

Technical note

## **Introduction of the displaced and crossover type of mattress sutures, for hard palate closure**

C. Dannemann<sup>a,\*</sup>, K.-W. Bütow<sup>b</sup>

<sup>a</sup>*Department of Craniomaxillofacial Surgery, University Hospital of Zurich, Switzerland,*

<sup>b</sup>*Department of Maxillo-Facial and Oral Surgery, University of Pretoria, South Africa*

### **Address:**

Dr. C. Dannemann, DMD, MD, Senior Registrar, Department of Craniomaxillofacial Surgery, University of Zurich, Frauenklinikstrasse 24, Zurich, CH-8091, Switzerland.

Prof. K.-W. Bütow, MChD, DMD, PhD, DSc, FCMFOS, Professor and Head, Department of Maxillo-Facial and Oral Surgery, University of Pretoria, PO Box 1266, Pretoria 0001, South Africa

\* Corresponding author

Dr. C. Dannemann, Department of Craniomaxillofacial Surgery, University Hospital, Frauenklinikstrasse 24, Zurich, CH-8091, Switzerland.

*E-mail address:* [Christine.Dannemann@usz.ch](mailto:Christine.Dannemann@usz.ch)

*Fax number:* 0041 44 2554179

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The occurrence of oro-nasal fistulas in cleft palate patients who have undergone closure of the anterior region of the hard palate is about 35%.<sup>1</sup> Various protocols and techniques have been developed with the aim of a safe, tension-free closure of the oral and nasal layers so that possible dehiscence and the formation of fistula are minimized.<sup>1,2</sup> Three types of mattress sutures, namely the vertical, the horizontal and the U-shaped<sup>3</sup> are placed under tension and commonly used for the tight closure of skin and mucosa.<sup>4,5</sup> An additional advantage is the eversion of the wound edges and therefore less scarring after the healing process.

Two different types of mattress sutures are hereby introduced for reconstruction of the hard palate cleft, in both primary palatal surgery and closure of oro-nasal fistula. The *displaced mattress* suture (Figs. 1, 2 and 3, see A) is especially suitable for use in the highly-arched palate and in particular, in the anterior palatal area. The *crossover mattress* suture (Figs. 1, 2 and 3, see B) may be used to approximate the released oral flaps, as well as to anchor the sutured nasal flaps tightly in two directions. Where a highly-arched or deeply-grooved palate is involved, it is difficult to rotate the non-specialised needle in order to exit on the opposite side, close to the incisional edge, and the needle often emerges some distance from the incisional edge. This usually results in a loose, displaced suture and knot. In contrast, the *displaced mattress* approach allows the suture to be knotted close to the edge of the incision, which also everts the mucosa against the bone on the displaced side. It may be used in either the vertical or the horizontal plane (Fig. 3, see A).

Suturing of the nasal and oral mucosa in separate layers can create a dead space with a possible risk of wound break-down. The standard vertical mattress suture does not necessarily always create a tight closure. However, the *crossover mattress* approach enables an immediate tight closure in two planes, since the nasal mucosa is approximated against the oral mucosa, and it is also pulled obliquely against the oral mucosa at the incisional edge (Fig. 3, see B). These two additional types of mattress sutures may reduce the complexity of, and frustration experienced, during complicated palatal surgery.

## References

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## Legends

Fig. 1. Palatal view: Displaced mattress suture (A) and crossover mattress suture (B).

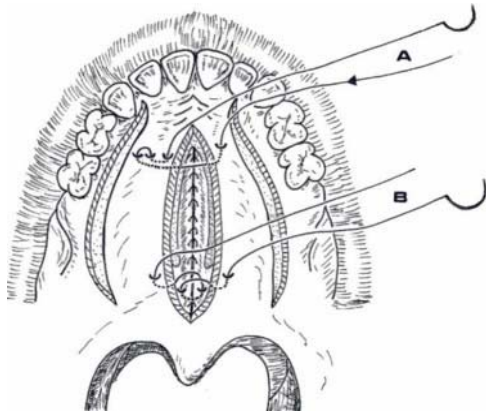


Fig. 2. Coronal view: Displaced mattress suture (A), arrow indicates starting point and crossover mattress suture (B).

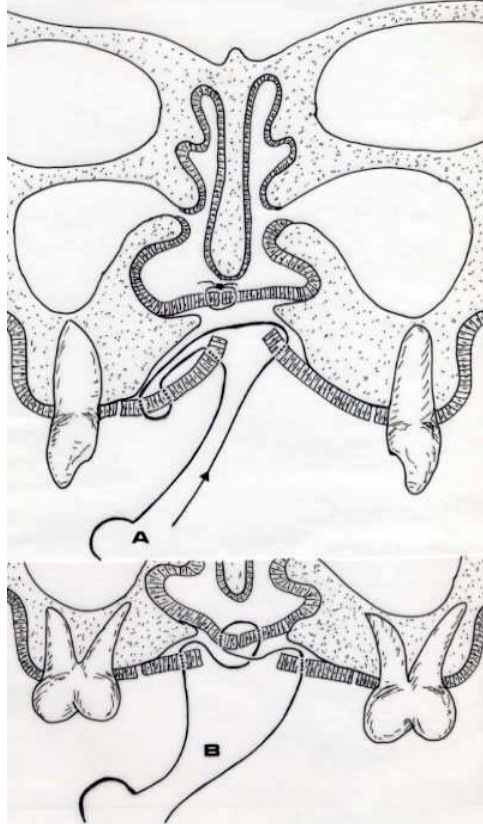
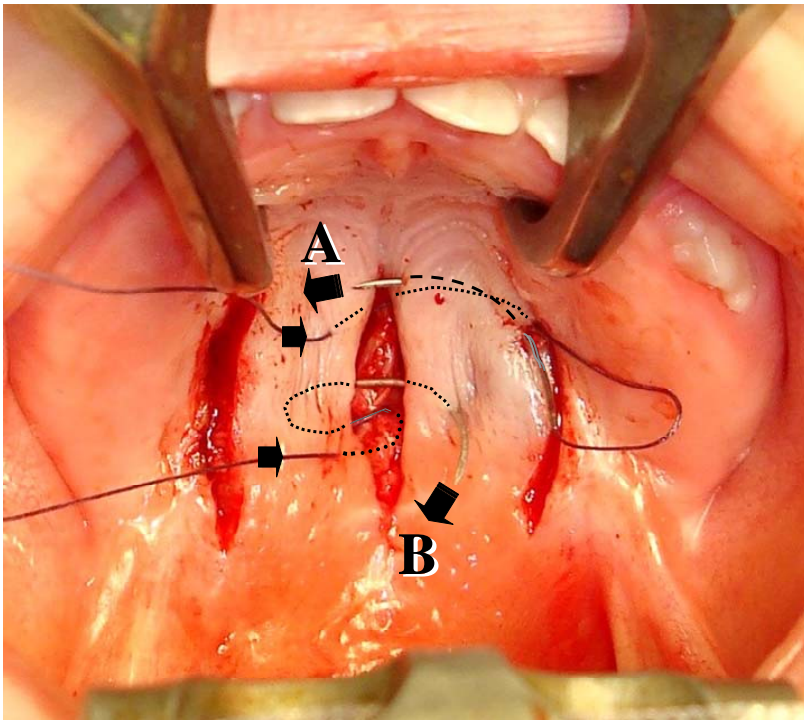


Fig. 3. Palatal view in a patient: Displaced mattress suture (A), and crossover mattress suture (B).



OR

