

Endonasal findings using a fiberoptic telescope in postoperative cases of chronic sinusitis

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SUMMARY

It is the purpose of this study to investigate the healing process in chronic sinusitis by means of a fiberoptic telescope. The patients were divided into 3 groups, in which various combinations of operative techniques were used.

Group 1: 53 patients with moderate chronic sinusitis. In this group endonasal ethmoidectomy and endonasal exposure of the sphenoidal sinus were performed. Group 2: 73 patients with moderate or severe sinusitis. In this group a Caldwell-Luc operation was added to the operations which were used in group 1. Group 3: 8 patients, in which only endonasal ethmoidectomy was performed.

In most cases, the maxillary sinus was cured, but in some of the cases the drainage opening was closed at an early stage. The epithelisation of the ethmoidal sinus is mostly completed in about one month after the surgical operation. Adhesions between middle turbinate and lateral wall were seen quite regularly. Hypertrophic scars were observed in the posterior ethmoid, the ethmoidal roof and the lamina papyracea.

We classified the healing process into 4 types. All postoperative infections were treated by antibiotics. Adhesions and scar tissue formations were treated endoscopically.

INTRODUCTION

After the operation for chronic sinusitis, the paranasal sinus heals through various courses. Some patients may be cured in an almost ideal way, while in other patients remarkable postoperative infiltration and scar formation may occur during the healing process. We think that good postoperative care is a more important factor than the surgical technique itself.

The purpose of this paper is to discuss the healing process by means of a fiberoptic telescope. The results described below are regarding the findings of ethmoidal sinus. Each case was observed for one year.

Observation of Postoperative Intranasal Findings with Fiberoptic Telescope

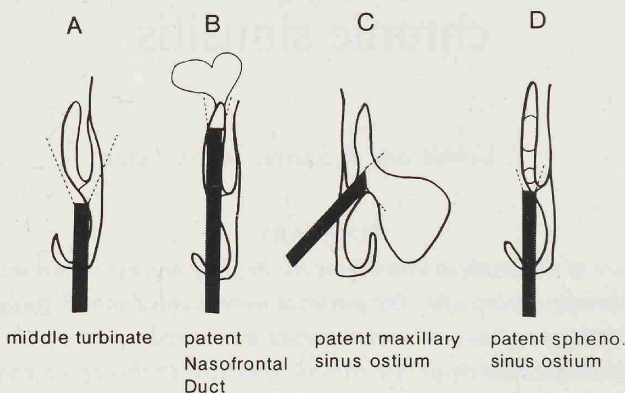


Figure 1.

MATERIAL AND METHODS

The patients were divided into 3 groups, in which various combinations of operative techniques were used.

Group 1 included 53 patients with moderate chronic sinusitis. In this group endonasal ethmoidectomy and endonasal exposure of sphenoidal sinus were performed. In addition, for correction of endonasal morphology, reconstruction of the lateral nasal wall and the nasal septum were also performed.

Group 2 included 73 cases of moderate or severe paranasal sinusitis. In this group the Caldwell-Luc operation was added to the operations which were used in Group 1.

Group 3 consisted of the eight cases which had postoperative recurrent sinusitis. In this group only endonasal ethmoidectomy was performed.

Fiberoptic observation was made on the reconstructed middle turbinate (A), patent nasofrontal duct (B), enlarged maxillary sinus opening (C) and sphenoidal sinus opening (D) (Figure 1).

RESULTS

Postoperative treatment was initiated with removal of packing. Application of local drugs was made to alleviate mild inflammatory processes. Pronase or antibiotics were administered orally for mild or severe inflammation. Among the cases which were treated, the period for relief of the symptoms was 3 months at the longest. Soon after granulation appeared and inflammation of the mucous membrane was relieved, scar formation appeared, associated with adhesion, web formation and distortion in the ethmoid sinus. Adhesion occurred gradually in the area between the anterior border of the middle turbinate and the agger nasi,

between the lower border of the middle turbinate and the upper border of the maxillary fontanel and between the superior turbinate and the papyraceous plate. The web formation and obliteration appeared in the area surrounding the 3rd and 4th ground lamellas and the anterior wall of the sphenoidal sinus. This may be explained by the fact that these are the sites in the ethmoidal sinus where cells had lodged.

The hypertrophic scar which chiefly involved the posterior ethmoidal sinus, the papyraceous plate, the roof of the ethmoidal sinus and the 4th ground lamella caused stenosis of the ethmoidal sinus.

The postoperative healing process of the ethmoidal sinus is shown in Figure 2. We classified the healing process into 4 types. Type 1 indicated relatively good healing process. In 44 cases of type 1, less reactive inflammation and postoperative stricture and distortion were observed. In 61 cases of type 2 postoperative reactive inflammatory process appeared strongly. However, in this type of case the healing process was obtained with less disturbances by scar formation. Type 3 consisted of 23 cases. In these cases, minor corrective surgery was added because unexpectedly remarkable scar formation was seen despite of minimal postoperative reactive inflammation. In type 4 there were 8 patients who had some problems in postoperative treatment. In these cases the inflammatory reaction appeared strongly with intense scar formation. Therefore, in addition to local and

**Postoperative Changes
in the Ethmoidal Sinus
(136 sinuses)**

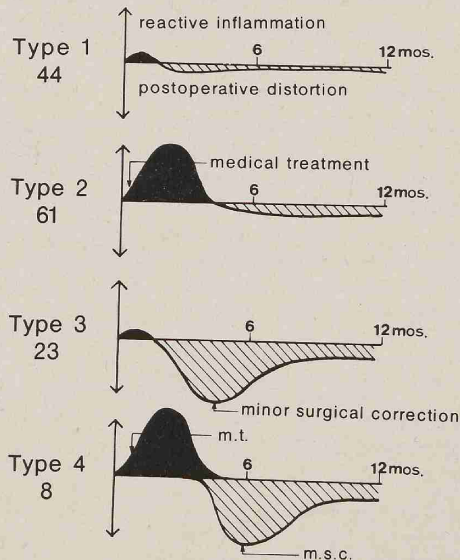


Figure 2.

general drug therapy, stripping off adhesions and resection of web formation was administered to the patients.

COMMENTS

A total of 136 cases of chronic sinusitis was treated surgically. In some cases intense postoperative reactive inflammation occurred, and in others scar formation was observed postoperatively. The opening of the maxillary sinus enlarged by endonasal operation tended to be strictured in the presence of intense chronic maxillary sinusitis.

In most of the cases, the maxillary sinus was cured with obliteration and reduction of the size after the Caldwell-Luc operation. However, the most important thing was to correct the abnormality of the ethmoid sinus. This is because the ethmoidal sinus is closely related with the drainage of the other surrounding paranasal sinuses. It is therefore necessary to treat the postoperative conditions in the ethmoidal sinus: in other words, local and systematic drug therapy should be administered to treat the inflammation as early as possible. Minor surgical procedure should be performed for web formation and adhesion. In 117 cases, inflammatory reactions were controlled in the early phase of the healing process. These cases were cured with less scar formation and establishment of ventilation. However, in 19 cases extensive scar formation was observed. The good ventilatory condition of the sinus was obtained in 13 of 19 cases with extensive scar formation by minor corrective operation (Figure 3).

As a postoperative corrective procedure, reconstructive surgery as well as curretting the granulation or scar should be performed in order to promote functional recovery.

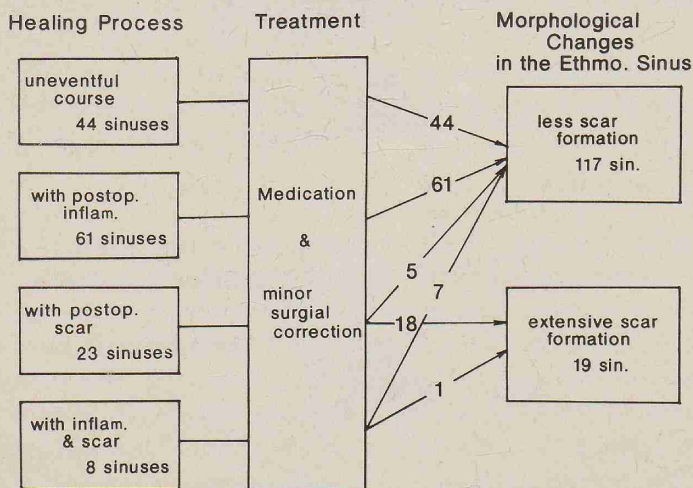


Figure 3.

ZUSAMMENFASSUNG

Es ist Ziel dieser Arbeit, den postoperativen Verlauf der chronischen Sinusitis mit Hilfe des fiberoptischen Teleskops zu beobachten und die Ergebnisse zusammenfassend zu berichten.

Nach dem Schweregrad der Erkrankungen wurde unser Krankengut in 3 Gruppen eingeteilt. Dabei kamen verschiedene Operationsmethoden zur Anwendung:

Gruppe I: 53 Patienten mit mittelmäßig veränderter chronischer Sinusitis, bei denen die endonasale Ethmoidektomie, die Sphenoidektomie sowie die Seitenwandrekonstruktion der Nasenhöhlen durchgeführt wurden.

Gruppe II: 72 Patienten mit hochgradige Veränderungen, bei denen die oben aufgeführten Verfahren durch die Caldwell-Luc'sche Operation ergänzt wurden.

Gruppe III: 8 Patienten, bei denen wir die einfache endonasale Ethmoidektomie durchführten.

Bei unseren Patienten wurden fiberoptisch endoethmoidale Granulationsbildungen und Entzündungen in postoperativen Primärstadium festgestellt, die sich im Verlauf der Zeit zur Narbe oder Scheidewand entwickelten.

Adhäsionen wurden zwischen Mittelmuschel und lateraler Grenzwand beobachtet. In der Region, wo die Grundlamellen zu finden waren, bildete sich leicht eine Scheidewand. Für die hypertropischen Narben stellten die hintere Siebbeinzellen, das Dach sowie die Lamina papyracea, eine Prädilektionsstelle dar. Diese Heilungsprozesse konnten in 4 Typen eingeteilt werden.

Alle postoperative Entzündungen wurden mit Antibiotika behandelt. Bei den Scheidewand- bzw. Narbenbildungen wurde jedesmal mit Hilfe des fiberoptischen Teleskops die betreffende Stelle abgelöst bzw. entfernt und dadurch konnte die Siebbeinhöhle zur normalen Höhle geheilt werden.

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