

Nasal surgery in German speaking countries around the turn of the century

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SUMMARY

The historical review of submucous septal surgery includes the German pioneers Hartmann (1882) and Petersen (1883), Krieg (1886) and Killian (1899) who finally refined this operation. Besides his technical notes and the development of new instruments Killian defined indications and contraindications for this type of surgery which are considered valid even today.

Although first submucous resection of the septum was described in 1867 by Lienhart, blind and mucosa destructing procedures to improve nasal airway were common until the early eighties of last century.

In 1882/83 Hartmann at Berlin and Petersen at Kiel introduced the submucous resection not only for middle and lower septal deformities but also for posterior deviations. They performed the procedure in general anaesthesia starting the preparation of the mucosa from a vertical and horizontal incision from the convex side of the deformity. This principle of submucous resection was modified in 1886 by Krieg from Stuttgart removing the mucosa of the convex side at the end of the procedure and advocating the removal of bony parts of the septum. Trendelenburg (1886) recommended the submucous resection with preservation of the anterior and cranial part of the septum to avoid secondary depression. Parallel to this development Jurasz (1882) from Heidelberg published his concept of septum surgery using a special designed forceps for closed fracturing and repositioning of the septal deformities. The disadvantages of this detachable compression system were large decubital ulcers, swelling and recurrence of deviation. In addition, it was a painful procedure.

The Hartmann-Petersen technique (1882/83) remained controversial mainly because of limited exposure and bleeding. Rethi (1890) in Vienna advocated the submucous preparation of the septum fracturing and weakening and - if necessary - removing parts of the cartilage using cocaine for topical anaesthesia.

In 1899 Killian reported his modification of the Hartmann-Petersen procedure using first topical anaesthesia followed by an injection of cocaine and adrenaline

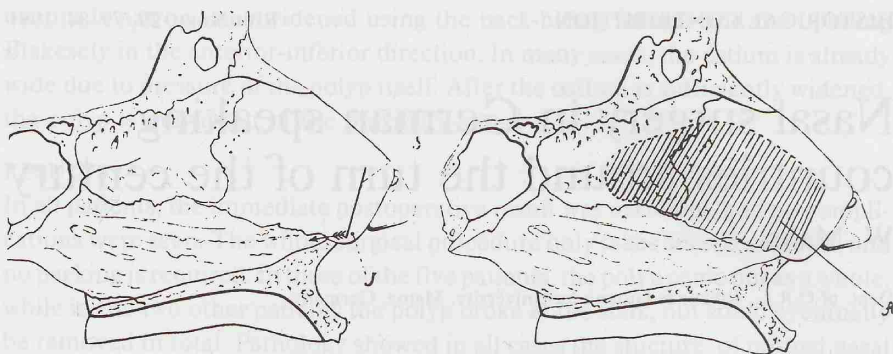


Figure 1. Left: subperichondral injection (J) of cocain-adrenalin for local anaesthesia before incising the mucosa (S). Right: elevating the mucosa (A) from the septal cartilage. (Killian 1904).

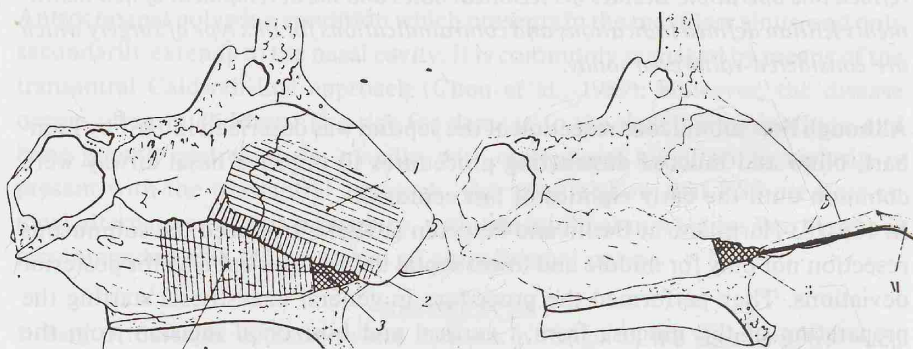


Figure 2. Left: sequence of resection of various septal structures. Right: removal of the anterior triangle of the vomer with a chisel.

(Figure 1). He preserved both mucous membranes covering the septum (Figure 2), developed a nasal speculum (Figure 3) and various instruments for septal surgery (Figures 4 and 5) and preserved during the cartilage fenestration procedure a strip of cartilage in the dorsum and the columella. During his presentation at a meeting in Munich he was opposed by Bönninghaus (1899), partisan of Krieg's technique sacrificing the mucosa of the convex side. This first publication of Killian was little noticed until 1904 when he published his historical paper on his submucous fenestration technique of the septum. In the same year Hajek and Menzel (1904) from Vienna claimed an original method of the submucous septal resection but it was essentially Killian's technique which was propagandized by the two.

It was Killian who defined for the first time indications when and how to perform this type of surgery. Indications for the surgery were: nasal breathing disorders,

nasal polyposis, chronic sinusitis, chronic otitis media and reflex neurosis. He even performed septal surgery in case of unilateral obstruction in patients with chronic atrophic rhinitis. His contraindications were advanced age, small children under twelve years of age and in general, chronic consuming ailments. Temporary contraindications were an acute rhinitis and purulent nasal discharge.

Parallel to Killian, Löwe (1904) proposed his sublabial approach to the septum using a relatively large vestibular incision and adding another argument to the debate of intranasal septum surgery.

As the submucous septum resection became more and more popular to operate septal deformities, many new instruments were designed such as chisels, rasps, forceps and specula.

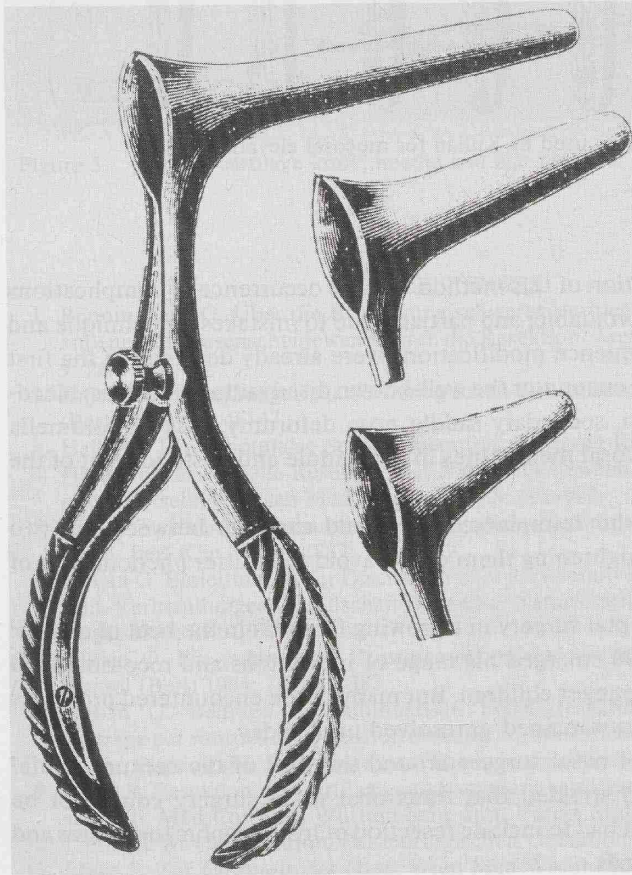


Figure 3. Nasal specula, as designed by Killian.

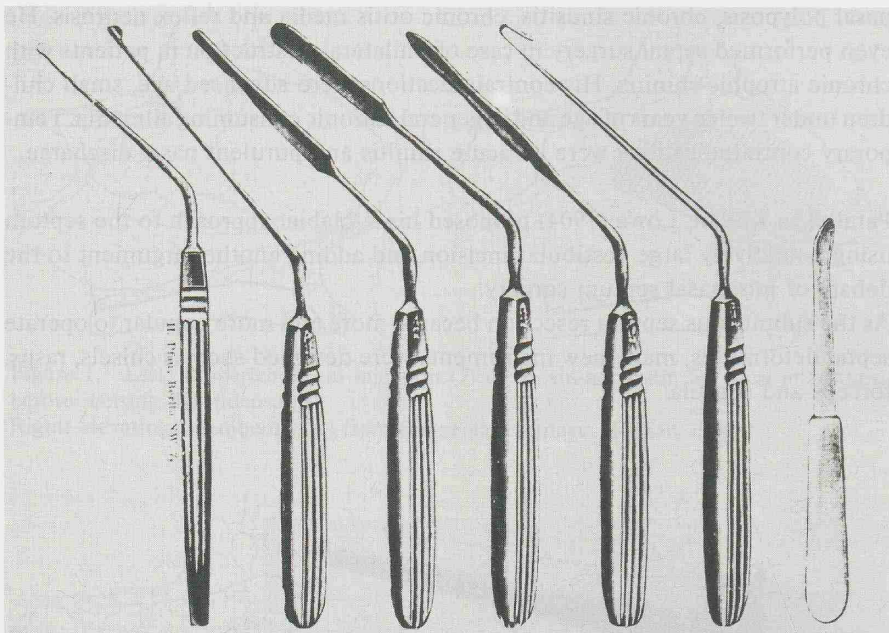


Figure 4. Assembly of rasps used by Killian for mucosal elevation.

Inherent to the propagation of this method was the occurrence of complications which were partially unavoidable, and partially due to mistakes in technique and indications. As a consequence modifications were already designed in the first decade of the century to encounter the well-known disadvantages such as: bleeding, mucosa perforation, secondary saddle nose deformity, lack of columella support, and floppy mucosal membranes in the middle and posterior part of the nose.

It was Halle in 1908 who reimplanted bone and cartilage between the two mucosal layers after straightening them out to avoid the flutter phenomenon of the mucosa.

Already in these days septal surgery in a growing face was in the heat of debate. And even Killian in 1908 enlarged his range of indications and recommended septal surgery also for younger children. But many of the encountered problems using Killian's technique remained unresolved until today.

Already in the period of nasal surgery around the turn of the century Zaufal (1885) and Rethi (1890) stressed that functional nasal surgery could not be limited to the septum but had to include resection of hypertrophic turbinates and hyperplastic posterior ends.

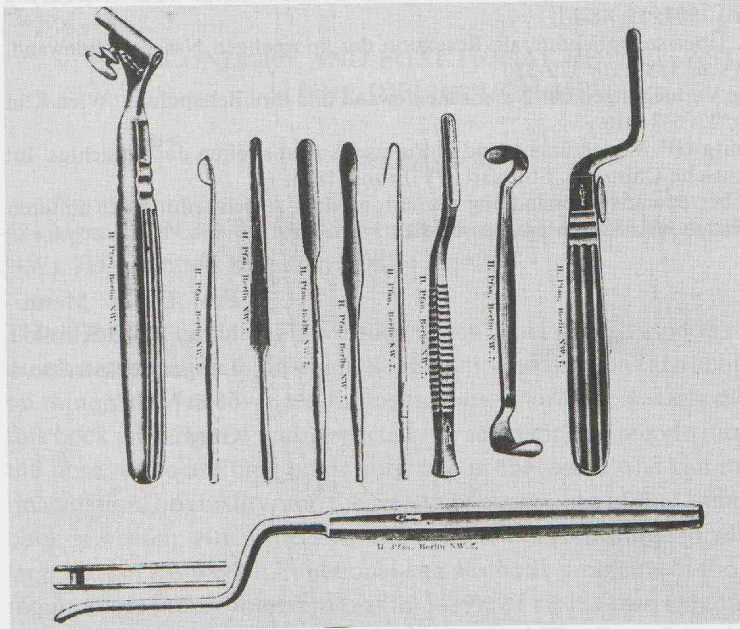


Figure 5. Chisels, cartilage knife, needle and alar retractor as used by Killian.

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