

# Use of Rigid Endoscope in Post-Operative Follow-Up Cases of Endoscopic Sinus Surgery

SHAHID HUSSAIN, M. AMIR YOUSAF, TAQADAS ABBAS

## ABSTRACT

**Objective :** To evaluate the patients with the help of Endoscope after Endoscopic Sinus Surgery and its use in post operative care with early detection and management of impending complications.

**Study design:** Retrospective, descriptive study.

**Place and duration of study:** The Department of ENT and Head & Neck Surgery, Sir Ganga Ram Hospital Lahore from October 1999 to Jun 2002.

**Patients and methods:** All the diagnosed cases of sinonasal polyposis and chronic sinusitis who required surgical intervention for both the gender and age group more than 13 years. A performa including all details of pre-operative endoscopic assessment, operative details and post operative follow up findings was designed. The patients were divided into three groups according to the surgical procedures performed.

**Conclusion:** Post operative care with endoscope, performing minor procedure under local anaesthesia can greatly diminish the need to return to the operating room for revision surgery.

**Key words:** Rigid Endoscope, Ostiomeatal complex (OMC) disease, Endoscopic sinus surgery, Postop follow up.

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## INTRODUCTION

The advent of nasal endoscope has revolutionized the method of examination<sup>1</sup>. Endoscopic sinus surgery was introduced in the 1960s but did not become widely used until the 1980s. It not only identifies the anatomical landmarks in detail but also proves the significant advancement in management<sup>2</sup>. A thin, lighted instrument called an endoscope is inserted into the nose, and the surgeon looks inside through an eyepiece. Much like a telescope with a wide-angle camera lens, the endoscope beams light into different parts of the nose and sinuses, allowing the surgeon to see what is causing blockages. Surgical instruments can then be used along with the endoscope to remove the blockages and improve breathing. This surgery does not involve cutting through the skin, as it is performed entirely through the nostrils. Therefore, most people can go home the same day. The advantage of endoscopic sinus surgery is the philosophical recognition that the surgical goal is to open the natural drainage channels, thereby restoring normal physiologic function. This differs greatly from conventional procedures, which were ablative and destructive. Other advantages over past sinus surgeries are: diminished post operative discomfort, minimal nasal packing, decreased bleeding, shorter recover time, and most importantly, a 90% success rate. Problems

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*Department of ENT, Lahore Medical and Dental College, Ghurki Trust Teaching Hospital, Lahore Correspondence to Dr. Shahid Hussain, Assistant Professor, Email: shahid351@hotmail.com 0300-7412456*

which endoscopic surgeons encounter in this type of surgery are post-operative adhesions occurring between the middle turbinate and lateral nasal wall in the region of ethmoid sinuses<sup>3</sup>, crusting occurs requiring removal by the operating surgeon.

## PATIENTS AND METHODS

Endoscopic Sinus Surgery was performed on 36 patients irrespective of sex in ENT and Head & Neck Surgery Department of Sir Ganga Ram Hospital Lahore from October 1999 to Jun 2002. Age ranging from 13 to 60 years. All of the patients included in the study had received prior medical therapy without success. Following the history, clinical examination, endoscopic evaluation, CT Scan of paranasal sinuses was ordered. Six patients were excluded from the study. Two of them were underwent surgery within six months, and remaining four were lost in the follow-up. Thus 30 patients were available for study. Our follow-up included the record of prognosis after surgery with or without medical treatment.

Post-operative follow-up included performing small procedures under local anaesthesia such as removal of blood clots, fibrinous exudates, crusts, small polypi, breaking down of synachiae and widening of middle meatus antrostomy/ostium. Significant symptomatology included nasal obstruction 90%, PND 93.33%, headache 63.33%, hyposmia/anosmia 53.33% facial pain 6.6% sore throat 33.33% epiphora 30% proptosis 6.66% and cough 20%. Nasal endoscopy revealed polyposis in

25 patients (83.33%), out of these 25 patients 80% had ethmoidal polypi an 20% had antrichoanal polypi. Fungal allergic sinusitis was involving all the paranasal sinuses was found in 3 patients (12%) suffering from nasal polyposis. Chronic sinusitis was found in 5 patients (16.7%). CT Scan revealed bilateral involvement of ethmoids in 18 patients, maxillary sinus in 24 patients, sphenoid sinus 6 patients, frontal sinus in 8 patients and pansinusitis in 6 patients. Four cases of concha bullosa and one Hellar cells were identified.

Patients were divided into three groups according to the surgical procedure performed. Group I: Partial anterior ethmoidectomy was performed in 13 patients with ostiomeatal complex disease. These limited procedures consisted of infundibulotomy, with middle meatus antrostomy or resection of lateral half of concha bullosa. Group II: Complete anterior ethmoidectomy was performed in 11 patients with diffuse anterior ethmoid disease. All anterior ethmoid cells were dissected to plane the ground lamella. The frontal recess was opened and middle meatus antrostomy was performed. If disease was present in posterior ethmoidal cells, the ground lamella was perforated. Group III: Total sphenoidectomy was employed in 6 patients with extension of the disease in the posterior ethmoid and sphenoid sinuses.

Post-operative antibiotics were used for 7-10 days in every case. Nasal steroids were given in the form of spray or drops in patients having nasal polyposis. Nasal douching with normal saline was advised to every patient on 2<sup>nd</sup> post-operative day to prevent the formation of crusts. 1<sup>st</sup> follow-up visit was done 7-10 days after the patient has discharged from the hospital. 2<sup>nd</sup> follow-up after 15 days from 1<sup>st</sup> follow-up. 3<sup>rd</sup> follow-up was done 15 days after 2<sup>nd</sup> follow-up. 4<sup>th</sup> follow-up was done 15 days after 3<sup>rd</sup>, then monthly or as required. In follow-up every patient underwent a detail endoscopic examination of the nose after spraying the nose with a solution of 4% xylocain and xylometazoline. We used Karl Storz endoscope of 4 mm diameter of 0° and 30° in every patient.

Crusts, blood clots, fibrinous exudates and discharge was removed, adhesions broken down between middle turbinate and lateral nasal wall, middle turbinate and septum, small remnants of polypi, synechia, stenosis of maxillary ostium were treated with the help of endoscope. Post-operative infection was also treated.

RESULTS: Thirty patients ranging in the age from 13 to 60 years (Table I), 18 males, 12 females were included in this study (Table II). Follow-up period ranging from 5 months to 32 months. There were 5 asthmatic patients, 14 patients had known allergy, 5

patients had H/O previous nasal surgery, and this included septal surgery and nasal polypectomy.

On 1<sup>st</sup> follow-up visit in all patients crusts, blood clots, fibrinous exudates were removed endoscopically. 3 patients (10%) had fibrinous bridges between lateral wall and middle turbinate, which were divided (Table III). Post-operative infection was found in 6.7% patients small remnant polypi found in 3.3% patients. 3 months after surgery one patient (3.3%) had recurrence of small polypi, synechiae between middle turbinate and lateral nasal wall found in 6.7% patients. 6.7% patients had maxillary sinus ostium stenosis. These patients managed endoscopically. 3 months after surgery, patients called on monthly interval. Small recurrent polypi, adhesions between middle turbinate and lateral nasal wall, stenosis of maxillary sinus ostium, recurrent infection, whenever found was treated endoscopically.

Overall objective improvement of this study in group I was 92.3%, in group II 81.3% and in group III 66.7% (Table IV). No major complication either during or after surgery was encountered.

Table I: Age of the patients

|             |          |
|-------------|----------|
| Minimum age | 13 years |
| Maximum age | 60 years |
| Mean age    | 32 years |

Table II: Sex of the patients

| Sex    | =n | %age |
|--------|----|------|
| Male   | 18 | 60   |
| Female | 12 | 40   |

Table III: Findings on 1<sup>st</sup> follow-up visit

| Findings                 | =n    | %age |
|--------------------------|-------|------|
| Crusting                 | 30/30 | 100  |
| Adhesions                | 3/30  | 10   |
| Small remnant of polypi  | 1/30  | 3.3% |
| Post-operative infection | 2/30  | 6.7% |

Table IV: Findings after 3 months

| Findings                     | =n   | %age |
|------------------------------|------|------|
| Synechiae                    | 2/30 | 6.7  |
| Stenosis of maxillary ostium | 2/30 | 6.7  |
| Small recurrent polypi       | 1/30 | 3.3  |

## DISCUSSION

Endoscopes plays basic role in diagnosis of sinonasal diseases and allow more detailed examination of nasal cavity and middle meatus<sup>4</sup>. The common problem leading to obstruction of the outflow at the ostiomeatal complex is usually the tendency of adhesion formation between middle turbinate and lateral nasal wall<sup>5</sup>. Adhesion was common complication of endoscopic sinus surgery<sup>6</sup>. Other factors which have also been reported resulting in

unsatisfactory healing include recurrence of polypi, stenosis of maxillary sinus ostium, post-operative infection, occasional scarring, stenosis of fronto-nasal duct and sphenoid sinus ostium<sup>7</sup>. After endoscopic sinus surgery, mucociliary function at the ostiomeatal complex was impaired for approximately six weeks. During this period fibrin exudates, mucous secretions and blood clots tend to stick within the nasal cavity and the osteomeatal complex area, causing patient discomfort and predisposing to post-operative infection and scarring.

Most beneficial post-operative medication was the normal saline. Saline was copiously used until all clots and crusts had been removed and operated site was fully healed. Topical steroids were used over a period of few weeks to few months.

In our study 6.7% patients had synechiae formation between middle turbinate and lateral nasal wall, which is comparable with other international studies<sup>8</sup>. Stenosis of maxillary sinus ostium was found in 6.7% patients which is comparable with Kennedy et al<sup>9</sup>, Kamal<sup>10</sup> and Danis et al<sup>4</sup>, have evaluated the patency rate of middle meatal antrostomy 94-98%. Post-operative nasal crusting must be treated vigorously and meticulously to prevent further complications such as synechiae formations, sinus or nasal obstruction and recurring sinus infections. Incidence of significant crusting found in this study was only 3.3%. Lazer et al<sup>11</sup> found 11% crusting. Small recurrent polypi were found in 6.7% patients in our study after 8-12 months. Mubarik et al<sup>12</sup> found recurrence of polypi in 3% patients.

We had achieved the overall objective improvement 92%, 85.3% and 55.3% in Group I, II, III respectively. This compares with Unulu HH et al<sup>13</sup> who reported objective improvement 92.3%, 90%, and 53.3%.

The overall subjective improvement of symptoms of our study was 85%. These results are comparable with Mathew et al<sup>14</sup>, who reported success ranges from 89% to 91%. Unulu HH et al<sup>13</sup> reported subjective improvement 84%, 88.6%, 66.7% in Group I, II, and III, respectively.

## CONCLUSION

Use of nasal endoscope in post-operative follow-up of endoscopic sinus surgery is vital for overall therapeutic success. Thorough pre-operative planning, post-operative debridement are all integral parts of the multi-step regimen for treating sinus

disease. Post-operative care with endoscope performing minor procedure under local anaesthesia can greatly diminish the need to return to the operating room for revision surgery. The findings suggest that post-operative nasal endoscope is an important tool in improving the outcome of the patients treated with endoscopic sinus surgery.

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