

Conjunctival Closure in Strabismus Surgery with ‘Tent-up’ Technique

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Received: April 18, 2022

Published: May 04, 2022

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Abstract

Closure of the conjunctiva during strabismus surgery can be expedited with the help of a pair of Moody curved fixation forceps. Fixing the forceps at the edges of the conjunctival incision creates tenting of the conjunctiva which ensures a tenon-free closure. Not only is this technique time-saving, but it can be done without the additional need for an assistant. Strabismus surgeons can adopt this simple and effective technique to reduce the surgical time and provide optimum healing of conjunctiva.

Keywords: Conjunctival Closure; Strabismus Surgery; Tent-up Technique; Surgical Technique; Surgical Instruments; Moody Curved Fixation Forceps

Key Messages

Adopting a modified technique of conjunctival closure in strabismus surgery helps in saving time and money. It reduces the risk of general anesthesia to the patient and enables the surgeon to be independent of an assistant.

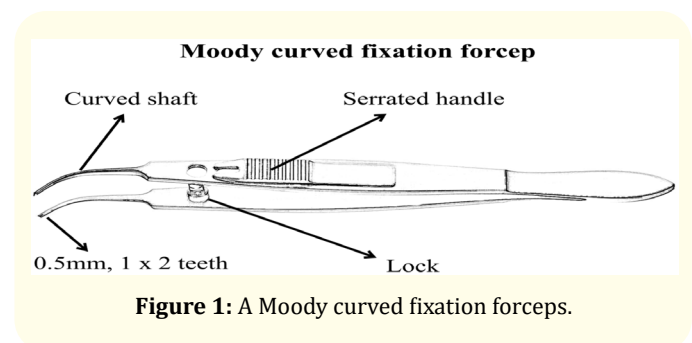
Introduction

An increasing trend in the number of strabismus surgeries has been seen in the past [1]. With such high volumes of surgery, there is a need to expedite the surgical time. An important but seemingly insignificant part of strabismus surgery is conjunctival closure. As fornix incision is the most commonly preferred incision among strabismus surgeons, we describe an instrument-assisted ‘Tent-up’ technique of conjunctival closure in such incisions. This technique can be a faster and assistant-independent alternative to the routine practices of conjunctival closure in strabismus surgery.

Methods

After the creation of a fornix incision and performing extraocular muscle surgery, the conjunctiva is to be closed at the incision site.

The ends of the conjunctiva are identified by their pinkish color, differentiating from the white color of the tenon’s capsule. A pair of Moody curved fixation forceps (1x2 teeth, 0.5 mm with lock, Figure 1) are applied at the ends of conjunctival incisions and locked. The forceps are positioned in such a way, enabling tenting up of conjunctiva from the ocular surface, facilitating retraction of the tenon under the edges (Figure 1A and 1B). The conjunctiva is closed with the help of 8-0 absorbable sutures while the forceps hold up the edges of the conjunctiva (Figure 1C). The forceps are unlocked and removed at the end of the procedure or as required.



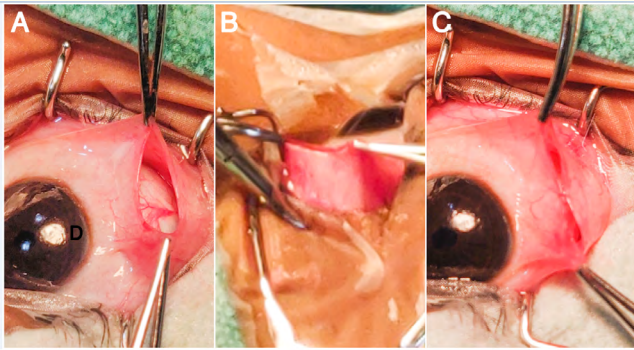


Figure 2: A- A pair of Moody curved fixation forceps kept at the conjunctival ends of a fornix incision, tenting the conjunctiva. B- Side view of the operative field demonstrating the tenting up of conjunctiva. C- Conjunctiva partially sutured with Moody forceps in place.

Discussion and Conclusion

Strabismus surgery is being performed more frequently than in the past. Strabismus surgeons usually require a well-trained assistant in the form of a staff nurse, ophthalmology residents, or fellows while performing surgeries. Recently, a solo surgeon technique has been described where sutures are tucked behind cook speculum for muscle recession and resection to provide traction [2]. These slight modifications in surgical technique have led to increased efficiency and reduced cancellations as per the authors. Similarly, we describe a modified version of conjunctival closure with a 'Tent-up' technique, where conjunctiva is held at ends of peritomy and tented up with the help of Moody curved fixation forceps.

An important benefit of the modified technique is, that no assistant is required during the procedure. This helps in reducing the cost of surgery to the patient and surgeon [3]. More over, the assistant can be further utilized in other fruitful activities such as facilitating the whiteboard details and preparation of the next case or helping in surgical notes for providing both quality and efficiency [4]. Another major advantage is reduced surgical time. Tenting up of the conjunctiva allows clear demarcation of Tenon's capsule(white) and conjunctiva(pink). This minimizes the time wasted in repeated grabbing and identification of tissue layers and allows for an approximation of the conjunctiva without the tenon's capsule. These two advantages minimize the risks of tenon

prolapse and conjunctival cyst post-operatively. This would also imply a reduced risk of re-surgeries requiring general anesthesia in the pediatric age group. Also, faster surgery minimizes the harmful neurological effects of prolonged general anesthesia, which becomes more important when multiple extraocular muscles are operated upon [5]. This technique is not new but the skill transfer is lost over the decades. Beginners and fellows-in-training would benefit the most as it simplifies the final steps of surgery.

The cost of a pair of Moody curved fixation forceps ranges from 1000 to 6000 Indian rupees (13-82 United states dollars) at the time of writing this article. The technique is described for fornix incision, as this is the most frequently performed by strabismus surgeons [6]. However, this technique can be modified and used for limbal and swan incisions as well.

In conclusion, the 'Tent-up' technique of conjunctival closure with the help of Moody curved fixation forceps can be adopted for conserving time and money, without causing increased risk to the patient. However, larger studies have to be conducted for a true estimation of this impact.

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