Sutureless Levator Plication by Conjunctival Route
A New Technique

DALJIT SINGH, MD,
APJIT KAUR, MD,
KIRANJIT SINGH, MD,
SEEMA K. SINGH, MD,
RAVI S.J. SINGH, MD.

ABSTRACT
The experiences of sutureless levator plication by conjunctival route surgery are described in 80 primary operations performed for all grades of congenital ptosis in the past 2 years. The surgical steps, postoperative care and postoperative complications are reviewed.

INTRODUCTION
Bowman, in 1857, was the first to perform shortening of the levator muscle by the conjunctival route. Blaskovics (1923) described levator tendon shortening with resection of upper portion of tarsus, via conjunctival route (1). Agatson (1942) modified the operation as follows. The upper lid is everted and the upper border is fixed with a traction suture. The tarsus is incised 3 mm below the upper border and pretarsal space is reached. Underneath is levator aponeurosis. The aponeurosis is undermined with scissors to be replaced by a ptosis clamp or a straight hemostat, which is tightened. The attachment of the Muller muscle is severed from the tarsal edge. A strip of tarsal plate is excised. The clamp is turned down to align with the levator. The structures in the clamp are incised to sever their terminal attachments. Traction is made on the levator that is then freed from its attachments to the orbital septum. The levator is freed in the orbit with blunt dissection. The levator is then totally freed from the orbital septum. The medial and the lateral horns are snipped, and the muscular levator is delivered up to 25 mm as needed. Three mattress sutures are passed through aponeurosis or the muscle at predetermined levels above the clamp; they are then passed through the earlier undermined palpebral conjunctiva. The excess levator and Muller’s muscle are excised about 2 mm from the suture line. The sutures are then carried through the upper tarsal edge and through the full thickness of the lid to crease level and tied over a bolster of rubber band. A Frost suture is applied (3).
Since 2004, we have been performing levator plication from the conjunctival route in an entirely different manner. In this technique the levator is picked up from the depth of the fornix and attached at three points, to the anterior surface of the tarsal plate, without the need for extensive dissection or excision of tissues. The closure is sutureless. The operation is done only as a primary procedure.

**STEPS OF OPERATION**

General anesthesia is preferred in all pediatric and most adult patients because it gives maximum relaxation of the tissues.

The steps of surgery are as follows:

1. The lid is double everted with a Desmarre’s lid retractor (Fig. 1).
2. Three stout nylon sutures are passed through the upper edge of the tarsal plate (Fig. 2).
3. The conjunctiva is ballooned by the injection of lidocaine with epinephrine. Sometimes the needle prick causes unwanted bleeding under the conjunctiva. To avoid this, a thin cannula is used to inject the fluid from the edge of the nylon suture entry point (Fig. 3).
4. Three vertical incisions are made in the ballooned conjunctiva starting from the fornix and reaching the entry points of nylon sutures. These incisions are of conjunctival depth, meant to expose the underlying Muller’s muscle. They are preferably made with the Fugo Blade that incises/ablates without charring and shrinkage of the tissues. The blade is used at low power and moved slowly. Quick movement causes tearing of the tissue plus bleeding. Any oozing point is touched with the Fugo Blade to stop bleeding. We have not used radiocautery or forceps scissors to create the incisions, since the former can cause charring and the latter can cause...