

Risk and Complications of Rhinoplasty

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ABSTRACT

Aim: To determine the associated risk and complications of rhinoplasty.

Study design: Prospective study

Place and duration of study: ENT Department, Nowshera Medical College, Qazi Hussain Ahmad Medical Complex, Nowshera from 1st July 2021 to 30th June 2022.

Methodology: One hundred cases suffering from nose deformation or required cosmetic alterations were included for rhinoplasty procedure. An open procedure for rhinoplasty was adapted with inside sutures. Nose reduction or cartilage grafting (n=58), conchal cartilage grafting (n=29) and rib cartilage procedure (n=13) was performed as per requirement of the case for nose reshaping. Septum was deviated, straightened and nose projection was reduced for facilitation of breathing depending upon each patient's individual requirements. Any types of complications observed were recorded and treated immediately.

Results: Only 19% males underwent rhinoplasty procedure. The mean age of the cases was 34.5±12.62 years. The body mass index (BMI) mean value was 23.15±3.15kg/m² with 22 such cases which were suffering from obesity. There were 37% cases who suffered from rhinoplasty related complications. Thirty percent of the patients suffered from functional deformities and required this procedure and 44% of cases which adapted rhinoplasty surgery due to both aesthetic as well as functional reasoning. Thirty-three percent of the patients were suffered from hematoma while 25% suffered from surgical site infection.

Conclusion: Most of the patient suffered from hematoma followed by surgical site infection, pulmonary infection and deep vein thrombosis.

Keywords: Aesthetic, Incidence, Cartilage, Breathing, Numbness

INTRODUCTION

Rhinoplasty is an aesthetic surgery especially for nose shape alteration to change the nose appearance, improve breathing or sometime both. This surgery is primarily associated with high risks and complications due to unpredictable aesthetic results. Various factors could lead to aid in elevation of complications after surgery. Different tissues are involved in surgery including nerves, vessels, muscles, skin fat, mucosa, fascia, cartilage, bone, periosteum and perichondrium. Individual reactions sometime get involved and outcome of all these reactions are not always under control and predictable. High associated risks are mostly encountered in cartilage, the main supporting structure of bone. This could also prove beneficial in identification and estimation of complication even before the surgery¹⁻⁵.

Breathing disturbance is reported in 70% of the cases in reduction rhinoplasty. Sometime it also leads to blocked nose sensation and scars on nose. Similarly, in autogenous transplants, resorption and dislocation are frequently associated, however, extrusion and infection is more commonly observed in alloplasts. Higher incidence of complication was noticed in silicone implants up to 20% and this can be minimized with use of other material for instance goretex. Soft tissues complication which can be linked with rhinoplasty includes numbness, fibrosis, originating of cysts and subcutaneous granulomas. Post-operative complications also include swelling in osteotomy techniques⁶⁻¹⁰.

Present study was designed for the determination of complications and risks involved with rhinoplasty. The results of present study would prove helpful both for patients and surgeons in considering this surgery as an option. Results will prove imperative in prediction of risk and complication estimation prior to surgery.

MATERIALS AND METHODS

This prospective study was conducted at ENT Department, Nowshera Medical College, Qazi Hussain Ahmad Medical Complex, Nowshera from 1st July 2021 to 30th June 2022. Patients who were suffering from nose deformation or required cosmetic

alterations were included in the study for rhinoplasty procedure. Those patients having autoimmune diseases or with uncontrolled comorbidities were excluded. A total of 100 cases were included within the age limit of 23-55 years after taking their written informed consent. The sample size was calculated through WHO sample size calculator. It used 80% power of test and 95% confidence of interval. Each patient demographic details as well as clinical fitness report was generated and documented. All cases were performed under local anesthesia. An open procedure for rhinoplasty was adapted with inside sutures. Nose reduction or cartilage grafting (n=58), conchal cartilage grafting (n=29) and rib cartilage procedure (n=13) was performed as per requirement of the case for nose reshaping. Septum was deviated, straightened and nose projection was reduced for facilitation of breathing depending upon each patient's individual requirements. Nasal skin and tissues redraped was performed. The whole procedure was performed through professional surgery ENT team. Patients were kept for 2-3 days in hospital and were discharged afterwards if no complication was observed. Each patient was followed up for formation of any complication up to seven days through re visits. Any type of complications observed were recorded and treated immediately. Data was analyzed using multiple regression analysis through SPSS-25. P value <0.05 was taken as significant.

RESULTS

There were 81(81%) females who attended the hospital setting for rhinoplasty. Only 19(19%) males underwent rhinoplasty procedure. The mean age of the cases was 34.5±12.62 years. The basic metabolic index (BMI) mean value was 23.15±3.15 with 22 such cases which were suffering from obesity as their level was greater than 25 kg/m². Diabetes and smoking was presented in 3% and 6% cases. There were 37% cases who suffered from rhinoplasty related complications (Table 1).

Within the all cases there were 26% who underwent rhinoplasty due to aesthetic reasons while 30% suffered from functional deformities and required this procedure. Whereas there were 44% such cases which adapted rhinoplasty surgery due to both aesthetic as well as functional reasoning (Fig. 1).

The cases which suffered from complication were further analyzed for the type of complication and it was observed that 33% suffered from hematoma while 25% suffered from surgical site

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infection. This was followed by pulmonary infections as well as deep vein thrombosis in 10% and 6% cases respectively (Fig. 2).

A multi-variate logistic regression analysis was conducted on cases suffering from complications to analyze the relative risk. The relative risk for those having an age above 40 as well as hematoma formation and pulmonary complications was significantly higher. Surgical site infections were also having a high relative risk for patients who underwent rhinoplasty and developed complications (Table 2).

Table 1: Demographic characteristics of patients underwent rhinoplasty (n=100)

Feature	No.	%
Gender		
Females	81	81.0
Males	19	19.0
Age (years)	34.5±12.62	
BMI (kg/m ²)	23.15±3.15	
Smoking	6	6
Diabetes	3	3
Joined-procedures	27	27
Complications	39	39

Table 2: Multivariate logistic regression analysis of 37 cases with complications

Factor	Relative-Risk	95% CI	P value
Age ≥40 years	2.04	1.01-4.15	0.04
Female gender	1.00	0.41-2.54	1.00
BMI ≥25 kg/m ²	1.47	0.70-3.12	0.31
Smoking	0.34	0.04-3.55	0.47
Joint-Procedures	1.73	0.88-3.44	0.13
SSI	1.1	0.61-2.11	0.90
Hematoma	3.3	0.5-5.122	0.03
Pulmonary complications	6.5	2.21-7.2	0.03

Fig. 1: Reason for rhinoplasty in all cases

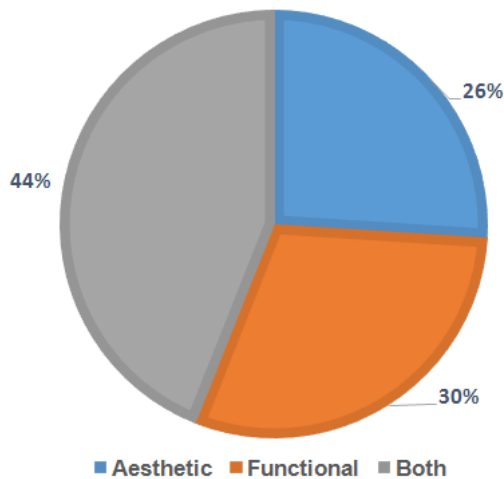
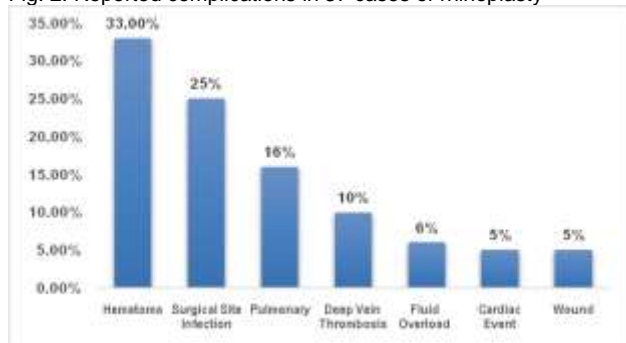


Fig. 2: Reported complications in 37 cases of rhinoplasty



DISCUSSION

Rhinoplasty is either a completely cosmetic surgery or it can be a constructive procedure as well. Studies have suggested the success rate of this procedure is between 85-90% with revision rate of only 10-15% of the patients. Success rate could even be higher if surgical procedure is performed by specialized/expert surgeon and accurate procedure selection according to the need of the patients. An expert surgeon should have certified and subspecialty training for best performance and higher success rate.¹¹⁻¹³ Although high success rate was mostly reported and it mainly depends upon surgeon expertise but risk and complications are also associated with rhinoplasty. Current study was designed for the evaluation of risk and complications associated with this procedure.

In present study, 22% of the cases were obese according to their BMI. Thirty-seven percent of the cases were suffering from rhinoplasty complications. 33% suffered from hematoma while 25% suffered from surgical site infection followed by pulmonary infections and deep vein thrombosis in 10% and 6% of the cases respectively. These results are inconsistent with already available data¹⁴⁻¹⁷. Logistic regression analysis also showed that relative risk was higher in patients who had age group greater than 40 years along with hematoma. This was also reported in various studies¹⁸⁻²¹.

Although high success rate is mostly observed in rhinoplasty but risk is always associated with any surgical procedure. This can be minimized by surgeon expertise and by adopting accurate surgical procedure. Result of the present study will prove imperative in performing and predicting complications and impediments associated with rhinoplasty.

CONCLUSION

Majority of the patients underwent rhinoplasty due to aesthetic and functional deformities. Most of the patient suffered from hematoma followed by surgical site infection, pulmonary infection and deep vein thrombosis.

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