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ORIGINAL ARTICLE

READMISSIONS AFTER DAY CARE SURGERY IN ENT: A TERTIARY CARE EXPERIENCE

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Background: Re-admission following day care surgery in ENT (Ear, Nose & Throat) results in significant morbidity to patient & massive load to hospital & also raises the question on the safety of day care surgery. Only a small number of published studies emphasizes on return to hospital within 30 days following day care surgery in otorhinolaryngology especially from our region. This study was carried out to determine the frequency of re-admission after day care surgery in ENT.

Methods: We prospectively studied consecutive patients who underwent ENT procedures [i.e., septoplasty, tympanoplasty type I & functional endoscopic sinus surgery (FESS) for deviated nasal septum (DNS), chronic suppurative otitis media tubotympanic (CSOM TT) variety & ethmoidal nasal polyposis (ENP) respectively] as day care surgery case under general anaesthesia at the Section of Otorhinolaryngology and Head & Neck Surgery, Aga Khan University Hospital & Liaquat National Hospital, Karachi from January 2015 to December 2016. All patients aged 20-60 years of both genders were included in the study. SPSS software version 20 was used for data compilation and analysis. *p*-value less than or equal to 0.05 was taken as significant. **Results:** In the phase of 24 months, total 317 cases met the inclusion criteria & were included in the study. There were 205 males & 112 females in the study population. One hundred & twenty-two patients having DNS, 128 having CSOM TT & 67 suffering from ENP & underwent septoplasty, tympanoplasty type I & FESS respectively. Complications were observed in a total of 7 (2.2%) patients in our study group & required re-admission within 1 month of surgery. Stratification was done between re-admission & all effect modifiers, with all showing insignificant results.

Conclusion: Our results demonstrate that ENT surgeries (septoplasty, tympanoplasty type I & FESS) are safe procedures which can be performed as a day care case with acceptably low re-admission rates.

Keywords: Day care; Surgery; Ear; Nose; Tympanoplasty; Nasal surgical procedures

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INTRODUCTION

Day care surgery is a fundamental part of ENT (Ear, Nose & Throat), and their benefits are well documented in the literature.¹ Re-admission following day care surgery results in significant morbidity to patient & massive load to hospital & also raises the question on the safety of day care surgery. Percentage of re-admission in day care surgery is 1-3% as reported by Khan *et al*² & Singarelli *et al*³. There are many surgical procedures in otorhinolaryngology which are performed as a day care case but we include three of the common surgical procedures in our study namely tympanoplasty type I, septoplasty & functional endoscopic sinus surgery (FESS). Re-admission following septoplasty accounts for 5% & 2.8%.^{4,5} Garrel *et al*⁶ documented 5.3% complication rates from FESS which required re-admission. Qureshi *et al*⁷ reported 2.8% unplanned revisit to hospital following otological day care cases. Only a small number of published studies emphasizes on return to hospital within 30 days

following day care surgery in ENT. However, no study has been done which reported re-admission rate from above mentioned day care otorhinolaryngological procedures from our region. We performed a prospective study with the aim to determine the frequency of re-admission after day care surgery (tympanoplasty type I, septoplasty & FESS) in ENT.

MATERIAL AND METHODS

We prospectively studied consecutive patients who underwent ENT procedures (i.e., septoplasty, tympanoplasty type I & FESS) as day care surgery case at the Section of Otorhinolaryngology and Head & Neck Surgery, Aga Khan University Hospital & Liaquat National Hospital, Karachi from January 2015 to December 2016. All patients aged 20-60 years of both genders, having deviated nasal septum (DNS), ethmoidal nasal polyposis (ENP) & chronic suppurative otitis media tubotympanic (CSOM TT) variety who underwent septoplasty, functional endoscopic sinus surgery

(FESS), and tympanoplasty type I respectively under general anaesthesia (G/A) were included. Patients who got admitted postoperatively either on request, those that did not give consent for study or any patient not fit for G/A were excluded. Cases scheduled for tympanoplasty type I & FESS whose pure tone audiogram (PTA) and CT scan paranasal sinuses (CT PNS) not done respectively before surgery were also excluded from the study. Standard surgical techniques & postoperative patients monitoring was done in all cases. Patients discharged from day care unit when he/she was vitally stable for at least 2 hours, having satisfactory pain control with no signs of vomiting, vertigo or bleeding from operative site, & able to take oral diet & void.

A printed *pro forma* was used to register the patient's details. After the completion of data, re-admission within 30 days of surgery will be identified using hospital database & filled the re-admission column in same *pro forma*.

Statistical Package for Social Sciences (SPSS) version 20 was used for data compilation and analysis. Mean and standard deviation (SD) was calculated for age, duration of disease and surgery. Frequencies and percentages were calculated for gender, disease, type of surgery and re-admission. Stratification was done and post stratification Chi square test was applied to see association of re-admission with age, gender, diagnosis, type of surgery & duration of disease plus surgery. *p* value ≤ 0.05 was considered as significant.

RESULTS

In the phase of 24 months, 353 cases were advised surgery (septoplasty, FESS, tympanoplasty type I). Thirty-six patients were not fulfilling the inclusion criteria & hence excluded from the study. Total 317 cases were included in the study. Mean age of the patients were 36.9 years ± 10.12 SD. All of our patients had chronic illness with symptoms persists for years. Duration of all three diseases ranges from 1 to 46 years with mean 10.1 years ± 7.59 SD. There were 205 (64.7%) male & 112 (35.3%) female in the study population.

Of this 317 study subjects, 122 (38.5%) having DNS & underwent septoplasty, 128 (40.3%) having CSOM tubotympanic type & underwent tympanoplasty type I & 67 (21.2%) suffering from ethmoidal nasal polyposis & underwent FESS. Of total 128 tympanoplasties, 67 (21.1%) patients had right ear while 61 (19.2%) had left ear surgery. Similarly of total 67 FESS, 19 (6%) had right, 17(5.4%) had left while 31 (9.8%) cases underwent bilateral FESS (Table-1).

Duration of surgery ranges from 34 to 130 minutes with mean 56.5 minutes ± 20.73 SD.

Complications were observed in a total of 7 (2.2%) patients in our study group & required re-admission within 1 month of surgery (Table-1). Three cases of septoplasties & two cases each of left tympanoplasty type I & bilateral functional endoscopic sinus surgery were re-admitted. Out of these 7 patients, 4 were male & 3 were female (Table-2). No patients complained of uncontrollable pain in the postoperative period.

Two cases of septoplasties developed septal hematoma while one patient developed septal abscess. Both cases of left tympanoplasties had post aural wound infection leading to wound dehiscence because of improper wound care in post-operative period. Two patients of bilateral FESS had post-operative intractable epistaxis. First case found to have clotting factor XIII deficiency while second developed uncontrolled hypertension. All these patients re-admitted & managed accordingly.

Stratification was done between re-admission & all effect modifiers, i.e., age, gender, diagnosis, duration of disease, type & duration of surgery. All stratifications shown insignificant results. (Table-2 & 3)

Table-1: Frequency distribution of patients underwent day care surgery

Characteristics	Frequency (n = 317)	Percentage (%)
Gender		
Male	205	64.7
Female	112	35.3
Diagnosis		
DNS	122	38.5
CSOM TT	128	40.3
Right	67	21.1
Left	61	19.2
ENP	67	21.2
Right	19	6
Left	17	5.4
Bilateral	31	9.8
Type of Surgery		
Septoplasty	122	38.5
Tympanoplasty type I	128	40.3
Right	67	21.1
Left	61	19.2
FESS	67	21.2
Right	19	6
Left	17	5.4
Bilateral	31	9.8
Re-admission		
Yes	7	2.2
No	310	97.8

n = number of cases, DNS = Deviated Nasal Septum, CSOM TT = Chronic Suppurative Otitis Media Tubotympanic Type, ENP = Ethmoidal Nasal Polyposis, FESS = Functional Endoscopic Sinus Surgery

Table-2: Association of re-admission with age, gender, diagnosis

Age (years)	Re-admission n (%)		Total	p-value
	Yes	No		
20-30	1 (1.1)	93 (98.9)	94	0.063
31-40	3 (2.5)	115 (97.5)	118	
41-50	0 (0)	65 (100)	65	
51-60	3 (7.5)	37 (92.5)	40	
Total	7 (2.2)	310 (97.8)	317	
Gender				
Male	4 (2.0)	201 (98)	205	0.67
Female	3 (2.7)	109 (97.3)	112	
Total	7 (2.2)	310 (97.8)	317	
Diagnosis				
DNS	3 (2.5)	119 (97.5)	122	0.38
CSOM TT				
Right	0 (0)	67 (100)	67	
Left	2 (3.3)	59 (96.7)	61	
ENP				
Right	0 (0)	19 (100)	19	
Left	0 (0)	17 (100)	17	
Bilateral	2 (6.5)	29 (93.5)	31	
Total	7	310	317	
Duration of disease (years)				
<10	2 (1.0)	203 (99)	205	0.083
11-20	4 (5.4)	70 (94.6)	74	
>20	1 (2.6)	37 (97.4)	38	
Total	7 (2.2)	310 (97.8)	317	

n = number of cases, DNS = Deviated Nasal Septum, CSOM TT = Chronic Suppurative Otitis Media Tubotympanic Type, ENP = Ethmoidal Nasal Polyposis

Table-3: Association of re-admission with type of surgery, duration of surgery

Type of Surgery	Re-admission n (%)		Total	p-value
	Yes	No		
Septoplasty	3 (2.5)	119 (97.5)	122	0.38
Tympanoplasty type I				
Right	0 (0)	67 (100)	67	
Left	2 (3.3)	59 (96.7)	61	
FESS				
Right	0 (0)	19 (100)	19	
Left	0 (0)	17 (100)	17	
Bilateral	2 (6.5)	29 (93.5)	31	
Total	7 (2.2)	310 (97.8)	317	
Duration of surgery (minutes)				
<45	1 (1.1)	90 (98.9)	91	0.38
45-60	3 (1.9)	152 (98.1)	155	
>60	3 (4.2)	68 (95.8)	71	
Total	7 (2.2)	310 (97.8)	317	

n = number of cases, FESS = Functional Endoscopic Sinus Surgery

DISCUSSION

Day care surgery is the admission of cautiously selected patients for a planned surgical procedure, returning home the same day. This study showed our experience of three common otorhinolaryngological procedures which are routinely performed worldwide as a day care case. Out of 317 patients from two largest tertiary care hospitals, approximately 80% cases underwent tympanoplasties & septoplasties, both of these procedures were also higher in frequency

in a study done by Mallick *et al.*⁸ Similarly in a work done by Pezier *et al.*¹, these two are the major operations performed as a day care case with septoplasty around 32% & tympanoplasty around 50%. Sixty five percent study population were male as compare to female of all three procedures. Seventy three percent male underwent septoplasty in contrast to 27% female in our study group. Similar results showed by Georgalas *et al.*⁹ with 78% male & 22% female underwent septoplasty as a day care procedure. Tympanoplasty cases were 60% & 40% in male & female respectively. Raj *et al.*¹⁰ mentioned corresponding results with majority of their male patients underwent tympanoplasties. Bajaj *et al.*¹¹ showed same percentage (approx. 58%) of male that underwent FESS as a day case analogous to our findings.

Different studies and guidelines issued by medical organizations revealed unexpected postoperative re-admission rate of 0.5%, 1.8%, 2-3%, 4% following day care procedures.¹²⁻¹⁵ In the period of 2 years, our readmission rate was also quite low around 2.2%. Re-admission following septoplasty was similar to Singh *et al.*⁵ but lower than Hogg *et al.*⁴. Around two percent patients underwent tympanoplasty required unanticipated return to hospital, findings parallel to research done by Roxbury *et al.*¹⁶ There were only 2 cases (2.9%) of FESS who were re-admitted due to post-operative complications, which was relatively subtle as compare to Garrel *et al.*⁶

CONCLUSION

Our results demonstrate that ENT surgeries (septoplasty, tympanoplasty type I & functional endoscopic sinus surgery) are safe procedures which can be performed as a day care case with acceptably low re-admission rates. Efficient day-care surgery depends on meticulous patient selection & strict aseptic measures taken during procedures.

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Ethical approval: This study was in accordance with the ethical standards of the institutional research committee.

AUTHORS' CONTRIBUTION

SUZ: Study concept, study design, manuscript preparation & editing, data collection, data analysis. QF: Data interpretation, statistical analysis. MA: Data interpretation and study concept. AS & SA: Manuscript review, quality control of data

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