

Some Observations Relative To The Levator Veli Palatini Muscles In The Cleft Palate

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Three observations relative to the levator veli palatini muscles in the cleft palate patient are emphasized. They are: 1) the fascia of the levator muscle is readily identifiable and should be preserved intact during the dissection and retrodisplacement of the muscles during palatoplasty; 2) the levators are attached to the palatine bone via a tendon-like condensation of muscle fibers; and 3) adequate release of the band-like attachment of soft tissue to the anteriolateral aspect of the levator is essential for optimal retrodisplacement of the muscle unit.

There are three features of the levator veli palatine muscle that we believe to be very relevant to cleft palate repair. They are: 1) the fascia of the levator veli palatini muscles (hereinafter levator) is readily identifiable and can be preserved intact during the dissection of the muscle; 2) the levators are attached to the posteriomédial margin of the palatine bone via a tendon-like condensation of muscle fibers (Maue-Dickson, 1980) and; 3) there is a band-like attachment of the surrounding soft palate tissues to the levator fascia at the anterolateral surface of the muscle.

Reconstruction of the cleft palate must be directed at restoration of velar function as well as closure of the palatal defect. Meticulous dissection of the levators with preservation of their fascial integrity is essential if the muscles are to remain optimally functional. Evidence has shown that surgical interruption of muscle fibers destroys contractile effectiveness of the motor unit (Thompson 1971). Pres-

ervation of the fascial integrity insures a good opportunity for the retrodisplaced levator to become an effective palatal elevator.

Adequate retrodisplacement of the levator muscles is also essential in order to provide an adequate vector force for the velum. Inadequate surgical release of the fibrous attachments of the surrounding soft tissues to the levators, as indicated in Figure 1, will result in a distorted transmission of contractile force, and, consequently, inadequate velar function. Since the levators are believed to be the major elevators of the soft palate (Kuehn et al. 1982), the direction and amplitude of their excursion would logically relate to the effectiveness of velar competence.

Surgical Technique

All phases of the operation are performed with the aid of 3.5X loupe magnification. At this power, the fascia of the levator can be easily identified. We believe that this is imperative for accurate dissection and preservation of the muscle structures.

Margins of the cleft are incised from the posterior border of the palatine bone to the tip of the uvula with a number 11 blade. Care is taken to incise only the mucosa since the underlying fascia of the levator is usually very closely applied to the mucosa. Carefully, the

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Presented at The American Cleft Palate Association 39th Annual Meeting, April 24, 1982, Denver, Co.

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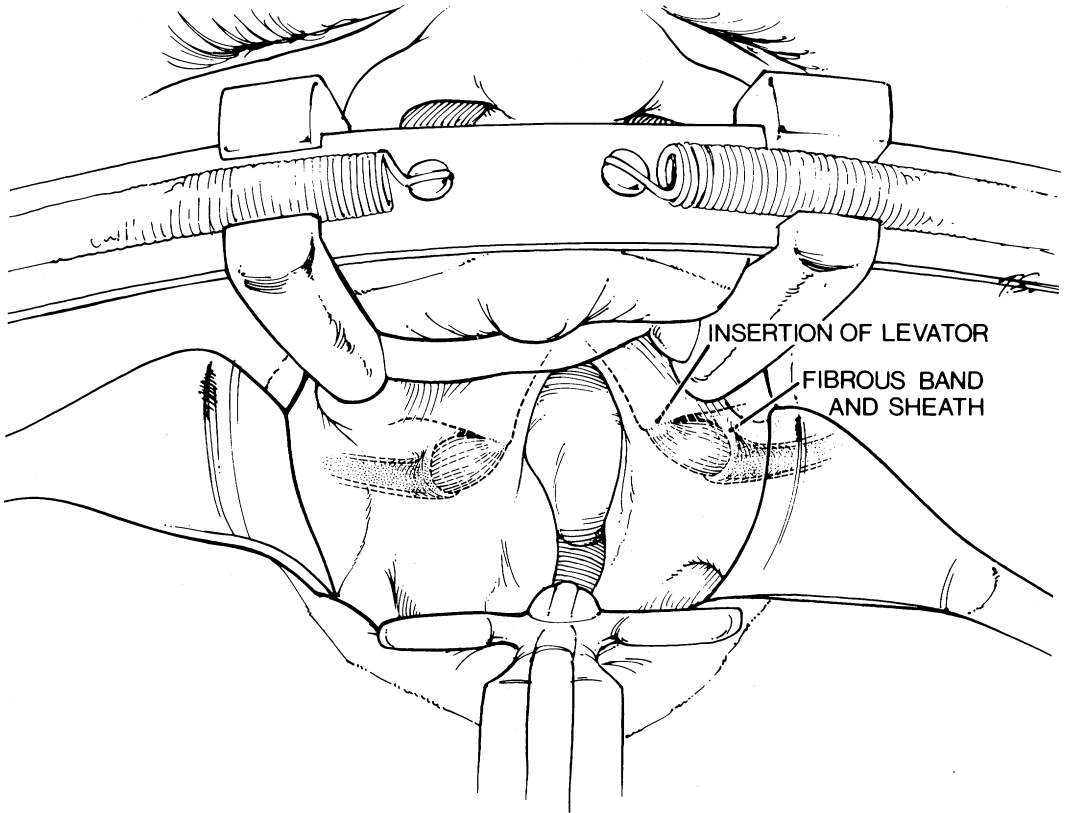


FIGURE 1. The levator inserts to the posterior aspect of the palatine bone via a tendon-like condensation of fibers. The muscle is also attached to surrounding tissues at its anterolateral border by a fibrous-like band of tissue. This attachment must be released in order to permit adequate retrodisplacement of the muscle.

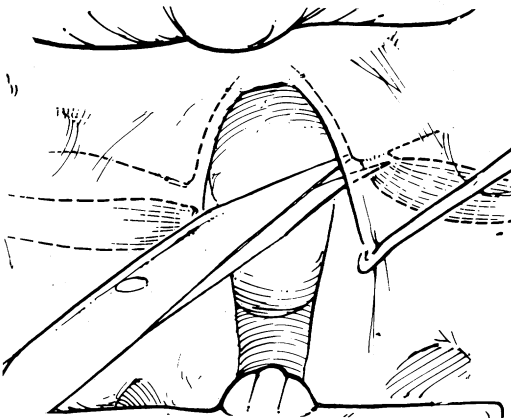


FIGURE 2. The tendon-like attachment of the levator to the palate bone is released with fine-pointed scissors.

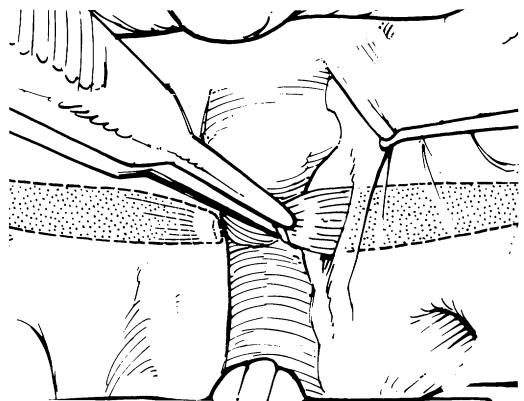


FIGURE 3. When the levators have been adequately released from the surrounding tissues, they can be retrodisplaced easily and will meet in the midline without significant tension.

nasal and oral mucosal layers are retracted and the levator fascia is dissected from the surrounding tissues with a number 64 Beaver blade.

The tendon-like attachment of the levator muscle to the posteromedial aspect of the palatine bone is identified and released sharply with scissors as illustrated in Figure 2.

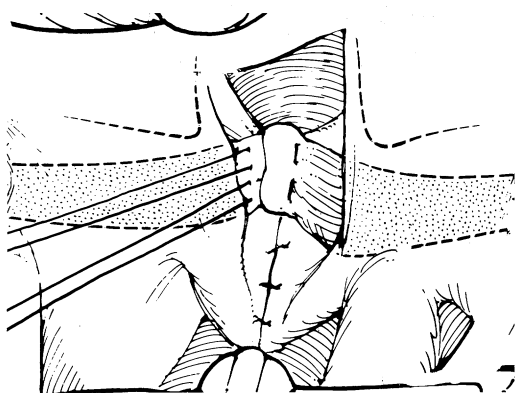


FIGURE 4. The levator muscles are sutured end-to-end via two horizontal mattress sutures of 5-0 clear nylon.

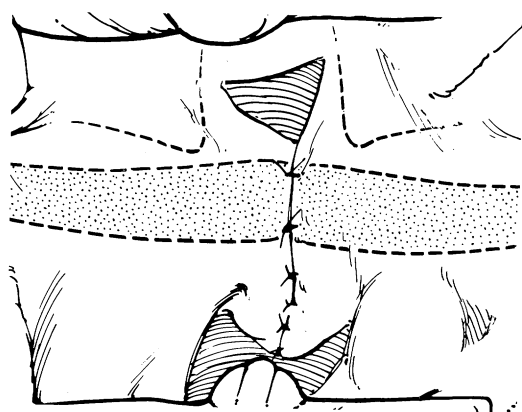


FIGURE 5. The nasal mucosa is closed prior to suturing of the muscles. The oral mucosa is closed from the uvula to the posterior border of the palatine bone via simple and horizontal mattress sutures of 5-0 chromic gut.

This permits the retrodisplacement of the muscle initially. Separation of the fascia from surrounding tissues is continued with scissors and the #64 blade until the fascia has been completely released from the fibrous-like band of tissue indicated in Figure 1.

Upon release of this band-like attachment, the levator muscle can be seen to lie in a "funnel-like" cylinder with virtually no at-

tachments of surrounding tissue to the muscle's fascia.

Dissection is continued until the anterior, nasal, and oral surfaces of the muscle are freed from the adherent tissues and the muscle can be displaced posteriorly and medially across the midline of the palate without difficulty, as indicated in Figure 3. Extensive mobilization and dissection of the posterior surface of the muscle has not seemed to be essential.

Nasal mucosa is repaired with horizontal mattress sutures of 5-0 chromic gut. The levator muscles are approximated end-to-end with two horizontal mattress sutures of 5-0 clear nylon as indicated in Figure 4. Oral mucosa is closed with simple and horizontal mattress sutures of 5-0 chromic gut from the uvula to the posterior margin of the palatine bone as indicated in figure 5.

Summary

Preservation of the fascial integrity of the levator muscles during the dissection and retrodisplacement of the muscle during palatoplasty has been discussed. Also, the attachment of the levators to the posterior margin of the palatine bone in the cleft palate has been described.

It has been emphasized that for optimal retrodisplacement of the muscles, the band-like adhesion of soft tissue at the anterolateral aspect of the levator must be adequately released. When this is accomplished, the muscle can be seen to lie in a "tunnel-like" relationship to the surrounding tissues, with only filmy attachments between the muscle fascia and these encircling tissues.

References

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