

# COMPARISON BETWEEN POLYTETRAFLUOROETHYLENE SLING AND SILICONE TUBES SLING IN FRONTALIS SUSPENSION SURGERY FOR PTOSIS WITH POOR LEVATOR FUNCTION

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## Introduction

Congenital ptosis has a psychological and functional impact on the child. Both the kid and the parents find the appearance to be cosmetically alarming. If severe congenital blepharoptosis is not corrected, amblyopia, with sequential permanent poor vision, may develop. Frontalis suspension is one of the most frequently performed surgeries for the management of congenital ptosis with poor levator muscle function (<4 mm). The idea behind the procedure is to use the frontalis muscle's power to lift the ptotic eyelid by connecting the tarsal plate to the eyebrow with various sling materials. As opposed to autogenous fascia lata, synthetic slings are more widely accessible and do not have donor site complications. In recent years, numerous studies have evaluated the success rates of various sling materials used in frontalis suspension surgery. Polytetrafluoroethylene (PTFE) and silicone tubes are the most available, convenient, and also have low risk of complications here in Egypt.

### Methods:

Detailed history taking and general ocular examination were done. Preoperative ptosis assessment included palpebral aperture, upper eyelid crease, marginal reflex distance (MRD 1), levator function, and Bell's phenomenon. Frontalis suspension surgery was done by Fox pentagonal technique (open approach).

Postoperative assessment included:

Functional outcomes: MRD 1, recurrence, lagophthalmos, signs of corneal exposure.

Cosmetic outcomes: eyelid crease, hooding, lid margin irregularities, symmetry in primary gaze.

Sling complications: extrusion, infection, granuloma formation, migration of the sling material.

Satisfaction / success: Outcomes with MRD1 of 3 mm or more, symmetry (<2 mm difference between MRD1 in both eyelids), regular contour, a well-formed crease, a lack of hooding, and no sling complications were considered satisfactory. Outcomes with asymmetry, irregular contour, an ill-formed crease, hooding, undercorrection, recurrence, and/or sling complications were considered unsatisfactory.

**Table 2:** Comparison between the PTFE and the silicone groups according to satisfactory results / success rates

	The PTFE group (n=22)		The silicone group (n=21)		p
	No.	%	No.	%	
<b>Satisfactory results</b>	17	77.3	10	47.6	0.044*
<b>Non satisfactory results</b>	5	22.7	11	52.4	

P: p value for comparing between the PTFE and the silicone groups  
\*: statistically significant at  $p \leq 0.05$   
PTFE: polytetrafluoroethylene

## Aim of the work

The aim of the work was to compare polytetrafluoroethylene (PTFE) sutures and silicone tubes when used as a sling for lifting the ptotic eyelid with poor levator function in frontalis suspension surgery.

## Results

**Table 1:** Comparison between the PTFE and the silicone groups according to MRD1

MRD1	The PTFE group (n=22)	The silicone group (n=21)	p
<b>Preoperative</b>			
<b>Min. – Max.</b>	-2.0 – 1.0	-3.0 – 1.0	0.140
<b>Mean ± SD.</b>	-0.14 ± 0.94	-0.67 ± 1.20	
<b>Median (IQR)</b>	0.0 (-1.0 – 1.0)	-1.0 (-2.0 – 0.0)	
<b>Postoperative</b>			
<b>Min. – Max.</b>	0.0 – 4.0	0.0 – 4.0	0.014*
<b>Mean ± SD.</b>	2.95 ± 1.0	2.14 ± 1.20	
<b>Median (IQR)</b>	3.0 (3.0 – 4.0)	3.0 (1.0 – 3.0)	
<b>Z (p1)</b>	4.143* (<0.001*)	4.048* (<0.001*)	

MRD1: margin reflex distance 1 PTFE: polytetrafluoroethylene

\*: statistically significant

P: p value for comparing between the PTFE and the silicone groups

P<sub>1</sub>: p value for comparing between Pre and Post in each group

## Conclusion

Frontalis suspension is a very effective procedure to correct congenital ptosis with poor levator function. Both PTFE and silicone tubes are effective sling materials in frontalis suspension. PTFE suture is a biocompatible material that lacks an associated inflammatory response and has excellent handling characteristics.

Frontalis suspension with PTFE suture shows reliable, stable eyelid elevation (MRD1) with a lower incidence of ptosis recurrence than silicone tubes. Using PTFE sutures offers a lower recurrence rate and more satisfactory final surgical results when compared to silicone tubes as a sling material in frontalis suspension.

## Patients and Methods

This prospective study included 43 eyelids of 33 patients with severe congenital ptosis and poor levator function ( $\leq 4$  mm). Patients were randomly assigned to two groups according to sling material: the PTFE group (17 patients with 22 eyes): using polytetrafluoroethylene and the silicone group (16 patients with 21 eyes): using Silicone tubes.

**Inclusion criteria:** - Congenital ptosis. - Poor levator function.

**Exclusion criteria:** - Scarring of eyelid tissue / previous eyelid surgeries.

- Post traumatic . - Marcus Gunn jaw winking syndrome.