors in Congenital Ptosis: a systematic review and meta-analysis. Sci Rep 8, 8320 (2018). https://doi.org/10.1038/s41598-018-26671-3
3. Ahmed AHMK & Nesa Z. Post-Operative Associated Ocular Status after Cataract Surgery with CTR in Patients with Zonular Dehiscence . Sch J App Med Sci; Mar 2021; 9(3): 445-449.
4. Marenco M, Macchi I, Macchi I, Galassi E, Massaro-Giordano M, Lambiase A. Clinical presentation and management of congenital ptosis. Clin Ophthalmol. 2017 Feb 27;11:453-463. doi: 10.2147/OPTH.S111118. PMID: 28280295; PMCID: PMC5338973.
5. E. Payr, "Plastik mittels freier Faszientransplantation beiptosis," Deutsche Medizinische Wochenschrift, vol. 35, p. 822,1909.
6. W. W. Wright, "The use of living sutures in the treatment ofptosis," Archives of Ophthalmology, vol. 51, pp. 99–102, 1922.
7. Marenco M, Macchi I, Macchi I, Galassi E, Massaro-Giordano M, Lambiase A. Clinical presentation and management of congenital ptosis. Clin Ophthalmol. 2017;11:453-463 https://doi.org/10.2147/OPTH.S111118
8. Bansal RK, Sharma S. Results and complications of silicone frontalis sling surgery for ptosis. J Pediat Ophthalmol Strabismus. 2015;52(2):93-97.
9. Ali, Farhan & Khan, Muhammad & Sharjeel, Muhammad & Din, Zaheer & Murtaza, Bilal & Khan, Asfandyar. (2017). Efficacy of brow suspension with autogenous fascia lata in simple congenital ptosis. Pakistan Journal of Medical Sciences. 33. 10.12669/pjms.332.11521.
10. Chung H, Seah LL. Cosmetic and functional outcomes of frontalis suspension surgery using autologous fascia lata or silicone rods in pediatric congenital ptosis. Clin Ophthalmol. 2016;10:1779-1783 https://doi.org/10.2147/OPTH.S113814
11. Ali K, Ameen SS, Asim I M, Khalid. Frontalis Brow Suspension for Congenital Ptosis using Silicon Dacrocystorhinostomy Tube with Three Months Follow up; J Bahria Uni Med Dental Coll Jul - Sep 2016;6(3):191-3.
12. Elsamkary MA, Roshdy MM. Clinical trial comparing autogenous fascia lata sling and Gore-Tex suspension in bilateral congenital ptosis. Clin Ophthalmol. 2016 Mar 7;10:405-9. doi: 10.2147/OPTH.S95383. PMID: 27022237; PMCID: PMC4788373.
13. Chung H, Seah LL. Cosmetic and functional outcomes of frontalis suspension surgery using autologous fascia lata or silicone rods in pediatric congenital ptosis. Clin Ophthalmol. 2016;10:1779-1783 https://doi.org/10.2147/OPTH.S113814
14. Khan A, Majid O, Wani J. Fascia lata versus silicone sling frontalis suspension for correction of congenital blepharoptosis. Int Jof Med Sci and Public Health.2014;3(6):700-704.
15. Jubbal KT, Kania K, Braun TL, Katowitz WR, Marx DP. Pediatric Blepharoptosis. Seminars in Plastic Surgery. 2017 Feb;31(1):58-64. DOI: 10.1055/s-0037-1598631. PMID: 28255291; PMCID: PMC5330798.
16. Al-Mujaini A, Yahyai MA, Ganesh A. Congenital Eyelid Anomalies: What General Physicians Need To Know. Oman Med J. 2021 Jul 6;36(4):e279. doi: 10.5001/omj.2021.26. PMID: 34267952; PMCID: PMC8258921.
17. Pavone P, Cho SY, Praticò AD, Falsaperla R, Ruggieri M, Jin DK. Ptosis in childhood: A clinical sign of several disorders: Case series reports and literature review. Medicine (Baltimore). 2018 Sep;97(36):e12124. doi: 10.1097/MD.0000000000012124. PMID: 30200099; PMCID: PMC6133583.
18. Young SM, Imagawa Y, Kim YD, Park JW, Jang J, Woo KI. Lagophthalmos after congenital ptosis surgery: comparison between maximal levator resection and frontalis sling operation. Eye (Lond). 2021 Apr;35(4):1261-1267. doi: 10.1038/s41433-020-1081-z. Epub 2020 Jul 10. PMID: 32651544; PMCID: PMC8115615.
19. Alper Mete, Halil H. Cagatay, Can Pamukcu, Sabit Kimyon, Oguzhan Saygılı & Kıvanç Güngör (2017) Maximal Levator Muscle Resection for Primary Congenital Blepharoptosis with

Poor Levator Function, Seminars in Ophthalmology, 32:3, 270-275, DOI: 10.3109/08820538.2015.1068339

20. Lee J, Aryasit O, Kim Y, *et al* Maximal levator resection in unilateral congenital ptosis with poor levator function *British Journal of Ophthalmology* 2017;**101:**740-746.
21. García-Cruz, Ignacio M.D.*; Barrancos, Constanza M.D., Ph.D.*,†; Alonso-Formento, Nieves M.D.*; Albandea, Ana Rosa M.D.*; Losada-Bayo, Diego M.D., Ph.D.‡; García-Ruiz, Oscar Andree M.D.*; Sales-Sanz, Marco M.D., Ph.D.*,§ Frontalis Suspension Using Autologous Fascia Lata in Children Under 3 Years Old, Ophthalmic Plastic and Reconstructive Surgery: July/August 2021 - Volume 37 - Issue 4 - p 377-380 doi: 10.1097/IOP.0000000000001882