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"Cross-stealing" technique for septal perforation closure*

Ranko Mladina, Bruno Heinzel

University Hospital Salata, Zagreb, Croatia

SUMMARY

The authors described a technique for the surgical repair of anterior septal perforations of medium size (up to 2 cm). This technique is based on two mucoperichondral (mucoperiosteal) flaps, one from each side of the septum. Four patients have been treated in this way, resulting in permanent and complete closure in three of them. In one patient the perforation has been significantly reduced and positioned much more posteriorly. The main advantage of this technique is a mutual overlapping of the raw flap surfaces which prevents drying-out and decay of the flaps. This technique proves to be rather simple to perform and has not shown any evidence of disturbed nasal physiology in a long-term follow-up period.

Key words: septal perforations, closure

INTRODUCTION

There is a real plethora of operations described for septal perforation closure, but still there is no standard method for an accurate repair. Any kind of surgical attempt to close the perforation is usually considered to be technically the most difficult procedure in ENT surgery. Kridel (1986) was the first to mention a "stealing" technique. We have designed a modification of Kridel's technique, that is "stealing" two flaps, but one from each side of the septum, and have operated upon four patients with anterior perforations of medium size (up to 2 cm).

SURGICAL TECHNIQUE

The operation starts with taking an appropriate piece of temporal fascia in the usual manner. Fascia is stored in a saline solution during the preparation of the septal flaps. The "cross-stealing" technique includes two independent, rotating mucoperichondral flaps, one from each septal side. The first flap comes from the superior and the other from the inferior septal parts. The superior flap begins with the incision approximately parallel to the upper edge of the perforation, as high subdorsally as possible (Figure 1). Then the vertical incisions are made, first the posterior one. They both run from above to the middle of the anterior and posterior perforation edge, respectively, always a few millimetres more further apart from the horizontal diameter of the perforation. The flap is then elevated from the cartilage (Figure 2). The elevation begins from above and continues up to the superior perforation edge. It always exceeds a little to the opposite side of the septum to achieve flexibility of the flap as a whole. After completing this manoeuvre the flap now hangs like a curtain.

The inferior flap begins with the posterior vertical incision, followed by the anterior one (Figure 3). Both incisions frequently extend over the nasal floor in a lateral direction. The degree of the extension depends on how high the perforation is, i.e. how long the inferior flap has to be. Both vertical incisions are finally connected by a transverse one. The elevation of the flap starts from lateral to medial (Figure 2) and always extends slightly to the opposite side of the septum, like the superior flap. The superior flap is then fixed to the denuded inferior edge by means of fibrin glue. Next, a piece of temporal fascia is fixed in the same manner to the inner, raw surface of the superior flap. Finally, the inferior flap is fixed to the denuded part of the superior perforation edge. Both flaps are then fixed together with several 3-0 chromic catgut sutures (Figure 4). At the conclusion of the operation, thin Silastic sheeting is placed over the closure line on both sides, fixed by loose packing with sponge strips soaked in an antibiotic solution. The packing is usually removed on the fifth post-operative day.

COMMENTS

In three of our four patients the perforation was closed entirely and permanently. In one case the perforation was obviously lessened and only a narrow slit (approximately 3 mm at the widest point) remained between the posterior edge and the flap. The follow-up period at the moment of writing is 23-42 months.

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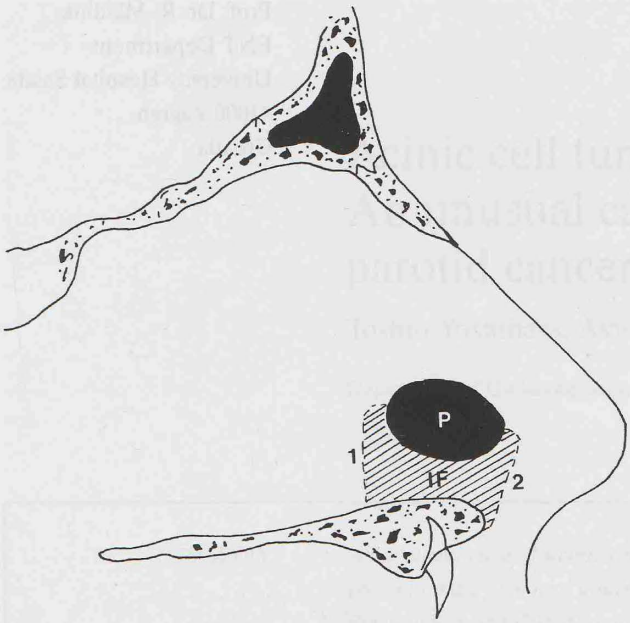

Figure 1. The superior flap. The digits 1, 2, and 3 indicate the order of performing the incisions. Note that the vertical incisions are further apart than the horizontal diameter of the perforation (P: perforartion; SF: superior flap).

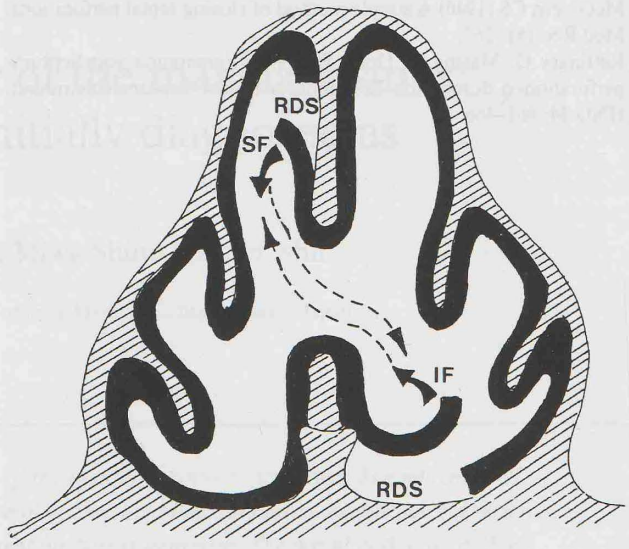

Figure 2. The elevation of the superior and inferior flaps (SF: superior flap; IF: inferior flap; RDS: remaining part of the denuded surface).

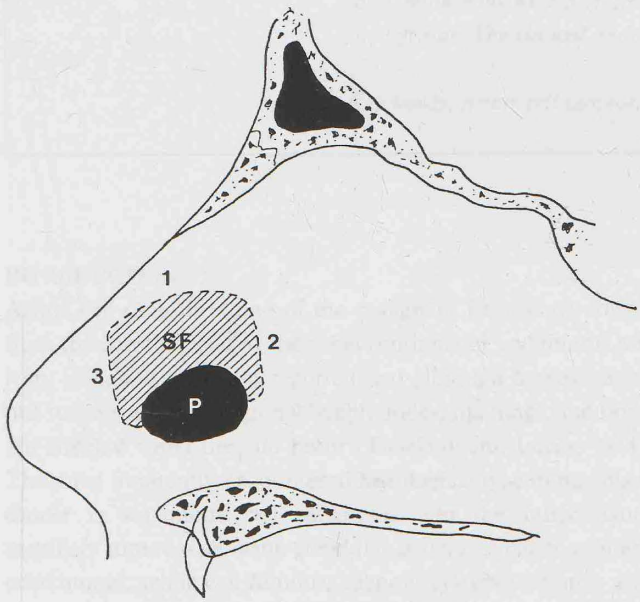

Figure 3. The inferior flap. Digits 1 and 2 indicate the order of performing the vertical incisions. The third incision is located on the nasal floor and is not visible in this drawing. Note that the vertical incisions are further apart than the horizontal diameter of the perforation (P: perforation; IF: inferior flap).

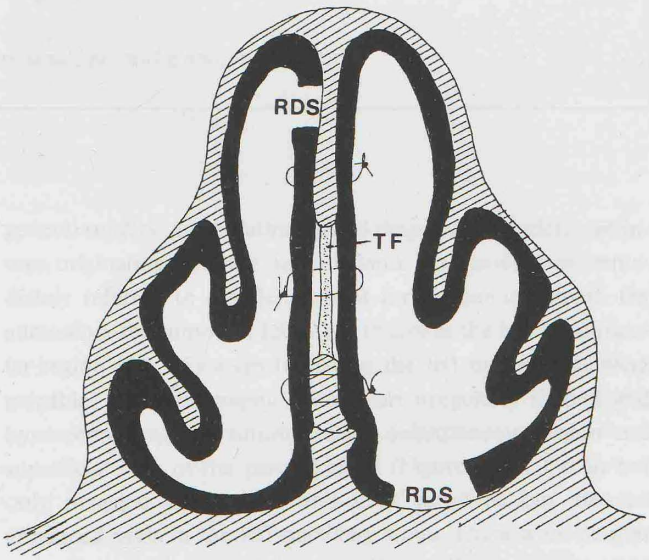

Figure 4. The flaps in the final position. Several 3-0 chromic catgut sutures were used to fix the flaps together. A piece of temporalis fascia is interpositioned between the two flaps. The perforation is entirely closed (TF: temporalis fascia; RDS: remaining part of the denuded surface).

During previous attempts to close anterior septal perforations of a medium size we were frequently faced with the problem of the flap drying out and its progressive post-operative decay because of disturbed blood circulation and malnutrition. The "cross-stealing" technique offers simultaneous mutual protection of both flaps against these disadvantages and final decay of the flap. The blood supply of both flaps remains practically undisturbed. It must be pointed out, however, that the greater the remnant of the septal cartilage around the perforation, the greater are the chances for the successful outcome of this operation. Preserved septal cartilage around the perforation and healthy mucosa at the margins makes elevation of the flap much easier.

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Prof. Dr. R. Mladina
ENT Department
University Hospital Salata
41000 Zagreb
Croatia