

Streamlining Septorhinoplasty: The Benefits of Daycare Surgery in Septorhinoplasty, a Single Surgeon Experience

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Abstract

Background: Day surgery is increasingly utilized for elective procedures, but the feasibility of septorhinoplasty in a daycare setting remains underexplored. This study evaluates outcomes of septorhinoplasty performed in inpatient and daycare settings in a Tertiary care center in Oman.

Methods: A retrospective analysis was conducted on 52 patients undergoing septorhinoplasty at Khoula Hospital, Oman, in 2023. Data on demographics, surgical details, and outcomes including operative duration, readmission rates, and complications—were reviewed.

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Results: The cohort (mean age 27 years) consisted of 63.5% males and 36.5% females, with 80.8% presenting traumatic deformities. Surgical techniques included 40 open and 12 closed approaches, with a mean operative time of 110 minutes. No daycare patients required admission or readmission. Complication rates and residual deformities were low and similar between groups.

Conclusion: Septorhinoplasty can be safely and effectively performed as a daycare procedure, offering comparable outcomes to inpatient care with reduced hospital resource utilization. Further studies are recommended to confirm these findings.

Introduction

Day surgery is an elective surgical procedure in which the patient is admitted, treated, and discharged on the same day (1,2). Day surgery is also known as outpatient surgery, one-day surgery, ambulatory surgery, and even daycare surgery. The history of day surgery goes back to Robert Campbell, who used a day surgery unit for inguinal hernia cases in Belfast Hospital for Sick Children in 1897 (1). Later, in 1909 James Nicoll published his successful 9,000 pediatric procedures, which were conducted as day surgeries (2,3). The idea of day surgery was inspired by his own philosophy of early patient ambulation, early discharge, and wound management at home which can be conducted by the mother or by the visiting nurse. In the following decades, several surgeons and physicians reported success with day surgery, such as Ralph Waters, an American anesthetist who provided a downtown anesthesia clinic for dental and other minor procedures (4). Over the past few decades, day surgery units have become well established and well-integrated part of health system around the world. The proportion of elective procedures conducted as day surgery is on the rise. For instance, according to a national survey conducted in the United States, the utilization of knee arthroscopy as a day surgery procedure surged from 15% in 1996 to 51% in 2006 (5).

The safety of day surgery has been extensively investigated in numerous studies (6–12). These investigations typically assess various outcomes, including procedural success and the occurrence of complications such as readmission, pain, and hematoma/seroma formation. A multicenter cohort study conducted in Denmark, encompassing over 57,000 outpatient procedures, concluded that day surgery is generally safe when accompanied by stringent patient selection criteria (12). Notably, the study reported a 0% mortality rate directly attributable to the procedures. Additionally, the readmission rate was found to be 1.21% (CI 1.12–1.30%), with the majority of readmissions attributed to factors such as infection, hematoma formation, and deep vein thrombosis (DVT) (12).

To ensure procedural safety and mitigate complications, healthcare systems worldwide have developed diverse selection criteria (2,13–17). Initially, these criteria primarily relied on patient characteristics such as ASA grade, BMI, and age group (2). However, subsequent research revealed that these factors no longer pose limitations on outpatient procedures, as even elderly or morbidly obese patients can benefit from day surgery. Consequently, newer criteria have emerged. For instance, the British Association of Day Surgery (BADS) recommends evaluating patients based on three primary aspects: surgical considerations, medical stability, and social support (15). BADS has delineated a list of procedures deemed suitable for day surgery. Typically, these surgeries are brief, entail low risk of significant postoperative complications, do not necessitate specialized post-procedural care, and permit pain management through oral analgesia. Regarding medical suitability, patients with chronic illnesses should exhibit stability, and day surgery should be avoided for those whose conditions are unstable or anticipated to precipitate major operative or postoperative events. Regarding social support, patients with adequate home support tailored to the procedure and residing in close proximity to a medical facility are deemed excellent candidates for outpatient surgery (14,15).

Furthermore, plastic surgeons have begun to align with contemporary trends by increasingly conducting numerous procedures as outpatient day surgeries. Initially, outpatient plastic surgeries were primarily utilized for minor to intermediate procedures, such as those addressing skin and hand pathology (18,19). However, there has been a notable transition towards more intensive procedures, including abdominoplasty and breast reduction, being conducted as day surgeries. A study evaluating the trend in plastic procedures among Medicare beneficiaries in the US revealed a significant shift from inpatient to outpatient and office surgeries. For instance, in 2011, 52% of abdominoplasties were performed in inpatient facilities, compared to less than 20% in 2018 (20).

In contrast, rhinoplasty is commonly perceived as a procedure associated with significant trauma and carries an elevated risk of

postoperative bleeding or hematoma formation(21). Consequently, many surgeons opt to classify it as an inpatient procedure, in part to facilitate close monitoring during the initial postoperative period. While several studies have examined septoplasty as a day surgery procedure, there is a paucity of research on rhinoplasty in this context, with the majority of available studies being outdated (21–27). Consequently, this study was undertaken to address this gap in the literature and provide updated insights into the feasibility and outcomes of rhinoplasty as a day surgery procedure.

Methods

A case series study was conducted to review the experience of conducting septorhinoplasty by the senior author in inpatient vs daycare at Khoula Hospital, the Sultanate of Oman, during 2023. A list of all patients that underwent septorhinoplasty by the senior author during 2023 was obtained from the department of plastic surgery, reconstructive surgery, and craniofacial surgery.

The list includes a total of 52 patients. The electronic medical records of these patients were thoroughly reviewed to extract study parameters. Demographic data that were collected included age and gender. Specification of the corrective rhinoplasty collected included primary vs secondary, open vs closed, dorsal hump correctio, cephalic trim, septoplasty, turbinate work, cartilage work, osteotomy, placement of internal splint. Other information gathered included the type of operation (inpatient vs daycare surgery), duration of the operation, hospital stay, and readmission rate.

To control for bias, data was collected independently by two different, trained researchers. All data was coded and kept in one Excel sheet in one password-protected computer.

Ethics approval

This study was approved by the Khoula Hospital Ethical Board. This study was conducted in accordance with the Declaration of Helsinki.

Results

During the study period, a total of 52 patients underwent septorhinoplasty by the senior author: 28 cases were performed as daycare procedures, while the remaining 24 were conducted as inpatient surgeries. Regarding patient demographics, males constituted 63.5% of the study population, with females accounting for 36.5%. The average age was 27 years.

In terms of the indication for septorhinoplasty, 42 (80.8%) patients underwent surgery to correct traumatic deformities, while 10 (19.2%) patients underwent surgery to correct cleft lip nasal deformities. Among the cases, 22 were primary septorhinoplasties, and 30 were secondary procedures.

Of the 52 patients, 47 patients had septoplasty. Regarding the surgical approach, 12 cases were closed, and 40 were open. The surgical techniques employed included dorsal hump correction in 46.2% of cases, cephalic trim in 32.7%, cartilage work in 69.2%, and nostril and alar work in 21.2%. Cartilage was harvested from the ear in 7.7% of cases and from the nose in 61.5%. Regarding osteotomy, 28.9% of patients underwent lateral osteotomy, 1.9% underwent medial osteotomy, and 23.1% underwent both bilateral and medial osteotomy. Internal splints were used in 64.3% of daycare cases and in 75% of inpatient cases. Internal packing was used in 4 patients (3 inpatients and 1 daycare patient). Table 1.

The average operative time was 110 minutes, with the shortest procedure taking 45 minutes and the longest taking 240 minutes.

None of the patients operated on as daycare cases required admission or experienced post-discharge readmission. For inpatients, the average length of stay was 3 days.

Regarding postoperative outcomes, three inpatients experienced nasal oozing, which resolved spontaneously within 48 hours. During follow-up, 59.1% of inpatients and 42.9% of daycare patients reported significant improvement in breathing. Additionally, 36.4% of inpatients and 57.1% of daycare patients reported some improvement in breathing.

In terms of residual deformities, 14.3% of daycare patients and 16.7% of inpatients exhibited residual deformities as assessed by subjective clinical examination. The average follow-up duration was two months, ranging from a minimum of three weeks to a maximum of 12 months.

Discussion

The evolution of daycare surgery has witnessed tremendous changes in the past few decades. Plastic surgeons have followed this trend by increasingly performing a majority of aesthetic procedures as outpatient surgeries. This study examined 52 patients who underwent septorhinoplasty in both inpatient and outpatient settings.

One objective measure to assess the efficiency of conducting septorhinoplasty in a daycare setting is the readmission rate. In a large study conducted in the US, which included 175,842 septorhinoplasty patients treated in a day surgery setting, 6.5% revisited the hospital within 30 days post-operation. Among the reasons for hospital revisits, the most common were nasal bleeding (18.8%), dressing removal (4.6%), and nasal infection/sinusitis (4.6%). Further analysis revealed that individuals aged 41 years and older, of Black race, comorbidities, and those who received a conchal cartilage graft were independently associated with a higher revisit rate. In our cohort, none of the patients required a revisit to the hospital. These findings highlight the importance of tailored postoperative care protocols and closer monitoring for patients with these risk factors. In addition, the findings of this study, along with previous research, provide evidence supporting the safety, patient satisfaction, and cost-effectiveness of performing septorhinoplasty as a daycare procedure.

The usage of nasal packing after septoplasty is a common practice with the aim to stop postoperative hemorrhage, formation of septal hematoma and adhesions.(28) However, its usage has been controversial and was the focus of several studies.(28–30) A randomized controlled trial involving 88 patients compared the usage of nasal packing versus no packing in patients undergoing septoplasty. The study revealed that patients who had packing experienced significant postoperative pain, headaches, excessive tearing, difficulty swallowing, and sleep disturbances compared to no packing group. In addition, there was no significant difference in terms of postoperative bleeding and septal hematoma rate between the two groups. (28)

A retrospective review that included 130 patients found that Merocele packing alone is significantly associated with synechia formation compared to patients with a septal splint (19.7% vs. 0%). The study concluded that there was no significant difference in the rates of infection and removal of epistaxis between packing and splinting. (31) Moreover, a study that analyzed cardiac parameters showed that anterior nasal packing can lead to cardiac changes such as increase in diastolic blood pressure and heart rate as compared to no nasal packing (32) In our cohort, nasal packing was used in 4 patients. In contrast, 2 (8%) patients who did not have nasal packing experienced minimal oozing that stopped spontaneously within 12 hours

postoperatively. Both patients were kept on a Mustache dressing, which has a less traumatic and painful removal compared to nasal packing. Therefore, it can be summarized that patients undergoing septorhinoplasty can be safely discharged without the use of internal nasal packing if no bleeding is anticipated.

Conclusion

This study demonstrates that septorhinoplasty can be safely and effectively performed in a daycare setting, achieving comparable outcomes to inpatient care with reduced hospital resource utilization. The low rates of complications, minimal readmissions, and high

patient satisfaction underline the viability of this approach. These findings support the growing trend of incorporating daycare surgery for more complex procedures, offering a cost-effective and patient-centered model of care. Further studies with larger sample sizes are recommended to validate these results and refine patient selection criteria.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Conflict of interest

The authors declare no competing interests.

References

- Hedley-Whyte J, Milamed DR. The evolution of sites of surgery. *Ulster Medical Journal* 2006 Jan; 75(1):46-53. Available from: <https://pmc/articles/PMC1891798/>
- Quemby DJ, Stocker ME. Day surgery development and practice: key factors for a successful pathway. *Continuing Education in Anaesthesia Critical Care & Pain* 2014 Dec 1;14(6):256-61. Available from: <https://dx.doi.org/10.1093/bjaceaccp/mkt066>
- Nicoll J. The Surgery of Infancy. *The British Medical Journal* 1909;753-4.
- Urman RD, Desai SP. History of anesthesia for ambulatory surgery. *Current Opinion in Anaesthesiology* 2012 Dec;25(6):641-7.
- Kim S, Bosque J, Meehan JP, Jamali A, Marder R. Increase in outpatient knee arthroscopy in the United States: A comparison of national surveys of ambulatory surgery, 1996 and 2006. *Journal of Bone and Joint Surgery* 2011 Jun 1;93(11):994-1000.
- Ahmad J, Ho OA, Carman WW, et al. Assessing patient safety in Canadian ambulatory surgery facilities: A national survey. *Plastic Surgery* 2014;22(1):34-8.
- Marla S, Stallard S. Systematic review of day surgery for breast cancer. *International Journal of Surgery* 2009 Jan 1;7(4):318-23.
- Shnaider I, Chung F. Outcomes in day surgery. *Current Opinion in Anaesthesiology* 2006 Dec;19(6):622-9.
- Engbæk J, Bartholdy J, Hjortso NC. Return hospital visits and morbidity within 60 days after day surgery: a retrospective study of 18,736 day surgical procedures. *Acta Anaesthesiologica Scandinavica* 2006 Sep;50(8):911-9.
- Mezei G, Chung F. Return Hospital Visits and Hospital Readmissions After Ambulatory Surgery. *Annals of Surgery* 1999 Nov;230(5):721-7.
- Natof HE. Complications Associated With Ambulatory Surgery. *Journal of the American Medical Association* 1980 Sep 5;244(10):1116-8.
- Majholm B, Engbæk J, Bartholdy J, et al. Is day surgery safe? A Danish multicentre study of morbidity after 57,709 day surgery procedures. *Acta Anaesthesiologica Scandinavica* 2012 Mar 1;56(3):323-31.
- Buckley H, Palmer J. Overview of anaesthesia and patient selection for day surgery. *Anaesthesia and Intensive Care Medicine* 2010;11.4:147-52.
- Marbaniang MJ. Day surgery guidelines. *Surgery (Oxford)* 2019 Dec 1;37(12):706-11.
- Bailey CR, Ahuja M, Bartholomew K, et al. Guidelines for day-case surgery 2019. *Anaesthesia* 2019 Jun 1;74(6):778-92.
- Considerations for Patient Selection and Procedures in Ambulatory Surgery. American Society of Plastic Surgeons 2021. Available from <https://www.plasticsurgery.org/documents/Health-Policy/Principles/principle-2021-patient-selection.pdf>
- Lee JH. Anesthesia for ambulatory surgery. *Korean Journal of Anesthesiology* 2017 Aug 1;70(4):398-406.
- Arnáiz Grande M, Midón J, Taboada E, et al. Plastic surgery in a day surgery unit: 1 year's experience. *Ambulatory Surgery* 1998 Aug 1;6(3):149-51.
- Jiburum BC, Akpuaka FC. Scope and problems of day-care surgery in a plastic surgical unit. *West African Journal of Medicine* 1996;15(4):237-9.
- Khetpal S, Lopez J, Prsic A. Trends in the Use of Ambulatory Surgery Centers for Medically Necessary Aesthetic Plastic Surgery Procedures among Medicare Beneficiaries. *Plastic and Reconstructive Surgery* 2021 May 1;147(5):916E-8E.
21. Banfield GK, McKiernan D, Hinton AE. Day case rhinoplasty. *Journal of the Royal Army Medical Corps* 2000;146(3):212-4.
- Menezes AS, Guimarães JR, Breda M, et al. Septal and turbinate surgery: is overnight essential? *European Archives of Otorhinolaryngology* 2018 Jan 1;275(1):131-8.
- Georgalas C, Obholzer R, Martinez-Devesa P, Sandhu G. Day-case septoplasty and unexpected re-admissions at a dedicated day-case unit: a 4-year audit. *Annals of the Royal College of Surgeons of England* 2006 Mar;88(2):202-6.
- Al-Hussaini A, Waljee H, Khan A, Cuddihy P. Day-case septoplasty: a default pathway or is case selection the key? *European Archives of Otorhinolaryngology* 2015 Jan 1;272(1):91-5.
- Chen YY, Huang TC. Outcome of Septoplasty with Inferior Turbinectomy as an In-patient or Out-patient Procedure. *Scientific Reports* 2019 Dec 1;9(1):7573.
- Benson-Mitchell R, Kenyon G, Gatland D. Septoplasty as a day-case procedure—a two centre study. *Journal of Laryngology and Otology* 1996;110(2):129-31.
- Georgalas C, Paun S, Zainal A, Patel NN, Mochloulis G. Assessing day-case septorhinoplasty: prospective audit study using patient-based indices. *Journal of Laryngology and Otology* 2002;116(9):707-10.
- Sohail Awan M, Iqbal M. Nasal Packing after Septoplasty: A Randomized Comparison of Packing versus no Packing in 88 Patients. *Ear Nose & Throat Journal* 2008;87(11):624-7.
- Mane RS, Patil B, Mohite A. Comparison of Septoplasty With and Without Nasal Packing and Review of Literature. *Indian Journal of Otolaryngology and Head and Neck Surgery* 2013 Feb 8;65(SUPPL2):406-8.
- Robinson P, Ryan R. Nasal packing after routine nasal surgery—is it justified? *Journal of Laryngology and Otology* 1993;107(10):902-5.
- Deniz M, Çiftçi Z, Işık A, Demirel OB, Gültekin E. The impact of different nasal packings on postoperative complications. *American Journal of Otolaryngology* 2014 Sep 1;35(5):554-7.
- Taheri A, Farahani MM, Saeedi M, et al. Comparing Cardiac Complications of Bilateral Nasal Packing versus Bilateral packing with Airway after Septoplasty; a Randomized Clinical Trial. *Journal of Biochemical Technology* 2019;2(2):95-9.