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Discomforts after endoscopy of the maxillary sinus via canine fossa

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SUMMARY

A retrospective study on a series of 99 antroscopies of the maxillary sinus via canine fossa showed that this routine procedure may cause longer standing discomforts to the patients. Indications for this procedure should therefore be more severe.

INTRODUCTION

The endoscopy of the paranasal sinuses (Draf, 1978a; Messerklinger, 1978; Mann, 1982), specially of the maxillary sinus, as a part of the ENT-routine (Steiner, 1982) which may be performed in out-patients (Tolsdorff, 1978), plays a role on both the assessment of chronic disease (Illum and Jeppesen, 1972; Messerklinger, 1978) and as a step of endoscopic sinus surgery (Kennedy, 1985; Howard and Lund, 1986), serving as a source of complementary information to plain X-ray of the paranasal sinuses (Illum et al., 1972, Petersen, 1981).

The approach of the maxillary sinus via canine fossa was first described by Baum (1921) and Spielberg (1922) and re-introduced in the seventies (Hellmich and Herberhold, 1971; Kuske and Karduck, 1976; Draf, 1973 and 1978b).

To our knowledge, no clinical study has tried to evaluate the side effects of antroscopy via canine fossa, which may persist over a longer period.

MATERIAL AND METHODS

In the ENT-Department of Mainz, FRG, 2000 endoscopies of the maxillary sinus were performed via fossa canina during the last 10 years. The technique of antroscopy has been described elsewhere (Hellmich and Herberhold, 1971; Draf, 1978a). The antroscopies were performed by 21 different surgeons.

A preliminary report was presented at the XIV World Congress of Otorhinolaryngology, Head and Neck Surgery, Madrid (Spain), September 1989.

150 endoscopies performed under local anaesthesia via canine fossa on adult outpatients between January 1986 and November 1988 were selected for a retrospective study. Those patients who had been operated simultaneously or later on the nasal cavity, the turbinates or the paranasal sinuses, excepting simple endoscopy of the nasal cavity, were excluded.

The information was obtained from a questionnaire answered by the patients six months up to 30 months after endoscopy and the clinical history recorded before and after endoscopy. The questionnaire was divided into sections asking for the type, the localisation and duration of the postendoscopic pain, paraesthesia, anaesthesia/numbness, dental pain and other complaints, as well as the discomforts during endoscopy.

RESULTS

102 out of 150 questionnaires (68%) were returned. Three patients with postendoscopic complications had to be excluded from evaluation as explained below.

45 endoscopies of the left and 54 of the right maxillary sinus on 53 women and 46 men were evaluated. The age of the patients ranged between 17 and 75, with a mean of 43.49.

Among the indications which led to endoscopy, the chronic sinusitis stands out with 55 cases followed by the verification or falsification of an infectious focus with 33 cases. Other indications (n = 11) included confirmation of fractures of the orbital floor and facial pain.

The endoscopic procedure was discomforting in 78 cases and painful for six patients. The discomforts were related to the perforation of the sinus in 47 cases and to the biopsy or sensation of pressure in nine cases. 28 patients did not answer this item.

Biopsies were taken in 88 cases, showing histological evidence of a chronic sinusitis.

Mayor and minor complications appeared in 28 cases (28.3%), prevailing the swelling (n = 13) as a minor one, followed by inflammation (n = 4), nasal bleeding (n = 3), nasal bleeding with inflammation (n = 8). All complications disappeared under usual treatment, such as antiphlogistics and decongestant nose drops. Three empyemas had to be opened by fenestration of the sinus or incision of the mucosa of the fossa canina. They were excluded from later evaluation.

The complaints were confined to the cheek, the upper lip and the aisle of the nose. 42 patients had one discomforting sensation, 12 had two and 11 patients had three at once. This fact explains the higher number of cases. 34 patients did not have any side effects at all.

Anaesthesia (n = 45) was the most frequent, persisting in five cases (Table 1). Facial pain (n = 31) lasted in two cases (Table 2). The incidence of paraesthesia

was lower (n = 15), but it remained for one year in one case and persisted in two (Table 3). Dental pain (n = 8) was transient in all cases (Table 4). Tearing, nasal obstruction and a rough feeling of the skin were among other complaints (n = 4) mentioned.

The mean time of duration of all discomforts was short in most cases. However, in nine patients, that is nearly 9%, the complaints persisted at the moment of inquiry, with a mean time of 24.9 months (Figure 1).

Table 1. Anaesthesia/numbness are, by far, the most frequent discomforting sensations, persisting in five cases (n=45).

duration	n
<48 hours	9
up to 2 weeks	17
4-8 weeks	7
no information	2
lasting	5

Table 2. Facial pain appeared in 31% of the cases, fortunately not for longer than three months in nearly all cases (n = 31).

duration	n
< 1 week	5
1-4 weeks	17
8-12 weeks	4
no answer	3
lasting	2

Table 3. Paraesthesia may be regarded as another sign of injury of the infraorbital nerve or one of its branches (n = 15).

duration	n
< 1 week	3
2-8 weeks	7
12 months	1
lasting	2

Table 4. Dental pain was referred, but did not persist in any case (n = 8).

duration	n
1-3 weeks	4
4-8 weeks	2
no answer	2

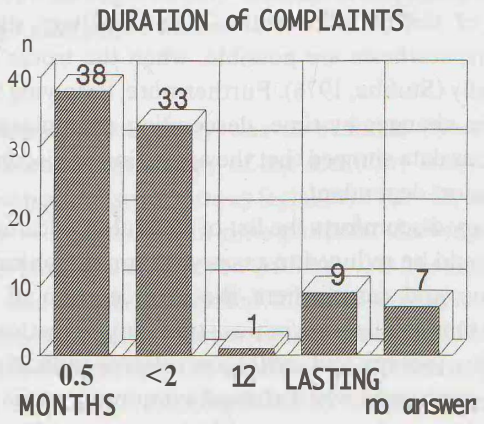

Figure 1. The mean time of duration reveals, that up to two months most of the discomforts have disappeared, excepting 9 patients.

DISCUSSION

The ease of access, the better visualization of the ostium and the possibility of simultaneous diagnostic and therapeutic procedures led to a higher popularity of the sublabial approach.

When describing the endoscopic procedure, Draf (1978a) mentioned that temporary paraesthesia of the teeth was the principal complication, with a maximal duration of four weeks, and that haemorrhage was rare (0.05%), whereas Dennis and Mullin (1922) found facial swelling to be common. Facial pain, numbness, and swelling are reported as being mild and resolving quickly (Kennedy, 1985). Studying the views of 232 otolaryngologists of the U.K. on antroscopy, Fisher and Croft (1989) found that the sublabial approach was supposed to be associated with a greater morbidity, which was considered to be significant only by few surgeons. Out of 529 endoscopies of the maxillary sinus Zinkl (1982) found 2% of paraesthesias and hypaesthesias, but a higher percentage was assumed, as not every patient had been followed-up nor interrogated on this subject. In a prospective randomized comparison between canine fossa and inferior meatus approaches as an out-patient procedure Whittet et al. (1989) found that the frequency of facial symptoms such as cheek swelling, pain and numbness was much higher in the canine fossa approach.

In our study most discomforts ceased after 2-8 weeks, and in one case after one year. In nine cases, (9%), however, facial pain (n = 2), paraesthesia (n = 2), and anaesthesia (n = 5) were persistent.

The most serious discomfort is the injury to branches of the infraorbital nerve as seen in our study. Two anatomical facts may explain the involvement of the infraorbital nerve. Knox (1853) and Wood (1939) described the naso-dental branch coming from the superior alveolar branch of the infraorbital nerve, running very near the canine fossa. About 16 mm of its 22 mm route were found at the inner side of the anterior wall of the maxillary sinus (Lang, 1988). Paraesthesia and hypaesthesia are possible, when the trocar is introduced too medially and cranially (Stubbe, 1976). Furthermore, following Stubbe (1976), the infraorbital foramen changes by time, descending and enlarging with age.

The evaluation of our data showed that the appearing of discomforts was neither sex-, age-, nor surgeon-dependant.

To avoid unnecessary discomforts the list of absolute indications for antroscopy via canine fossa should be reduced to cases with sonographical and radiological suspicion of tumour and cases where the incarceration of tissue cannot be distinguished from blood collection or post-traumatic infection. Infectious focus and chronic sinusitis (polyps and cysts) are relative indications. In the latter, endoscopy may be performed when clinical symptoms persist under treatment, independently if they correlate or not with an abnormal X-ray.

Not every pathologic X-ray of the paranasal sinuses correlates with endoscopical

findings (Hellmich and Herberhold, 1971; Illum et al., 1972; Langhans, 1980; Pfleiderer et al., 1986). We agree with Steiner (1982), that not every unclear X-ray finding has necessarily to be endoscopied. In a control series on the frequency of pathological X-ray of the maxillary sinus, found in 10-35% of the cases, the tendency to spontaneous healing was great (Brasch et al., 1969), specially in children (Mann, 1981; Schmoldt et al., 1985). Moreover, endoscopy is not conclusive neither of the histological alterations (Mann and Dao Trong, 1979; Schmoldt et al., 1985) nor of the possible reversibility of these findings (Hellmich, 1977). This questions the help of endoscopy in making decisions about further therapy.

As a general rule, we conclude that no preoperative antroscopy is necessary if an endoscopic endonasal surgery of the ethmoid is planned anyway. Endoscopic inspection and surgery of the maxillary sinus may be performed then through the widened ostium of the middle meatus.

The endoscopy of the complete nasal cavity should always be performed before antroscopy. Reasons of disturbance may be found, making antroscopy unnecessary. Sometimes a waiting attitude is not possible considering that the ENT-department may be the last for patients sent from ENT colleagues outside. In these cases, clinical symptoms with or without pathological radiographies should be assessed with either different X-ray projections (Steiner, 1982) tomographies or other non-invasive procedures, such as sonography (Mann, 1977; Stammberger, 1979).

Although the inferior meatus approach seems to be an alternative access it showed not to be inert: inmediate discomfort/pain and complications were higher using the inferior meatus approach (Whittet et al., 1989). Besides, the local anaesthesia is more difficult and sometimes insecure (Steiner, 1982) and a previous separation of the lower turbinate is often necessary, which makes this approach rather unsuitable for out-patients. A long-term survey of patients after intranasal antroscopy through inferior meatus is necessary before confirming this access as a real alternative one.

CONCLUSIONS

The aim of this retrospective study was to evaluate short and middle term discomforts originated by antroscopy of the maxillary sinus via canine fossa.

Beside the complications, discomforts as facial pain (n = 2), paraesthesia (n = 2), and anaesthesia (n = 5) persisted in nine patients, showing that the sublabial antroscopy is not as harmless as believed until now. As 21 surgeons were involved in this study, the side effects are related to the endoscopic procedure and the anatomic conditions themselves, rather than to the physicians.

Despite the possible discomforts, the antroscopy still has its place in diagnostic ENT-routine and should not be displaced by computer tomography of the paranasal sinuses, as clinical practice seems to evidence. Both procedures should be regarded as complementary to each other.

Our findings question the use of the sublabial approach as a routine procedure. The search for atraumatic possibilities must go on. Meanwhile, the probability of postoperative discomforts should be discussed with the patient.

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