

Surgery of nasal fistulas and cysts

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SUMMARY

The surgical treatment of nasal fistulas and cysts is discussed. The fistulas and cyst of the nose should be excised in early childhood to avoid permanent damage to the nasal framework. In this period the nose can still develop a normal shape. Surgery must be as radical as necessary, with broad exposure of the surgical field. Only this technique gives the surgeon a guarantee of good results. A drainage to the nasal cavity after closure of the incision is not necessary and may be omitted safely. A defect of the bony dorsum should be rebuilt with bone, cartilage, or fascia. The series included 12 cases, two of which are described.

DERMOID fistulas and cysts form congenitally in the bridge of the nose, arising from epithelial remnants under the nasal bones. The swelling or the opening of the fistula may lie at any point from the glabella to the tip of the nose including the columella.

The purpose of this paper is not to discuss the various theories about the embryological origin of these cysts and fistulas e.g. Brahmman (1890), Boenninghaus (1955), Bruck and Kittinger (1963), and others, but rather to make a few remarks concerning the diagnosis and surgical technique, the principles of which are wellknown and adequately described by e.g. Crawford and Webster (1952), Gosserez (1955), Figi (1960), Littlewood (1961), Denecke and Meyer (1964), Wayoff (1968) and others

DIAGNOSIS

A dermoid cyst can be easily recognized on the dorsum of the nose. At birth, the swelling may be minimal, but as the baby grows, the cyst usually grows faster, thus deforming the dorsum.

If a fistula is present, this opening will always be found in the midline of the nose, but the diagnosis may be difficult if surgical treatment has already been applied or inflammations have led to the development of scar tissue.

It may be possible to recognize the extent of the fistula by using a wire feeler or by radiography after the introduction of contrast medium. But in our experience with a series of 12 operated patients over a period of 10 years, satis-

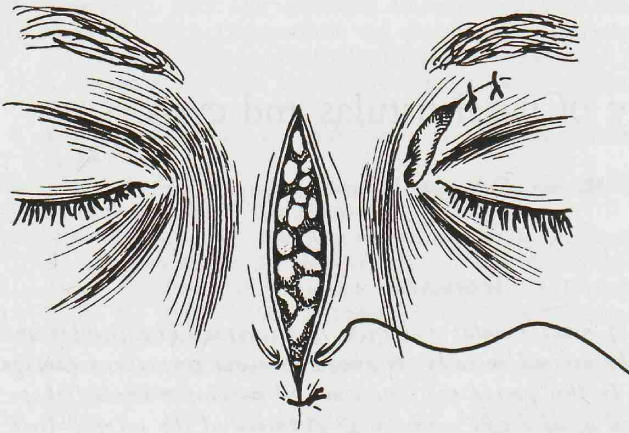


Figure 1. Technique of reconstruction of the bony dorsum using sliced cartilage. The primary and secondary fistulas are closed with interrupted sutures with Prolene 5-0.

factory pictures were obtained in only one-third of the cases. These results are so poor because it is impossible to fill the fistula with contrast material.

Before starting surgery, we prefer to inject a 5% solution of methylene-blue into the opening of the fistula in order to check the length of the open tube. This solution must be introduced carefully, without pressure, to avoid perforating the wall of the fistula.

SURGICAL PROCEDURE

The surgical treatment of these malformations should be carried out as early as possible, because the growing cyst will deform the dorsum more and more until



Figure 2 a. Nasal abscess caused by a dermoid fistula.

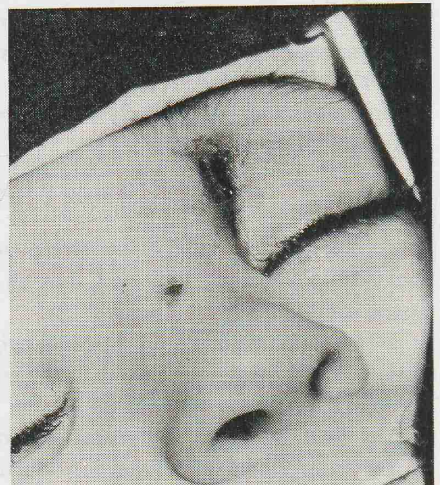


Figure 2 b. The fistula is filled with methylene-blue showing a communication with the abscess cavity.

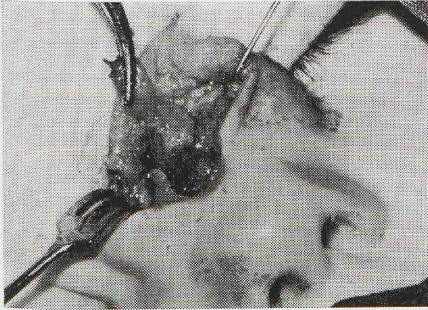


Figure 2 c. Surgical procedure in the same case. The fistula is completely exposed and ready to be removed.

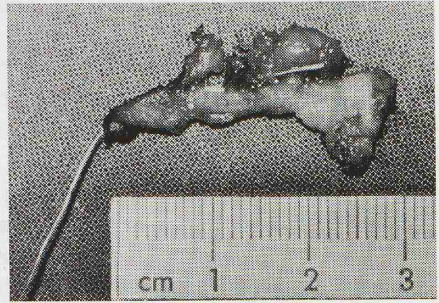


Figure 2 d. Surgical specimen.



Figure 2 e. Postoperative picture of the same case 4 years later.

ultimately the nasal bones may disappear. The displaced epithelial tissue can be distinguished under magnification.

Most authors recommend an incision on the dorsum, starting with a circumcision around the fistula (e.g. Crawford and Webster, 1952; Figi and Devine, 1960; Littlewood 1961; Bruck and Kittinger, 1963). In certain cases Denecke

and Meyer (1964) cricumcise the fistula and make a second incision on the bony dorsum. Berendes (1962), starts from the nasal vestibule, using the technique of decortication after Sercer, which avoids external skin incision. We prefer a slightly curved incision including the beginning of the fistula, possibly extended to the glabella in cases with a second fistula. The surgeon should be prepared, if necessary, to take extreme measures to insure complete extirpation of all epidermoid elements. This is, why the incision should be made sufficiently long. The skin lesion will be almost invisible if interrupted sutures of Nylon 6-0 are used. Most of the fistulas have the opening in the cartilaginous dorsum of the nose. Except in rare cases the channel of the fistula runs upward from the top of the cartilaginous vault and below the nasal bony framework (Crawford and Webster, 1952). For this reason we always try to expose the perichondrium in this area, which should be elevated from the cartilage. With this procedure the surgeon can be fairly sure he is under the fistula.

To trace the fistula upward, it will be necessary to detach some parts of the nasal bone temporarily. This can be done with a chisel or an electric burr. The mobilized bones should be left attached to the external layers of the periosteum if possible. If no nasal bones are present, the defect should be filled with bone chips, preserved cartilage, or fascia from the glabella (Figure 1).

Two cases may serve to illustrate the diagnostic and surgical problems:

Case 1. A 9-month-old male baby was admitted because of a third abscess on

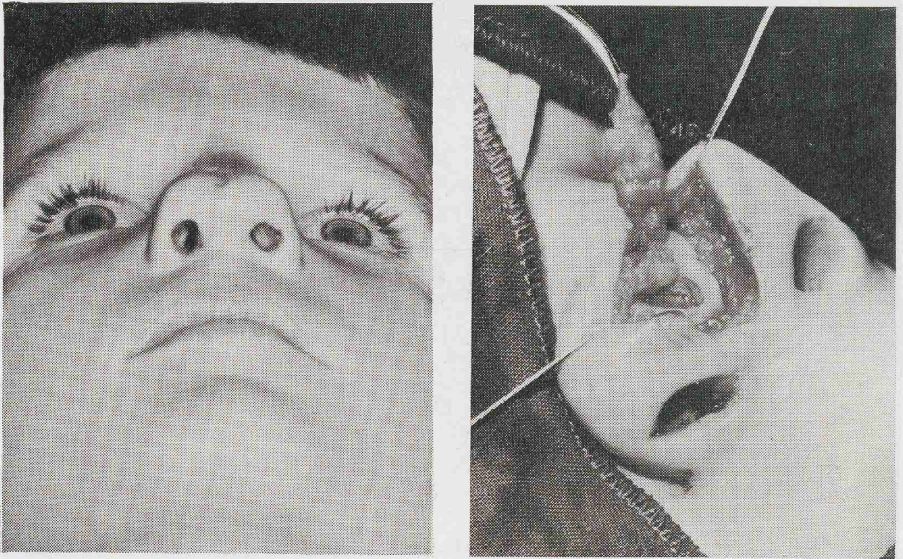


Figure 3 a. Deformity of the nasal tip caused by a columella fistula and two previous operations.

b. Surgical procedures in the same case. The fistula is clamped and pulled up. The septum has an Y-shape with a mid-groove.

the left nasal bone. Incisions had been made by a general surgeon when the baby was three and six months old. Examination revealed a tiny opening in the midline of the nasal dorsum. The introduction of methylene blue via this opening demonstrated a communication with the abscess cavity.

The 3-cm-long epithelial tract was excised and the bony defect filled with cartilaginous chips. Healing was good and the child was discharged on the 10th postoperative day. At re-examination four years later, the scar was almost invisible. The nasal pyramid seemed to be normal (Figures 2 a-e).

Case 2. A 7-year-old boy was admitted with severe deformity of the nasal tip. The mother stated that the broad tip had been present since birth. He had been treated surgically three times for a purulent discharge from the columella. At examination of the nose, no opening with a fistula track could be seen. There was heavy scar tissue around the nasal tip.

At operation a 5-cm-long fistula cord was found, dividing the cartilaginous septum in two wings. The reconstruction of the septum was performed as shown in Figures 3 c.

At examination 6 months postoperatively, the results were considered adequate although the nostrils are still underdeveloped (Figures 3 a-d).

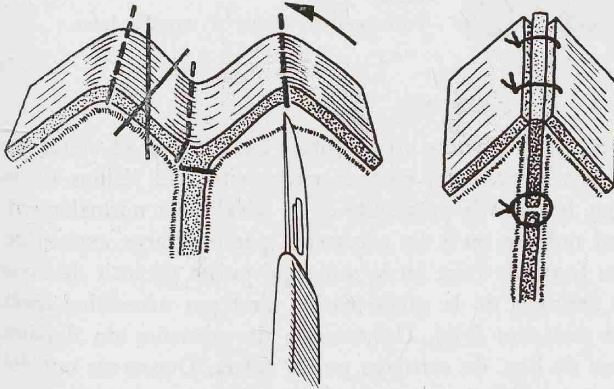


Figure 3 c. Technique used by the author to narrow a double-wing septum.

POSTOPERATIVE RESULTS

A series of 3 cases of nasal cysts and 9 cases of nasal fistulas were examined postoperatively. No recurrences of the malformations could be observed. It is surprising to see how in childhood the nose as a still-growing organ develops an almost shape.

Concerning the nasal cysts, Brahmann concluded as early as 1890, the changes in the nasal framework are not due to an intrinsically abnormal development but rather to the pressure of the dermoid itself, and that early removal in childhood resulted in much less nasal deformity than did removal in older patients.

The incision should be closed primarily, without drainage to the nasal cavity as recommended by Boenninghaus (1955) and Denecke and Meyer (1964). This procedure guarantees a strong dorsum.



Figure 3 d.
Postoperative result 6 months later.

RESUME

La chirurgie des fistules et cystes du nez est discutée. Les fistules et cystes du nez doivent être enlevés dans la première enfance pour éviter des lésions de la charpente du nez. A cet âge, le nez a la possibilité de se développer normalement. La chirurgie doit être aussi radicale qu'il est nécessaire, par une large exposition du champ opératoire. Cette façon de faire est la seule qui puisse garantir de bons résultats chirurgicaux. Le drainage de la cavité nasale n'est pas nécessaire après fermeture de l'incision, et peut-être évité. Un manque de substance du dorsum osseux doit être comblé par de l'os, du cartilage ou du fascia. Douze cas ont été observés, et deux sont décrits en détails.

ZUSAMMENFASSUNG

Die Chirurgie der Nasenfisteln und -cysten wird diskutiert. Die Fisteln und Cysten sollten möglichst im frühen Kindesalter entfernt werden, da sonst stärkere Veränderungen an dem Nasenstützgerüst zu erwarten sind. In diesem Alter hat die Nase noch die Fähigkeit sich zu einer normalen Form zu entwickeln. Die Operation muss bei breiter Freilegung des Fistelganges so radikal wie erforderlich sein. Nur eine radikale Technik garantiert dem Chirurgen gute Resultate. Die Drainage der Operationshöhle zur Nase ist nicht erforderlich und sollte vermieden werden. Knochendefekte werden mit Knochen, Knorpel oder Fascie ersetzt. Von 12 beobachteten Fällen werden 2 ausführlicher beschrieben.

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