Functional endoscopic sinus surgery (FESS)

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There are two techniques accepted worldwide for FESS, namely those of Messeklinger and Wigand. 166 endoscopic sinus surgical procedures have been performed with the Messerklingertechnique on 99 patients between February, 1991 andNovember, 1992at Department of ENT of Ankara Hospital The average follow up period is 11.5 months. The results were evaluated subjectively by inquiry forms filled in by patients and objectively by postoperative endoscopic examinations. Our success rates are 80.7% in nasal polyposis and 88.3% in chronic recurrent sinusitis. Complications which we confronted with, both during and after surgery were minor in character and their incidence was 10%. There were 16 cases of recurrent sinusitis. [Turk J Med Res 1993; 11 (5): 221-223]

Key words: Sinus, Endoscopic surgery

Many patients come to ENT out-patient departments with symptoms relating to sinus pathologies. Surgery is planned when medical therapy is unsuccessful and when the symptoms are highly disturbing for the patient.

Classical surgical methods in paranasal sinus surgery are criticized for not being much functional, being destructive and having a high recurrence rate. Functional endoscopic sinus surgery (FESS) has therefore become highly popular in recent years in many centers. High Resolution Computerized Tomography (HRCT) has also been much helpful and leading in the evaluation of patients who were programmed for FESS. It shows sinus pathologies and paranasal sinus anatomy in detail.

All chronic infectious diseases of the sinuses refractory to medical theraphy, including massive polyposis and especially ostiomeatal complex disease are candidates for FESS. The technique provides an excellent view with minimal morbidity and bleeding. The surgery is generally performed under local anesthesia.

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MATERIALS AND METHODS

Between February, 1991 and November, 1992, 166 endoscopic sinus surgical procedures have been carried out on 99 patients. Surgery was planned on chroric or recurrent sinusitis and / or nasal polyposis patients refractory to medical treatment or those who were previously operated on but who had recurrent complaints. HRCT also played an important role in the preoperative evaluation. Preoperative HRCT of one of our cases can be seen in Figure 1. The surgical procedure performed to remove ostiomeatal unit pathologies were carried out with Karl-Storz's 4 mm rigid "0", "30", "70" degree telescopes and endoscopic sinus surgery set. Patients were operated on according to the Messerklinger technique. Periodic endoscopic control examinations were done on the postoperative. 2nd, 4th and 8th days with cleansing of crusts and clots. Oral antibiotics w^re administered for 5 to 7 days following surgery.

Beclamethasone dipropionate nasalspray was advised for a 15-day short period to patients operated on for chronic sinusitis and for at least two months to patients operated on for nasal polyposis. Nasal cavity irrigation with sterile 0.9% saline solution was also advised in the early postoperative period to lessen crusting and facilitate endoscopic control examinations.

Attention was paid to postoperative complications and whether or not relief was experienced regarding preoperative symptoms following surgery. Postoperative routine control CT made on 30th day of the same case can be seen in Figure 2.

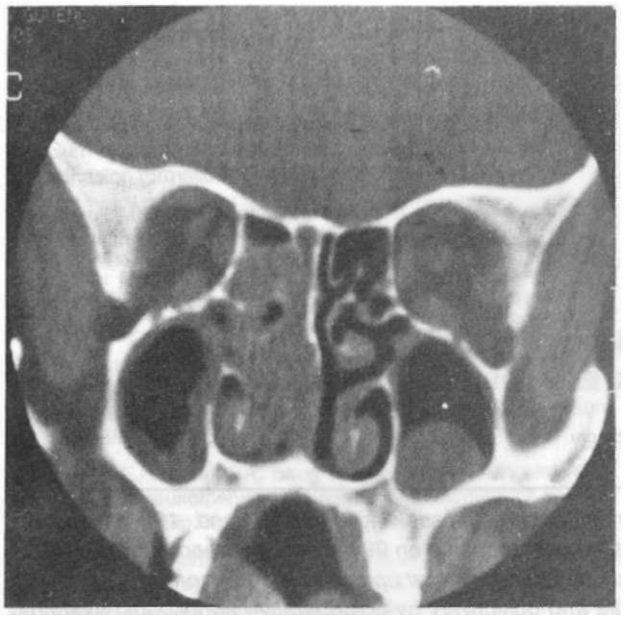

Figure 1. Preoperatif HRCT

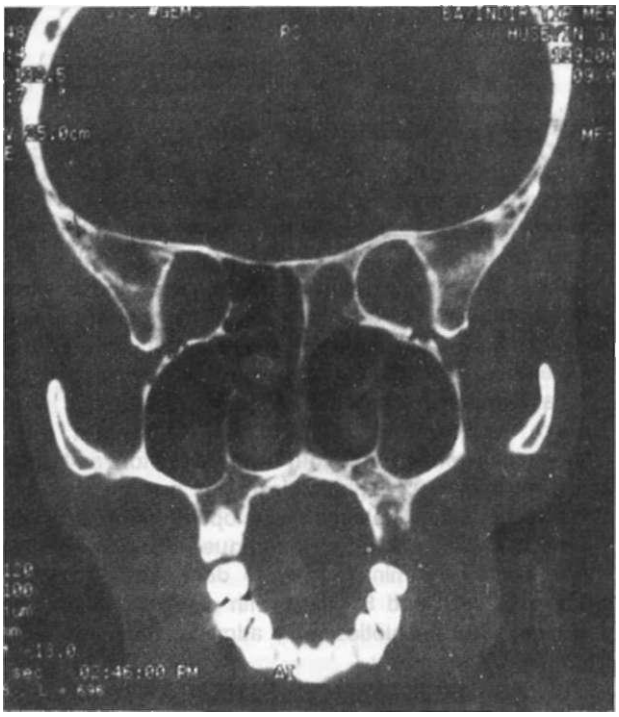

Figure 2. Postoperatif HRCT

RESULTS

In a 22-month period 166 endoscopic sinus surgeries were employed on 99 patients all of whom were preoperatively and when necessary postoperatively evaluated with HRCT. The age range of the patients are seen in Table 1, Table 2 shows in brief the symptoms before and after surgery.

The patients were requested to fill in inquiry forms long after surgery asking the outcome of their symptoms compared to the preoperative period. Those patients with complete relief of their symptoms were designated as completely improved, those with one symptom continuing were designated as partially improved and those with at least two symptoms continuing were designated as unsuccessful (Table 3). Preoperative and early postoperative complications are summarized in Table 4.

DISCUSSION

Approach to paranasal sinus disease with FESS is based on the pathophysiology of the mucocliary transport system described by Messerklinger. So the surgical approach is focused to the ostiomeatal unit, instead of global major paranasal sinuses (1,2,3). According to a study done by Wigand, 88% of patients with chronic sinusitis possess anatomic variations in their middle meatuses, whereas in normal subject this rate of incidence is 22%. These anatomic variations are in turn an important cause of serious complications. It is important that this method must be performed only after sufficient theoretical training and practice. HCRT prior to surgery reduces the complication risk.

There are studies pertaining to good results with FESS in the pediatric age group (4,5). We operated on 6 pediatric patients of whom 5 had nasal polyposis and 1 had chronic sinusitis. Their average age was

Table 1. Age range and distribution of patients

Age range	: 10-72 years
Averege age	:37
Age groups	**Total (n)**
0-10	2
11-20	13
21-30	16
31-40	32
41-50	18
51-60	13
,61-70	5
TOTAL	99

Table 2. Evaluation of patients according to preoperative and postoperative symptoms

	Preoperative	Postoperative
Nasal obstruction	73	13
Postnasal drainage	63	18
Headache	77	21
Rhinorrhoea	18	3
Hyposmia or anosmia	39	16

Table 3. Results

	Nasal polyposis	Chronic or recurrent sinusitis
Completely improved	30 (53.6%)	28 (65.0%)
Partially improved	15(27.1%)	10(23.3%)
Unsuccessful	11(19.3%)	5(11.7%)

Table 4. Complications

MAJOR		: 0
MINOR	Synechiae requiring revision	8
	Epistaxis requiring packing	2
	Periorbital ecchymosis	2
	Lamina papyracea injury	4

13.6 years. Two of these patients were found to have recurrences in follow-up examinations. This is due to lack of cooperation of children during postoperative control examinations and nasal cleansing of crusts and opening of synechiae.

Our succes rate was 80.7% in nasal polyposis, and 88.3% in chronic recurrent sinusitis and it is in harmonies with the results of the literature (6,7).

We did not come across major complications in our series. Our most frequent complication were synechiae, constituting 5% of our complications. These synechiae, taking place in between the middle concha and lateral nasal wall, were treated by incision with a scalpel. Synechiae are the most commonly seen complication in most series. In Stammberger's series this figure is 8% (1). They arise from damage to the mucosa of the lateral aspect of the middle concha by instruments. They can be minimized with a careful technique. It is known that not all synechiae absolutely cause clinical problems. In 4 of our initial cases we perforated the "lamina papyracea" and were faced with orbital fat tissue. Excessive loss of periorbital fat tissue can cause enophthalmos. In 8% of cases there is a congenital dehiscence in the "lamina papyracea" and hence, periorbital fat tissue may be confused with edematous mucosa leading to its faulty removal (1,6,8).

Bledding seen during the begining of the surgery spontaneously ceases to wards the end of the procedure. However in two of our patients we had a bleeding problem in whom we had to apply nasal packing for control of haemorrhage. Periorbital ecchymosis also developed in these two patients: There was no restriction of eyeball movements and no diplopia. Symptoms receded after cold application to the eyelids. We had no other serious complications in our series.

As a result, FESS is a method to be preferred because it is a method in accordance with the pathophsiology of sinusitis, it is well tolerated by patients and because it removes causes of sinusitis with a less loss of mucosa. Complications will reach a minor level with adequate cadaver studies, careful technique and increase in experience.

Fonksiyonel endoskopik sinüs cerrahisi (FESC):

FESC için tüm dünyada kabul edilmiş bir teknik vardır. Bunlar messeklinger ve Wigand teknikleridir. Şubat 1991-Kasım 1992 tarihleri arasında 99 hastada 166 kez messerklinger tekniği ile endoskopik sinüs cerrahisi uygulandı. Çalışma Ankara Hastanesi Kulak Burun Boçpz bölümünde yapıldı. Hastalar ortalama 11.5 ay takip edildiler. Sonuçlar hastaların doldurduğu formlarla sübjektif olarak ve postopeperatif endoskopik muayene ile objektif olarak değerlendirildi. Başarı oranı nazal poliplerde %80.7, kronik tekrarlayan sinüzitlerde %88.3 oranında bulundu. %10 oranında önemsiz komplikasyonlarla karşılaştırıldı. 16 vakada sinüzit nüksetti.

[Türk J Med Res 1993; 11 (5): 221 -223]

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