

Extensive endoscopic sinus surgery from the viewpoint of out-patients in a metropolitan area

YOH-ICHIRO MAEDA, MINEKO TSUCHIDA, TAKASHI FUKAYA*

Abstract

Extensive functional endoscopic sinus surgery (FESS) was assessed retrospectively from the viewpoint of out-patients on the basis of their responses to a postal questionnaire, particularly in the Tokyo metropolitan area. Seventeen patients were included in this study (six females and 11 males) with an age range of 22–70 years. All the patients had at least ethmoid sinusitis. Additionally, some patients had maxillary or sphenoid sinusitis or polyps obstructing the nasal cavities. The average operation time and blood loss were 36 minutes and 31 ml, respectively. Four patients had to travel more than one hour to reach home. All of them used the train for travelling to and from the hospital. 'Doctors' advice' was the most common reason for the decision to undergo this ambulatory surgery. Nine (53 per cent) had some unexpected problems post-operatively. The establishment of a care pathway may improve the outcome of extensive FESS on an out-patient basis.

Key words: Ambulatory Care; Paranasal Sinuses; Endoscopic Sinus Surgery; Out-patient

Introduction

The operation time for functional endoscopic sinus surgery (FESS) has been shortened, and injury to patients has also been minimized, due to improvements in the many types of instruments used.^{1–3} The emergence of a microdebrider system, a mucosa resection drill with suction, has been useful for FESS because intra-operative blood loss has been reduced markedly. This is one reason why FESS could be changed from an operation on in-patients under general anaesthesia to one on out-patients under local anaesthesia. However, there are no appropriate criteria regarding this decision.

In Tokyo, patients frequently use trains and buses to travel between home and hospital. Therefore, patients cannot usually take sufficient post-operative rest until they reach home. This may be one of the causes of post-operative nasal bleeding. Post-operative nasal bleeding that occurs after the patient leaves the hospital is a serious complication in out-patients and a great concern for surgeons. For this reason, extensive FESS on an out-patient basis is not yet commonly performed in Japan.

When cost and time are the primary considerations, it is possible that the discomfort of patients after sinus surgery will be overlooked. The authors attempted to confirm whether extensive FESS on an out-patient basis was a good clinical service, on the basis of responses to a questionnaire

sent post-operatively to patients in the Tokyo metropolitan area.

Materials and Methods

During a 12-month period, 21 consecutive adult patients underwent extensive FESS on an out-patient basis. All these patients were invited to participate in this study by responding to the postal questionnaire. Seventeen patients were included (six females and 11 males) with an age range of 22–70 years. All these patients had sinusitis and underwent sinus computed tomography (CT) pre-operatively.

Although all the patients were treated with macrolides for chronic sinusitis, their symptoms did not improve to their satisfaction. The indication for extensive FESS was nasal obstruction due to nasal polyps, inveterate rhinorrhoea or postnasal discharge even after three months of medication.

All the patients had at least ethmoid sinusitis. Additionally, the patients had maxillary or sphenoid sinusitis, which was evident by CT scan, or polyps obstructing the nasal cavities.

Three patients were premedicated by an intramuscular injection of 25 mg of hydroxyzine 20 minutes prior to surgery. The remaining 14 patients did not receive any premedication.

In this study the patients were divided into three groups, namely: patients with unilateral sinusitis; patients with recurrent chronic sinusitis following

nasal operation and patients who were undergoing FESS for the first time. Post-operatively, none of the patients were diagnosed with papilloma. Patients with caseous sinusitis were included in this study.

The surgical technique was based on the powered FESS.^{4,5} Cotton swabs soaked in a solution of 1:5 000 epinephrine and 4 per cent xylocaine were introduced into the nasal cavities for local anaesthesia. After approximately 20 minutes, the base of polyps, the aggar nasi and the base of the middle turbinate were injected with 1:100 000 epinephrine and 1 per cent xylocaine. The microdebrider used in this study was manufactured by Striker Co. (USA) or Smith and Nephew Co. (UK).

Operation time, blood loss volume and the volume of fluid infusion were recorded. Retrospectively, the days until the next consultation and the number of post-operative consultations were confirmed.

The survey using a questionnaire was carried out for all the patients to determine whether extensive FESS was appropriate on an out-patient basis (see Appendix).

Results

The results of extensive FESS and the findings of follow-up consultations are summarized in Table I. The mean age of these patients was 50.8 years. The average operation time was 36 minutes. The average blood loss in extensive FESS was 31 ml. The average volume of fluid infusion was 58 ml. The median period until the next consultation was three days. The post-operative median number of consultations was five.

TABLE II

RESPONSES TO THE QUESTIONNAIRE

1. What type of transportation was used on the day of the surgery?	
Train:	8
On foot	3
Taxi:	3
Private car:	3
2. How long did it take to reach home?	
<20 min:	6
21–40 min:	3
41–60 min:	4
61–90 min:	2
90 min	2
3. Why did you decide to undergo this ambulatory surgery?	
Doctor's advice	13
Family circumstances	2
Business	1
Cost	1
4. What complications did you encounter post-operatively?	
Nothing	8
Some complications	9
Unexpected pain	8
Unexpected bleeding	6
Unexpected stuffiness	5
It was difficult to return home	3

The responses to the questionnaire are presented in Table II. Patients travelling by train were the largest group. Trains in Tokyo are usually very crowded so that the responses indicated the

TABLE I
RESULTS OF EXTENSIVE FESS AND FINDINGS OF FOLLOW-UP CONSULTATIONS

Age/sex	Type of disease	Details of surgery	Operation time (minute)	Blood loss volume (ml)	Volume of fluid infusion (ml)	Period until next consultation	Number of consultations
1 52M	Recurrent	R (polyp) L (polyp)	38	100	110	2	3
2 49M	First-time	R (polyp) L(polyp, max)	41	20	50	3	6
3 68F	Unilateral	R (max)	43	30	70	2	5
4 52F	Unilateral	R (max)	34	60	80	3	5
5 22F	Unilateral	L (max)	43	25	20	3	5
6 58M	Unilateral	L (polyp, max)	24	5	15	2	5
7 70M	Unilateral	L (polyp, max)	38	30	100	3	4
8 49M	Recurrent	R (polyp) L (polyp)	25	10	15	2	2
9 41M	First-time	R (polyp, max) L(polyp)	39	100	100	3	3
10 38M	Unilateral	L (polyp, max)	37	10	100	6	3
11 65F	Unilateral	L (max)	25	5	15	1	8
12 66F	Unilateral	L (polyp, max)	35	5	15	3	3
13 61M	Recurrent	R (polyp) L (polyp)	40	30	100	6	3
14 33M	Recurrent	R (polyp, max, sph)	42	10	60	3	2
15 58F	Unilateral	R (polyp, max, sph)	35	50	40	2	7
16 44M	First-time	R (polyp) L(polyp)	41	30	60	2	6
17 38M	Recurrent	R (polyp, sph)	25	10	40	2	5

Details of surgery mean the extent that the ambulatory surgery was performed. R = right; L = left; polyp = polyps obstructing nasal cavities; max = maxillary sinus; Sph = sphenoid sinus.

TABLE III
REASONS FOR AVOIDING AMBULATORY SURGERY

Anxieties regarding the operation
1. Vague anxieties (E.g., the patient had never undergone any operations.)
2. Anxieties about pain (E.g., the desire for extensive FESS under general anaesthesia. Ambulatory surgery under general anaesthesia is seldom performed presently in Japan.)
3. Anxiety about complications after the operation
(a) The desire to receive medical attention in a hospital
(b) No one could take care of them at home
(c) The desire to take sufficient rest post-operatively

importance of taking sufficient post-operative rest before leaving the hospital. In addition to the means of transportation, travelling time is also an important factor for out-patients. Two patients had to travel between home and hospital for more than 90 minutes. Regarding question 3, 'doctors' advice' was the most common reason for deciding to undergo this ambulatory surgery. The other reasons were family circumstances, business and expense.

Fortunately, there were no serious post-operative complications in these patients. Although the authors had explained in detail about extensive FESS and its possible complications, the occurrences of pain, bleeding and stuffiness were unexpected to some out-patients. This information is valuable for establishing a good medical service in the future.

Discussion

The establishment of the current rhinological operation is attributed to the development of three factors: the concepts and procedures developed by Kennedy and Stammberger,^{6,7} endonasal endoscopies and the microdebrider. There are many reports on the good results of FESS.⁸⁻¹³ However, these reports do not clarify the specific criteria or decision process on the basis of which extensive FESS is performed on an in-patient or out-patient basis.

Ambulatory surgery under general anaesthesia is rarely performed in Japan. In principle, whenever operations are performed under general anaesthesia, the patients have to be hospitalized on the day before the surgery and cannot be discharged on the day of the surgery. This has been the case for many years, and there have been no signs of changing this in Japan.

In the authors' institute, admission is recommended for patients requiring deviatomy or who have pansinusitis and also for patients whose operation will take more than one hour. An operation requiring more than one hour is considered an excessive load particularly for out-patients travelling by train. For patients more than 70 years old, extensive FESS is not recommended on an out-patient basis.¹⁴

The authors occasionally encountered patients who desired to be hospitalized despite the recommendation of ambulatory surgery. Their reasons for wanting to be admitted to hospital are presented in Table III. Their reasons indicated that

the patients had vague anxieties pre-operatively even though a detailed explanation of the surgery had been provided. As there was the alternative of admission, it was not necessary for the patients to face these problems. We have to respect the patients' rights and conform to their wishes.

As shown in Table I, the patients with unilateral sinusitis formed the largest group. From the results of extensive FESS, intra-operative bleeding in the group with unilateral sinusitis seemed to be less than that in other groups. Based on the authors' experience, extensive FESS for unilateral sinusitis may be feasible on an out-patient basis. There are no significant differences in operation time and blood loss volume between the group with unilateral sinusitis and other groups using the unpaired *t*-test ($p > 0.05$). In the recurrent group and first-time group, the surgeons should be careful regarding intra-operative bleeding because the authors occasionally encountered massive haemorrhage (patient 1, patient 9). Most of the 17 patients had their first follow-up consultation within three days after the operation. This is a suitable interval for assessing the condition of the out-patients. Five follow-up consultations are reasonable after extensive FESS.

In this study, it took more than one hour for four patients to return home. All of them travelled by train and three of them had no post-operative complications. The one remaining patient, who had some complications, answered that travelling home was difficult. The authors consider that hospitalization is advisable for patients requiring more than one hour travelling in order to obtain sufficient post-operative rest.

The hospital where the subjects of the present study underwent extensive FESS was company owned. Such a hospital is obliged to accommodate the requirements of workers belonging to those companies, which is why some patients had to travel long distances.

The responses to question 3 indicated that the recommendation of ambulatory surgery by a surgeon had a profound influence on the decision of the patients. All surgeons must realize the significance of these responses. Surgeons should refrain from intrusively recommending extensive FESS on an out-patient basis.

- This study assesses the feasibility of ambulatory care endoscopic sinus surgery in a metropolitan setting
- The importance of careful pre-operative consideration of distance and mode of transport between hospital and home is emphasized in order to avoid complications

The responses to question 4 provided valuable information that may promote ambulatory surgery in the future. The authors provided a detailed

explanation of the possibility of pain, postnasal bleeding and nasal stuffiness. However, some patients found that the post-operative conditions were worse than they expected. These results should be considered and a more detailed explanation should be provided to out-patients for their benefit. Nine (53 per cent) out of the 17 patients had some difficulty post-operatively. The outcome of extensive FESS needs to be further improved. It is expected that the establishment of a care pathway will play an important role in solving these problems.

Ambulatory surgery is gradually being adopted for the treatment of some diseases, and should be assessed more objectively from the viewpoint of out-patients.

Appendix

QUESTIONNAIRE

- (1) What type of transportation was used on the day of the surgery?
- (2) How long did it take to travel from hospital to home?
 - A. Less than 20 minutes
 - B. More than 20 minutes but less than 40 minutes
 - C. More than 40 minutes but less than 60 minutes
 - D. More than 60 minutes but less than 90 minutes
 - E. More than 90 minutes
- (3) Why did you decide to undergo this ambulatory surgery? Please provide one answer.
- (4) What complications did you encounter post-operatively? Multiple answers allowed.

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Address for correspondence:

Yoh-ichiro Maeda,
Department of Otolaryngology-Head and Neck Surgery,
Toshiba Hospital,
6-3-22 Higashi-ooi,
Shinagawa-ku,
Tokyo 140-8522, Japan.

Fax: +81-3-3764-3415

E-mail: rhinology-tky@umin.ac.jp

Mr Y-I. Maeda takes responsibility for the integrity of the content of the paper.

Competing interests: None declared