

Outcome of Functional Endoscopic Sinus Surgery in AlKufa ENT Training Center, Iraq

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ABSTRACT

Background: Functional endoscopic sinus surgery is an effective method of treating chronic rhinosinusitis with or without polyps. It started to be used in Al-Kufa ENT Training center in Al-Sadr Medical city in 2008 for limited cases, but in 2013 it progressed significantly.

Objectives: To evaluate the outcome of endoscopic sinus surgery performed in Al-Kufa ENT Training center for Iraqi Board.

Method: A sample of 20 patients underwent FESS in Al-Kufa ENT Training center 2013 for chronic rhinosinusitis that fail to resolve after 3 months of medical treatment. These were prospectively assessed preoperatively, intraoperatively, 3, 6 and 12 months after the operation, using the Lund-Mackay staging system score (Modified for the symptoms score).

Results: There was a highly significant difference between preoperative symptoms with postoperative visits ($P < 0.001$). Also, a highly significant difference in the "general discomfort" between the preoperative visit and all 3 postoperative visits ($p < 0.001$). We found a non-significant correlation between radiological score and mean degree of symptoms ($P = 0.465$), while a strong positive significant correlation between total radiological score and total endoscopic score was found ($P < 0.001$). Also, there was a highly significant difference between the preoperative endoscopic score and that of other visits ($P < 0.001$).

Conclusion: Endoscopic sinus surgery effective in relieving symptoms and improving quality of life of patients.

Keywords: Functional endoscopic sinus surgery, Lund-Mackay scoring system, Chronic rhinosinusitis.

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Endoscopic sinus surgery (ESS) is a minimally invasive surgical procedure performed with the aim of re-establishing mucosal drainage channels of paranasal sinuses, and the ventilation and mucociliary clearance. Nowadays, the primary surgery for chronic rhinosinusitis is almost exclusively performed endoscopically^(1,2).

Whilst originally designed for the treatment of rhinosinusitis and nasal polyposis, ESS has been extended to a wide range of other conditions such as mucocoeles, allergic fungal sinusitis and mycetoma, repair of cerebrospinal fluid (CSF) leaks, orbital and optic nerve decompression, repair of blow-out fractures, dacryocystorhinostomy, choanal

atresia, hypophysectomy, septal and turbinate surgery, management of epistaxis, drainage of periorbital abscess and for some benign and malignant tumours⁽³⁾.

The aim of this study is to evaluate the outcome of endoscopic sinus surgery performed in Al-Kufa ENT Training center for Iraqi Board (KTC) - Iraq.

Methods

A sample of 20 patients suffering from chronic rhinosinusitis (CRS), with or without polyps, treated by proper medical treatment for at least 3 months but failed to respond, all underwent endoscopic sinus surgery under general anesthesia in the department of otolaryngology in KTC, during the year 2013. A consent was taken from the

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patients and these patients were evaluated prospectively.

Inclusion criteria: Patients had been included in the study were suffering from CRS with failure of proper medical treatment for at least 3 months, treated either in the center or in a known otolaryngologist clinic without previous sinus surgery. Patients with sinonasal tumors were excluded.

All the selected patients were evaluated by the Lund –Mackay scoring systems for symptoms, (it was modified by us to include more symptoms for research purpose), radiology, surgery and endoscopic appearance.

In the early postoperative period, the patients were seen after 1 week, 2 weeks and then as needed, for cleaning the nasal cavity but the record of these scores were recorded only in 4 visits which are the baseline (1st) visit preoperatively, 3 months (2nd visit), six months (3rd visit) and 12 months (4th visit) after the operation.

The symptoms scores were recorded in each visit, by asking the patients to encircle the number indicating what he feels for that particular symptom on the given questionnaire. Where (0) mean that symptom not present; (1-10) refer to the degree of symptom severity, with (1) indicating the least degree and (10) indicating greatest severity. From the symptoms score, the symptoms were categorized into 3 groups: Mild ranging from 1-3, moderate ranging from 4-7 and severe 8-10, for each symptom. Lund – Mackay scoring system for preoperative radiology and for surgery were recorded one time, while for endoscopy it was recorded for each patient in every visit.

Results

Age was between 17 – 42 years with mean (30.05). Male: female ratio (1.5:1).

The symptoms percentage and mean of severity had decreased significantly after surgery. There is highly significant difference between preoperative symptoms with all three visits ($P<0.001$), while there was no significant difference between the 2nd, 3rd and 4th visits

For the overall discomfort, the mean of severity in the 1st visit was (9.25) and it dropped to (1.5) in the 4th visit. There is an improvement of (77.5%) in the mean of severity of the overall discomfort. There is highly significant difference in the overall discomfort between the preoperative visit and the other 3 visits ($p<0.001$).

For correlating the radiological finding with the symptoms, the individual patient symptoms score was processed so that the mean of the symptom score which were present (i.e. excluded the (*not present*) symptoms for each patient) was compared to his own total radiological score.

We found a very weak “non-significant” correlation between radiological score and preoperative mean severity of symptoms ($r = 0.173$, $P=0.465$), while a strong positive significant correlation between the total radiological score (TRS) and the total endoscopic score (TES) was found, ($r=0.750$ $P<0.001$).

There was a highly significant difference between preoperative and all other three visits ($P<0.001$) while there is no significant difference between the 2nd, 3rd and 4th visits ($P>0.05$).

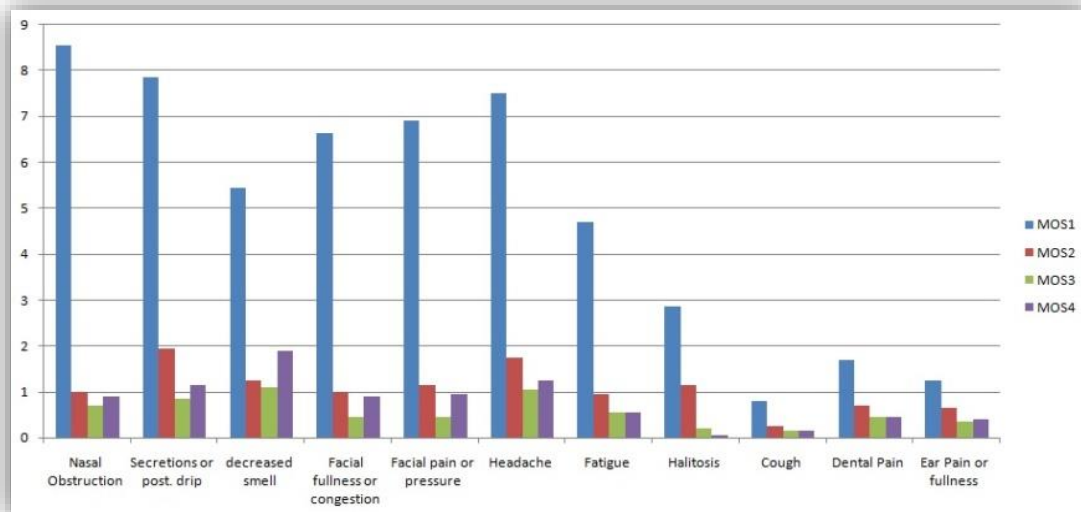


Figure 1: Mean of severity (MOS) for the 4 visits.

Table 1: Lund-Mackay mean radiological scores.

Sinus	Rt. %	Lt. %	Total %
OMC	95	75	85
Ant. ethmoids	95	80	87.5
Maxillary	95	80	87.5
Post. ethmoids	95	70	82.5
Sphenoid	80	60	70
Frontal	75	60	67.5

Table 2: Mean of severity of the endoscopic score for the 4 visits.

Visit	Polyp Rt.	Polyp Lt.	Edema Rt.	Edema Lt.	Discharge Rt.	Discharge Lt.	Scarring Rt.	Scarring Lt.	Crusting Rt.	Crusting Lt.	Total
Baseline	1.5	0.9	1.9	1.7	1.1	1.05					8.15
3 Months	0	0	0.65	0.65	0.4	0.45	0.1	0	0.2	0.1	2.55
6 Months	0	0	0.2	0.05	0.3	0.1	0	0	0.35	0.1	1.1
12 Months	0.2	0.15	0.2	0.2	0.1	0	0	0	0	0	0.85

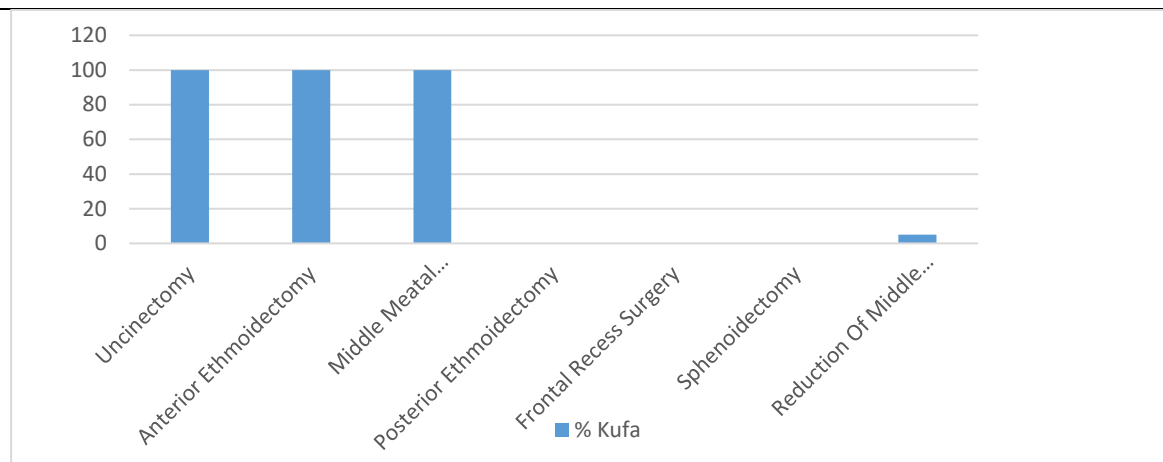


Figure 2: The percentages of surgical procedures.

Discussion

Endoscopic sinus surgery is the 1st choice for surgical treatment of CRS with or without polyp, because it gives a very good visualization, enables the surgeons to remove the disease from areas that can't be reached by conventional methods and minimizes bleeding, morbidity and trauma to vital structures.

The mean age in this study was (30.05) ranging from (17-42) nearly comparable to Ehab et al⁽⁴⁾ result (30.4), Hiwa A. Abdulkareem⁽⁵⁾ (32.4) years old ranging from (18-52), and Yasir's⁽⁶⁾ (33.7) years old. The mean age is also comparable with that of Nair et al⁽⁷⁾ (34.8) but his age group range was higher (16- 71 years).

Figure 3 shows a comparison of preoperative symptoms with other studies including Hiwa A R⁽⁸⁾.

There was a highly significant difference between preoperative symptoms with all visits ($P < 0.001$). This is also true for the overall discomfort, where there is an improvement of (77.5%) in the mean of severity in the 4th visit in comparison with the preoperative visit. Comparable to Yasir's et al who found that (72.4%) of the patients had subjective improvement in their symptoms and Golam et al⁽⁹⁾ recorded 80% improvement. The percentage of

improvement according to the symptoms score is a subjective method of record but may give a considerable clue of benefit from the operation, although it may vary individually and with change of population.

The current study showed that there was a very weak "non-significant" correlation between radiological score and mean severity of symptoms. This goes with what of Amodu et al⁽¹⁰⁾, Hiwa A. Abdulkareem, Bhattacharayya N⁽¹¹⁾ and M Garetier⁽¹²⁾. This may be attributed to the facts that the symptom score is a subjective while the radiological score is an objective method of record, and to that a single sinus group may cause a similar range of symptoms and severity as when a group of sinuses are involved. On the other hand, Pokharel et al⁽¹³⁾ and Satish Nair⁽¹⁴⁾ found a statistically significant difference between symptoms severity and CT scan scores. In this study, there was a strong positive significant correlation between TRS and TES preoperatively. This is comparable to Pokharel et al and to Deepthi NV⁽¹⁵⁾.

In conclusion: Endoscopic sinus surgery is an excellent choice for treatment of CRS with or without polyp. The procedure done in KTC is promising.

Recommendations: A wider sample and longer period of follow up are needed to better evaluate the efficacy of the FESS procedures made in KTC.

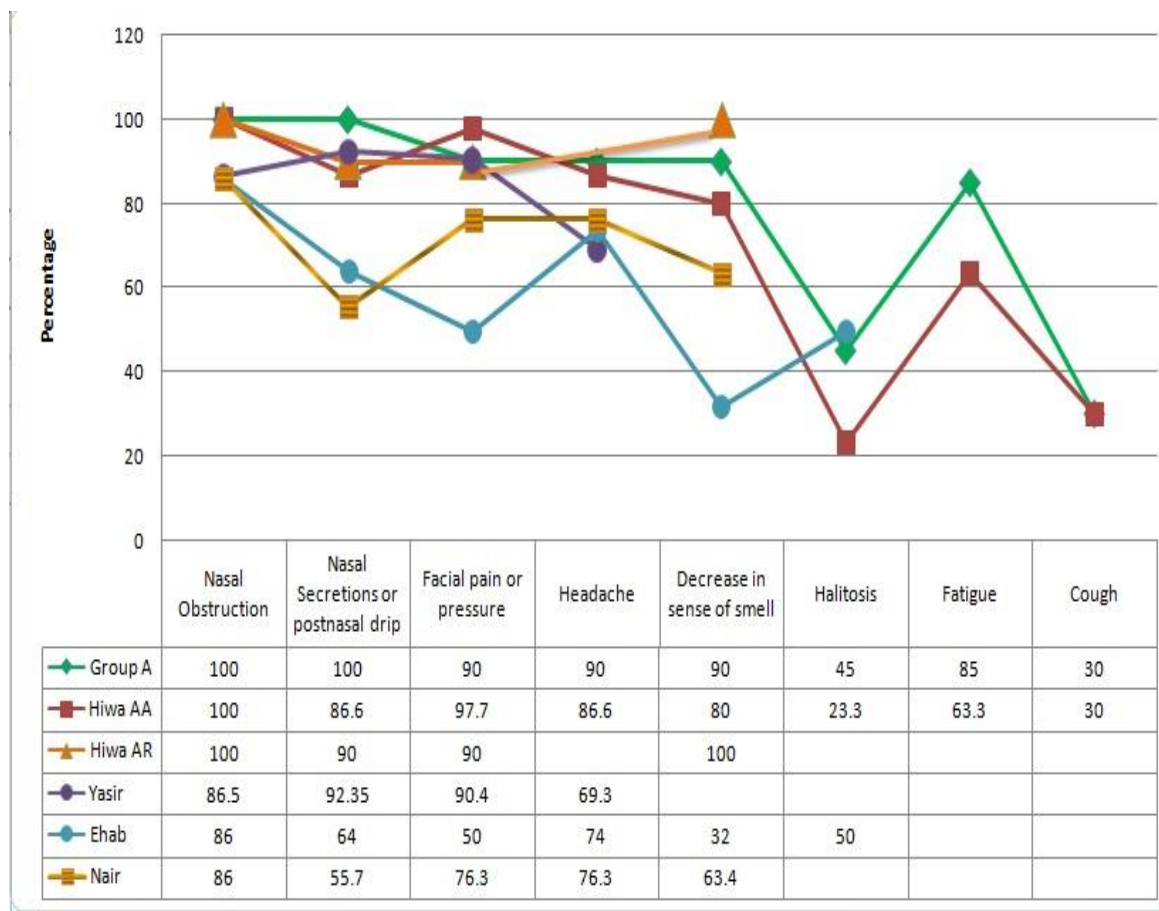


Figure 3: Comparison of preoperative symptoms with other studies.

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