

## ENDOSCOPIC MANAGEMENT OF MAXILLARY ANTRAL DISEASES

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### Abstract

**Background :** To see effectiveness of Endoscopies sinus surgery and it's complication for the management of maxillary antral diseases.

**Materials and methods :** A cross sectional observational study conducted from August'2014 to February'2016 in Otolaryngology Department, Chittagong Medical College Hospital, Chittagong.

**Results :** The age of majority of the patients range from 21-30 years. Male and female patients were equal in number (M:F=1.1). The presenting symptoms of the patients were nasal obstruction, nasal discharge, headache, post nasal space drip, smell disturbance, recurrent sore throat and epistaxis. Major indications were chronic maxillary sinusitis 14 (46.67%), antrochoanal polyp 9(30%). Minor complication occurred in 9(30%) cases which included synechiae 3(10%) epistaxis 3(10%) and periorbital echymosis 3 (10%). **Conclusion :** No serious complications like CSF leak, retro orbital hemorrhage, blindness were noted.

### Key words

Endoscopic sinus surgery; Maxillary antral diseases; Endoscope.

### Introduction

Endoscopic sinus surgery is a minimally invasive technique that was introduced in the 1960s by professor Messerklinger and Wigand. The development of the Hopkins Telescopes and introduction of the rigid nasal endoscopes of various viewing angles have revolutionized the

way nasal and sinus diseases are approached and treated. ESS is now a popular technique of operation in the PNS and nose. It is also getting popularity for operations in the skull base, like pituitary surgery, sphenoid sinus surgery and repair of CSF leakage and ophthalmologic operations like DCR and orbital decompression. Extensive growth in the nose and PNS require external approach.

Through the work of Kennedy and associates, Stammberger and others, endoscopic techniques of Messerklinger are now used during surgery. During operation after applying suitable vasoconstrictor in the nasal cavity, the middle turbinate, which is the most important landmark for ESS, is first identified. On the lateral wall of the nose at this level of the anterior end of the middle turbinate lies the uncinate process. First uncinectomy is done to open the maxillary antrum. Natural ostium of maxillary sinus is inspected, if found obstructed it was opened, cleared of pathology if any and widened the opening. If present, concha bullosa of the middle turbinate is removed to deal with disease and to enlarge the osteomeatal complex.

A significant component in the success of the endoscopic surgery is meticulous cleaning of the surgical cavity<sup>1</sup>. Patients are seen frequently post-operatively to clean debris and clots, to avoid synechiae and to monitor healing. Long term post-operative follow up upto 3 to 6 month is necessary to monitor healing.

In experienced hands reported complications of ESS are surprisingly few. The most common complications are orbital echymoses, hemorrhage and synechiae. The most catastrophic very rare complications of ESS is blindness resulting from damage to optic nerve. Another major complication is CSF leak. Most complications of the endoscopic sinus surgery can be managed and preventable.

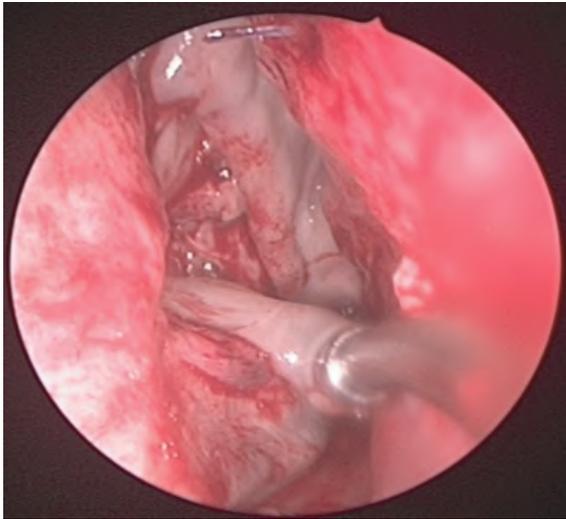
The interest of endoscopic sinus surgery is gradually increasing day by day. Important innovations in radiology, instrumentation and philosophy have greatly contributed to our ability to diagnose and treat maxillary antral diseases<sup>2</sup>.

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**Fig 1 :** Endoscopic view of maxillary sinus-

### Materials and methods

All consecutive admitted cases in ENT ward of Chittagong Medical College Hospital were selected for this study from August 2014 to February 2015 (Total Six Months).

#### Inclusion Criteria

- Clinically and radiologically suggested maxillary antral diseases.
- Patients did not respond to adequate medical and antral washout.

#### Exclusion criteria

- Malignant conditions of nose and para nasal sinuses.
- The patient diagnosed as acute infection of nose and para nasal sinus.
- Patient with intracranial complications.
- Patient having congenital nasal malformation.
- Patients who did not give consent.

### Surgical Procedure

After taking an informed consent all the selected patients were evaluated with detailed history, clinical examination and proper investigations, Nineteen patients were operated under General anaesthesia eleven patients were under local anaesthesia. The steps of ESS were performed according to the Messerklinger Technique which includes infundibulotomy, Middle meatal antrostomy etc. and post operative follow up was done. Data were recorded and compiled in a structured data sheet and data were analyzed.

### Results

**Table 1 :** Age distribution (inclusive) (n=30)

Age	No. of Patient	Percentage (%)
0-10	0	0
11-20	5	16.67%
21-30	10	33.33%
31-40	9	30%
41-50	3	10%
51-60	3	10%
61 and above	0	00%
Total	30	100

**Table II :** Presenting Symptoms (n=30)

Complains	No. of Patient	Percentage (%)
Nasal obstruction	28	93.33
Nasal discharge	24	80.00
Headache	26	86.67
Post nasal drip	10	33.33
Recurrent sore throat	08	26.67
Smell disturbance	15	50.00
Sneezing	17	56.67
Snoring	0	0
Nasal Bleeding	14	46.67
Mouth breathing	13	43.33

**Table III :** Diagnosis of the Maxillary antral Diseases (n=30)

Indications	No. of Patients	Percentage (%)
Sinusitis	14	46.067%
Antrochoanal Polyp	9	30%
Bilateral Nasal Polyp	4	13.33%
Antral Polyp	3	10%
Total	30	100%

**Table IV :** Endoscopic Procedure performed (Messerklinger's Technique) (n=30)

	Unilateral	Bilateral
Infundibulotomy	10	06
Middle Meatal Antrostomy	17	13
Anterior entmoidectomy	0	3
Posterior entmoidectomy	0	3

**Table V :** Post Operative Complications of ESS (n=30)

	Complications	No of Patients	Percentage (%)
Minor	Synechiae	3	10
	Haemorrhage	3	10
	Infection	0	0
	Peri orbital echymoses	3	10
Major	CSF Leakage	0	0
	Retro-orbital Hemorrhage	0	0
	Blindness	0	0
	Total	9	30

Among the 30 patients 33.33% were in the age group of 21-30 years, 30% were in the age group of 31-40 years (Table I).

Among the 30 patient most of them came with nasal obstruction, headache and nasal discharge which were 93.33%,86.67% and 80% respectively (Table II).

Table III shows distribution of different maxillary antral diseases in patients. Most of them were with sinusitis (46.67%) and bilateral nasal polyp (13.33%).

Table IV shows the endoscopic procedures (Messerklinger technique) performed in the management of patients of maxillary antral disease. All of patients underwent Middle meatal antrostomy. Among them 17 patient were done unilaterally and 13 patients were done bilaterally.

Table V shows different post operative complications of ESS. Though there was no major complications but some minor complications like synechiae 3(10%). Haemorrhage 3(10%), Peri orbital echymoses 3(10%).

### Discussion

Endoscopic Sinus Surgery (ESS) is the modern approach to sinus surgery became a popular technique among the otolaryngologist of Bangladesh. ESS for inflammatory sinus diseases is well established. The use of endoscope during ESS improves visualization, enables greater preservation of normal structures and reduces the necessity of wide exposure of operation fields. Compared with the use of head light, or microscope, illumination and visualization are improved but perhaps more importantly the deflected angle of view enables the evaluation and removal of diseased tissues from recesses that could not be seen previously. The purpose of the study was to determine the efficacy of endoscopic sinus surgery in treatment of antral diseases like maxillary sinusitis, antrochoanal polyp, retention cyst.

In the present study maximum 33.33% patients were in the age group of 21-30 years being consistent with the studies of Rahman MZ et al and Alam M et al<sup>3,4</sup>.

The presenting symptoms of the patients in this study were Nasal obstruction (86.67%) Nasal discharge (80%) Sneezing (56.67%) Smell disturbance (50%) Nbleeding (46.67%) Mouth breathing (43.33%) recurrent sore throat (26.67%). This result is consistent with many other studies like Lane F.Smith M.D where Nasal obstruction was 70% followed by Headache 65%<sup>5</sup>. Another study Bajaj et al found Nasal obstruction (81.5%) and Loss of sensation of smell (83.1%) followed by Postnasal discharge (44.3%) Headache (43.2%) Sneezing (38.7%) Rhinorrhoea (35.7%) and Midfacial pain (28.1%)<sup>6</sup>.

Several disease entities were treated endoscopically in this study which is consistent with other standard studies<sup>1,7</sup>. In this study, 46.67% of patients were operated for chronic maxillary sinusitis, 30% for antrochoanal polyp, bilateral nasal polyp (13.33%) and antral polyp 10%.

The fundamental steps of ESS were performed according to the Messerklingers technique which includes infundibulotomy, middle meatal antrostomy, anterior ethmoidectomy and posterior ethmoidectomy (For associated ethmoidal diseases) In this study unilateral infundibulotomy done in all cases ( 30% ) of antrochoanal polyp and (3.3% ) cases of bilateral Nasal polyp. Bilateral infundibulotomy done in 13.33% cases of bilateral Nasal polyp and ( 6.67% ) cases of maxillary sinusitis. Unilateral middle meatal antrostomy performed in 30% cases of antrochoanal polyp and 24.46% cases of maxillary sinusitis. Bilateral middle meatal antrostomy done in 13.33% cases of bilateral nasal polyp and 26.67% cases of maxillary sinusitis. Bilateral anterior ethmoidectomy and posterior ethmoidectomy done for associated ethmoidal diseases in 10% cases of bilateral nasal polyp. The procedure is consistent with other studies<sup>8,9</sup>.

In this study most of the patients (53.33%) were operated without undergoing any difficulties. But some difficulties like septal deviation (30%) cases, unusual bleeding in (10%) cases and concha bullosa (6.67%) cases were faced and managed accordingly. This study is consistent with the study of Mustafa M G<sup>10</sup>.

Gross et al reported (9%) complications out of 123 cases in their series<sup>11</sup>. Stankiewicz reported 29% complication rate in 90 patients operated upon with 7 major and 19 minor complications<sup>12</sup>. Stammberger reported 2 cases of CSF leakage and no other major complication in 4000 cases<sup>13</sup>. No post operative complications of ESS were found in (70%) Patients, Periorbital echymoses (10%) Synechiae (10%) Haemorrhage 3 (10%) were found during postoperative follow up. No serious complications like CSF leak, retro-orbital hemorrhage, blindness were noted. These findings were consistent with the study of Rahman MZ et al and Jin-G et al<sup>14,15</sup>.

So it is clear that in this study the success rate is high and morbidity is low in the series of ESS. These are consistent with the study of them<sup>16-18</sup>.

#### **Limitation for study**

1. The study population was selected from a single selected hospital in Chittagong. So that the results of the study may not reflect the exact pictures of the country.

2. The present study was conducted in a very short period of time.
3. Small sample size was also a limitation of the study.
4. CT scan was not done in all cases.

#### **Conclusion**

ESS is highly effective for dealing with different maxillary antral diseases. Successful outcome of operation can be obtained by careful evaluation and selection of patients by history, examination and proper imaging of the sinuses. This technique allows for a more complete surgery with long lasting results and negligible morbidity. Post operative follow up for a long period is required for more accurate results.

#### **Disclosure**

All the authors declared no competing interest.

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