Day Case Septorhinoplasties-Our Experience

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Abstract

Objective: Rhinology procedures are increasingly performed as day cases worldwide as well as in our department. Our aim was to identify if our rhinology patients fulfill the day case criteria and to audit our postoperative complications.

Material and Methods: A retrospective review of all septo/rhinoplasties and septal perforation repair for the last 3 years was performed. Overnight admission rate, medical and surgical complications were recorded.

Results: Out of the 103 patients, only one (0.97%) needed overnight admission. The reason was medical, sinus tachycardia in a young anxious patient. Two immediate postoperative complications were recorded, self-limited epistaxis and light headedness. A self-limited epistaxis occurred day 5 post-operatively. No action was required in any of these cases. Late post-operative complications were three septal perforations (2.9%).

Conclusions: Day case septo/rhinoplasties can be safely performed with a <1% overnight admission rate in well selected patients. Increasing numbers of day procedures should be the goal in all otorhinolaryngology areas.

Keywords: Septorhinoplasty, septum perforation, day case, readmission, rhinology, otorhinolaryngology

INTRODUCTION

Rhinological procedures are frequent in the otolaryngology (ORL) practice. They are mainly represented by septorhinoplasties, endoscopic sinus surgery (ESS), septal perforation repair, inferior turbinates (ITs) reduction, and their revisions. Ideally, these procedures are performed as day cases. The distance to operating hospital, possible postoperative bleeding, pain, and other complications made them to be routinely considered overnight procedures.

The lack of elective rhinological lists in a University hospital forced us to explore the day case procedures in well selected patients. Senior author's previous experience with day rhinology surgery counted. There are still patients with significant comorbidities on our waiting lists for over 1 year.

Day case rhinology procedures are worldwide performed. These are safe and cost effective.[1-5] Several advantages are recognized: decreased waiting time for surgery, reduced inpatient related complications like nosocomial infections, and less disruptions from patient's daily routine. Other benefits are increased patients satisfaction, reduced hospital costs, and optimizing hospital resources.[1,6]

Day case surgical procedures in Ireland have slowly increased overtime.[7] Septoplasty was the eleventh most common performed ORL procedure in 2017 as shown in a national report.[8] Day procedures, especially in ORL, are less commonly performed in the Republic of Ireland compared to UK. With an average rate of 67% in UK in 2015-2016, ORL day case had low readmission rates reported.[3]

Guidelines and recommendations for rhinological day cases are constantly changing in the effort to establish the best and safe practice.[3,8,9]

Discrepancy in the literature exists related to the different techniques used under the term "septoplasty": from submucosal resection to Cottle technique. It is beyond the scope of this paper to explain in details our surgical technique. Septoplasty indications have been questioned in the UK after an increased number of procedures were performed.[3] Procedures on the IT do not add much morbidity when associated with septoplasty and were proved effective procedures in prior studies.[10,11] These were also found to reduce the need for revision septoplasty.[12]

Cite this article as:
Nae A, Alhuwaish H, Shytaj E. Day Case Septorhinoplasties-Our Experience. *Eur J Rhinol Allergy*. 2021;4(2):48-52.

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Received: March 30, 2021

Accepted: May 14, 2021

DOI: 10.5152/ejra.2021.21621

There is much controversy in the literature regarding nasal packing and the best material for it. Although they provide hemostasis, prevention of septal hematoma, and closure of the dead space, they can also cause side effects like nasal trauma, foreign body reaction, infection and the need for antibiotherapy, as well as patient discomfort.[6,13] Septal splints prevent intranasal adhesions and maintain septal stability.[14] Quilting sutures are used with success in septoplasties.[15,16]

The inpatient admission rate post rhinology day case varies in the literature between 0.8 and 8.8%.[4,14,17,18] Post-operative bleeding and pain seem to be the most common cause of unexpected overnight admission but studies are controversial.[4,14] Medical and surgical complications along with late theater hours were also reasons for inpatient admission. Unplanned admissions add pressure on the system and are time consuming for both the surgeon and the patient. All efforts should be made to identify all factors before booking each patient.

Few authors have performed in office rhinological procedures including ESS under local anesthesia or sedation. Results are encouraging with low complication rate and high patient satisfaction. It could be the cost saving solution to long inpatient waiting lists.[19,20]

The goal of day surgeries is to improve the quality of health care provided and ensure efficient resource usage with minimal complications and disruptions of patient's lifestyle.

Our aim was to identify if our patients fulfill the day case criteria and to audit our postoperative complications rate.

METHODS

A single center retrospective observational study of all rhinology day case procedures was undertaken over the last 3 years (October 2018 to December 2020).

The start date 2018 was chosen since the new rhinologist consultant was appointed to our institution. This is a tertiary referral center within the Republic's capital.

The search words were septoplasty, septorhinoplasty, rhinoplasty, septal perforation repair, ESS, and their revisions. Patients were selected from the theater lists protected database. All medical charts and operation records were retrospectively reviewed.

We have included only patients operated in a nearby elective hospital. This facility has no ORL cover or high dependency unit available. No overnight procedures are performed. All our patients had an American Society of Anaesthesiologists (ASA) grades 1 and 2 and rarely grade 3.[21] The distance to the operating hospital was not a criterion for day case selection. Some patients were living over 2 hours away. Our operating theater is in the morning time (8 AM to 12 PM), which facilitates patient's recovery before discharge.

Main Points

- Day case procedues increase service efficacy and accesbility with minimal disruptions of patient's lifestyle.
- Day case rhinology procedures are proved safe in well selected patients.
- Rhinology day case surgery should be the gold standard in ORL.

We have excluded minor rhinological procedures like submucosal diathermy of IT, nasal valve reconstruction, excision of small intranasal lesions, and adhesiolysis.

Septoplasty was performed via a classic approach, but endoscopy was used for sinus surgery and septal perforation repair.[22]

Submucosal dithermy of ITs was undertaken using monopolar Abbey needle (20W) (Grazedean Ltd; Dorset, UK). We do perform outfracture and lateralization of the IT as adjunct to our septoplasties. Quilting sutures are used in all our septoplasty cases. Intranasal packing at the end of the procedure is not used in our institution for any routine procedure, but we place silicone intranasal splints (Medtronic Xomed; Lacksonville, Florida, USA) as appropriate.

All our patients were clearly instructed on post-operative complications, including pain or bleeding and directed to the closest emergency hospital with ORL cover. No antibiotics were prescribed post-operatively. Nasal splints were removed at 7 days (post-septoplasty) or 21 post-operative days (post-septal perforation repair).

Approval was granted from the local Research Audit Committee with No. 2980.

Minitab 17 (Minitab LLC; Pennsylvania, USA) was used to analize the data for demographics, surgical procedure, over-night admission, and postoperative complications.

We have analyzed the data for demographics, surgical procedures, overnight admission rate, and postoperative complications.

RESULTS

During the 26 months of our study, 103 patients were included. Sixty-two (60%) were male and 41 female (40%).

Age ranged from 18 to 64 with a mean of 37 years of age.

Almost half of the patients operated were Dublin residents (47.5%) with closer and distant locations as shown in Figure 1.

Looking at their atopic history, 19 patients (18.4%) suffer from allergic rhinitis and 15 (14.5%) of asthma. Forty-one patients (40%) had a history of nasal trauma, nine a contact sport history, and 17 had previous rhinological surgery either local or abroad.

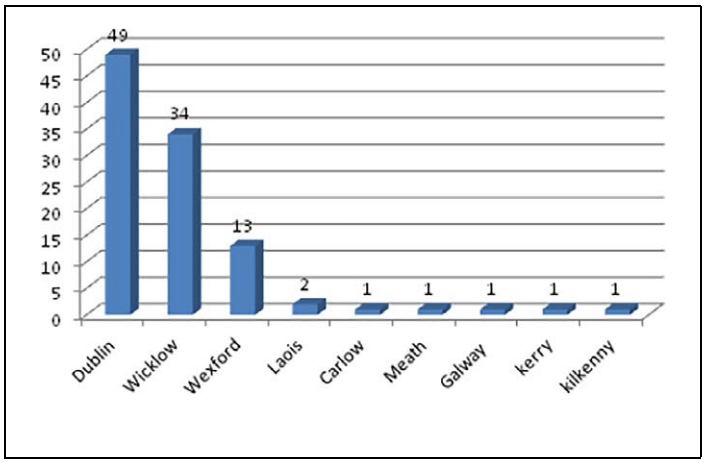

Figure 1. Our population distribution according to residential address

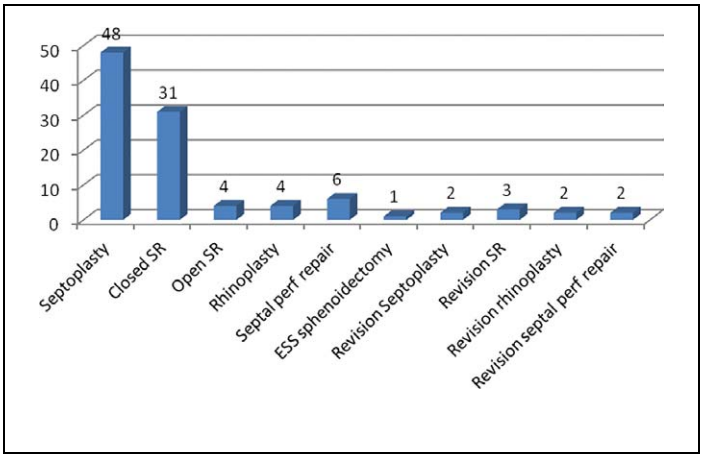

Figure 2. Surgical procedures performed on our population

Nineteen patients were smokers (18.4%), and seven were exsmokers.

Ten cases were operated in 2018, 59 (57.3%) in 2019, and 32 in 2020.

Fifty-six patients (54.3%) had ASA 1, 45 (43.7%) an ASA 2 with only three patients having an ASA grade 3.

Thirty-one operations (30%) were performed by the consultant, 41 (40%) by the registrar, and the rest of cases operated by both surgeons.

The most common surgical procedure was septoplasty (46.6%). The rest of the procedures can be followed in Figure 2.

One patient underwent two revision surgeries in this interval and was counted twice.

Endoscopic surgery (10.7% of all procedures) represented all septal perforation repairs and ESS.

Table 1. Details of Skin, Cartilage, and Septum Incisions used in Numbers and Percentages

Skin incision	Patients (N)	Patients (%)
Columella "V"	6	5.8
N/A	97	
Cartilage incision		
Intercartilaginous	28	27
Intracartilaginous	2	1.9
Bilateral marginal	1	0.9
N/A	72	69.9
Septum incision		
Hemitansfixial	80	77.6
Bilateral hemitransfixial	3	32.9
Transfixial	10	9.9
Anterior ethmoidal based	8	7.8
N/A	2	1.9

Table 2. Operating Times in Minutes for Consultant and Registrar

Operating times of surgeons	Minimum (minute)	Maximum (minute)	Median (minute)
Consultant	35	120	70
Registrar	30	135	75

In Table 1 can be found details regarding the skin, cartilage, and septum incisions used in our cases.

Quilting transseptal sutures were used in 86 procedures (83.5% of all cases). Associated surgeries performed were columella stabilization procedures in nine cases, submucosal diathermy in 24 cases (23.3%), and out fracture of IT in 39 cases (37.8%). Two patients had limited adenoidectomy performed to improve their nasal obstruction symptoms.

Osteotomies were performed in 35 cases (34%). Median, paramedian, and lateral osteotomies were the most common performed. A combination of them was used with a personalized approach for each case.

Overall the surgical procedures duration was between 30 and 185 minutes, with a median of 80 minutes. When comparing the operational time, senior consultant's timing was slightly better than registrar's time as can be seen in Table 2.

Twenty-five cases lasted less than 60 minutes. Thirty-six cases were over 90 minutes, with only one case exceeding 180 minutes.

Overall seven immediate and late complications occurred (6.8% rate). Their breakdown can be followed in Table 3.

One out of 103 patients needed unexpected overnight admission. The reason was medical, asymptomatic sinus tachycardia in a young (18 years old) anxious patient with preoperative sinus tachycardia. He was also found to have hypomagnesemia and hypophosphatemia, presumably of nutritional cause. The operating time was 90 minutes in this case with no increased intraoperative bleeding. Following further cardiac investigations, the patient was discharged home in less than 24 hours. No other abnormal blood or investigations results were detected. No follow up was needed from this point of view. No medical follow up was necessary.

Table 3. Overall Complications in Numbers and Percentages

Post-operative complications	Patients, N (%)	Intervention
Immediate (<24 hours)	3 (2.9)	
Sinus tachycardia	1 (0.9)	Admission in hospital, observation
Epistaxis	1 (0.9)	Nil
Light-headedness	1 (0.9)	Nil
Early (>24 hours)		
Epistaxis	1 (0.9)	Nil
Late (>1 week)		
Septum perforation	3 (2.9)	Observation

Two other immediate complications were recorded: self-limited epistaxis and light-headedness that self-resolved. One patient presented on day 5 post-septoplasty with self-limited epistaxis. He was discharged home after ORL examination.

Late post-operative complications were three cases of septal perforation (2.9%). Two were recorded following septorhinoplasty and one post-septoplasty. There was no major difference in the surgeons' performance. Both septorhinoplasty cases were done by the consultant with the registrar, while the septoplasty case was performed by the registrar alone. All septal perforations were noted at 1 week post-operatively.

Three out of the eight septal perforation repair failed (37.5% failure rate), two of which were post-revision of septal perforation.

No intranasal adhesions were recorded in any patients. No long-term complications after monopolar submucosal diathermy of ITs were noted such as prolonged crusting, bone necrosis, or subsequent empty nose syndrome.

Follow up was possible from as minimum as 1 week to 33 weeks post-operatively, with a median duration of 1 week. The routine follow up post-septorhinoplasty includes splint removal at 1 week with further review at 3 week to rule out perforation or adhesions. A percentage of 17 patients were discharged from our clinic, and others are under surveillance for allergic or hypertrophic rhinitis. Few patients were followed up in another hospital.

DISCUSSION

To our knowledge, this is the first study in Ireland to report the day case rhinology procedures' complications. Our study included only adults (over 18 years of age).

Males had more rhinological procedures performed than females, in keeping with previous literature.[6] Considering 40% of our population had a history of contact sports and traumas, we concluded the male preponderance is related to multiple nasal traumas.

The distance between the operating hospital and the patients address was over 2 hour's trip for 15 patients (14.5%).

Thirty-two cases (31%) had a history of atopy. We did perform associated IT procedures on 10 of these cases.

On average, five rhinology cases were operated each month in 2018 and 2019. Due to COVID-19 pandemic disruption of service in 2020, there were 4.5 months with no elective lists resulting in fewer operations.

Almost all our patients were fit and well, with an ASA grade 1 or 2 (98%), the later given for their smoking history. These reiterate the tight selection criteria needed for day case procedures to avoid complications and unplanned admissions. Of note, 10 patients with medical comorbidities including hypertension, asthma, gout, or obstructive sleep apnea were graded ASA 1 by our anesthetist. In our study, medical comorbidities did not count for any of the post-operative complications. None of the ASA grade 3 patients developed any complications.

Considering surgeon's rank, in general, consultants were found to have lower operative time when compared with juniors.[10] In our study, both surgeons had comparable operating times. Because the senior consultant performed the most difficult cases, we do not find our operating times are representative from this point of view. The registrar's seniority and skills along with the consultant availability in the operating theatre for supervision helped with theatre efficiency.

Almost half of our surgeries were septoplasties, in keeping with national and international data.[3,8]

Nine revision procedures (8.7%) were performed. Although surgically more challenging, these offer the benefit of a wider space for instrumentation and patient's familiarity with the procedure. Along with good surgical skills, it might explain the low complication rate in this group (two septal perforations).

In only one case (the patient with sinus tachycardia), the operating time exceeding 90 minutes was associated with an immediate complication.

The <1% unplanned admission rate in our series is comparable with international rates. The reason was medical and required observation only. Of note, this patient had an ASA of 1, and the surgery was performed by both surgeons.

The other two immediate complications, self-limited epistaxis and light headedness, did not need any intervention. Our day 5 post-septoplasty epistaxis self-resolved before attending the hospital. The patient was reviewed by the ORL registrar and discharged home.

Our septal perforations rate was acceptable (2.9%), on the low side of the literature reports of 0-11.5% rate.[23,24]

The failure rate post-septal perforation repair was 37.5%. Two of these occurred in revision cases. The take-in rate of a second or third surgery is low in these procedures. A systematic review revealed a 93% repair success rate in perforations smaller than 2 cm and 78% if greater than 2 cm.[25] It is still not clear why the repair failure rate in our study was so high. Possible causes are a narrow pedicle, minor infection, or hematoma at site, although none of those were clinically evident. Patient's factors like healing process should also be considered. Of note both revision cases were smokers in their fifth decade.

Sphenoidectomy performed as day case did not incurred extra risk although frank infection was found in the sinus.

Additional procedures including IT surgery did not impact on the readmission rate and did not increase the complications rate. We moved away from nasal packing at the end of the procedure. We consider this adds extra discomfort and anxiety to patient with no epistaxis preventive benefit.

Consideration needs to be given to the ongoing COVID-19 pandemic and the aerosol generating procedures that rhinological surgeries pose. Less staff exposure and reducing operating time could be achieved by in office procedures under local anesthesia or sedation.[26] To achieve these goals, careful patient selection and a good medical system need to be in place.

Ideally, morning and early afternoon operating lists should be in place for rhinological day cases. The patient benefits from full recover before discharge.

Meticulous surgical technique, efficient selection criteria along with day case guidelines implementation makes day procedures safer and cost effective. It is of utmost importance to ensure clear instructions post-operatively and adequate analgesia to all patients.

Limitations of the Study

The retrospective review type study has its known disadvantages related to accuracy of data recording and collection. The observational type study has a lower statistical power when compared with experimental studies. For our purpose, this retrospective observational study fits the study design. The main downsize of our retrospective data collection

was the lack of clinical notes on follow up, especially if the results were satisfactory and patients were discharged. Some of the patients were reviewed afterwards in other hospital, but we could not access the data. The senior author has reviewed these post-operative patients himself in other hospital and noted any complications.

The number of our patients was small. Current COVID-19 pandemic counted for fewer cases than usually, but we consider the number relevant for the settings we have in place.

By adding all other rhinological procedures to our study, we could have gained further relevant information. We opted only to select the more extensive surgeries to evaluate their complications. Excepting one case, no ESS was performed on our list. All these procedures are undertaken in another hospital.

Our population was healthy. Almost all the patients had an ASA 1-2. Extrapolating the data to less healthy patients (ASA > 3) needs careful considerations.

A patient satisfaction survey would have helped us understand patient's opinion and confidence with the service.

CONCLUSIONS

Rhinological procedures could be safely performed as day case in well selected patients.

More effective triaging of patients and clear postoperative instructions could improve and increase rhinology day case efficiency and accessibility.

Day case rhinology surgery should be the gold standard in ORL.

Ethics Committee Approval: Ethical committee aproval was received from the St. Vincent's University Hospital (2980).

Informed Consent: N/A.

Peer-review: Externally peer-reviewed.

Author Contributions: Conception - E.S.; Design - A.N.; Supervision - E.S.; Data Collection and/or Processing - H.A. and A.N.; Analysis and/or Interpretation - A.N.; Literature Review - A.N.; Writing - A.N.; Critical Reviews - E.S., H.A., A.N.

Conflict of Interest: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

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