Original Article

Epidemiological profile of patients undergoing rhinoplasty in a hospital rehabilitation center

Perfil epidemiológico dos pacientes submetidos à rinoplastia em um centro hospitalar de reabilitação

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Article received: October 30, 2019.
Article accepted: October 5, 2020.

Conflicts of interest: none

DOI: 10.5935/2177-1235.2021RBCP0007

■ **ABSTRACT**

Introduction: Rhinoplasty is one of the most common plastic surgeries worldwide. The development of knowledge of the nose's anatomy is one of the most refined teachings in plastic surgery. In addition to dedication and studies, it requires visual technical experience for an adequate understanding of structures and ligaments. This study aims to describe the epidemiological profile of patients undergoing rhinoplasty in a tertiary hospital. **Methods:** Patients who underwent rhinoplasty at the Plastic Surgery Service of the Centro de Reabilitação e Readaptação Dr. Henrique Santillo (CRER), from January 2013 to December 2019, were studied in patients from the single health system. **Results:** 179 patients were studied, the majority of whom were female, with a mean age of 35 years, as the leading cause of trauma, the majority being primary rhinoplasty using an open technique. **Conclusion:** The patients' profile is female, with a mean age of 35 years, mainly due to nasal deformity after trauma, with open primary surgery approach and cartilage grafts are common.

Keywords: Rhinoplasty; Nose; Acquired nasal deformities; Nasal septum; Epidemiology.

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■ **RESUMO**

Introdução: A rinoplastia é uma das cirurgias plásticas mais comuns em todo o mundo. O desenvolvimento do conhecimento da anatomia do nariz é um dos ensinamentos mais refinados em cirurgia plástica e exige além de dedicação e estudos, a experiência técnica visual para uma compreensão adequada das estruturas e ligamentos. O objetivo deste estudo é descrever o perfil epidemiológico de pacientes submetidos à rinoplastia em um hospital terciário. **Métodos:** Foram estudados pacientes submetidos à rinoplastia no serviço de Cirurgia Plástica do Centro de Reabilitação e Readaptação Dr. Henrique Santillo (CRER), de janeiro de 2013 a dezembro de 2019, em pacientes do sistema único de saúde. **Resultados:** Foram estudados 179 pacientes, sendo a maioria do sexo feminino, com média de idade de 35 anos, como principal causa o trauma, sendo a maioria rinoplastia primária por técnica aberta. **Conclusão:** O perfil dos pacientes é do sexo feminino, com média de idade de 35 anos, sendo principalmente devido à deformidade nasal após trauma, com abordagem de cirurgias primárias abertas sendo comum a utilização de enxertos de cartilagem.

Descritores: Rinoplastia; Nariz; Deformidades adquiridas nasais; Septo nasal; Epidemiologia.

INTRODUCTION

Rhinoplasty is a surgical procedure widely performed in plastic surgery. Only in 2017, according to the International Society of Aesthetic Plastic Surgery (ISAPS), approximately 877,254,000 rhinoplasties were performed worldwide[1]. An increase of about 11% in reports of this surgery compared to the previous year of the research.

The development of knowledge of the nose's anatomy is one of the most refined teachings in plastic surgery. In addition to dedication and studies, it requires visual technical experience for an adequate understanding of the structures and ligaments that will be supported and ensure good physiology to guarantee respiratory function[2,3].

Considered by some as a technical and intellectual challenge, the surgical art of nasal surgery challenges the surgeon at the beginning of the development of learning even to the most experienced surgeons. Knowledge of patients' profiles submitted to this procedure facilitates surgical programming, making it possible to evolve with longer-lasting results.

Brazil, like other countries[4,5], presents a population formed by a diversity of ethnicities with the anatomy of the nose of the most varied forms. Studies on nasal anthropometry are frequent in theliterature[5,6], but studies tracing the epidemiological profile of patients undergoing rhinoplasty are not usual yet.

OBJECTIVE

This study aims to describe patients' epidemiological profile submitted to rhinoplasty at the Plastic Surgery Service of the *Centro de Reabilitação e Readaptação Dr. Henrique Santillo* in Goiânia Goiás.

METHODS

This study analyzed the epidemiological profile of patients treated by the plastic surgery team of the *Centro de Reabilitação e Readaptação Dr. Henrique Santillo* (CRER). This one is a retrospective descriptive observational study.

Patients submitted to rhinoplasty by the Plastic Surgery Service of CRER, aged over 18 years, treated from January 2013 to December 2019, by the Unified Health System (SUS) were included in the study. Patients who presented septum deviation by clinical examination or tomography were treated in the same surgery. All patients who required nasal reconstruction were excluded from this study.

Data were collected from the statistical database of plastic surgery patients in the MV Soul®. All patients signed a free and informed consent form. The Helsinki declaration principles were respected, and the work was submitted to the internal ethics committee. The ethics committee approved the study of Plataforma Brasil registered on the number CAAE 30798120.6.0000.5082.

Data were collected, such as age, gender, cause of rhinoplasty, type of rhinoplasty access (whether open or closed), and aspects related to the treatment of the nasal tip, nasal dorsum, septum, use and types of grafts, fracture, and kind of dressing. The data were compiled in an *Excel* program table, and the statistical analysis of

the data was performed with the description of absolute numbers and percentages.

RESULTS

A total of 179 patients were evaluated. Patients with rhinophyma and nose reconstruction were excluded from these patients. The patients attended were mostly female, totaling 71% (Figure 1). The patients' mean age was 35.5 years (19-67, SD =/- 11).

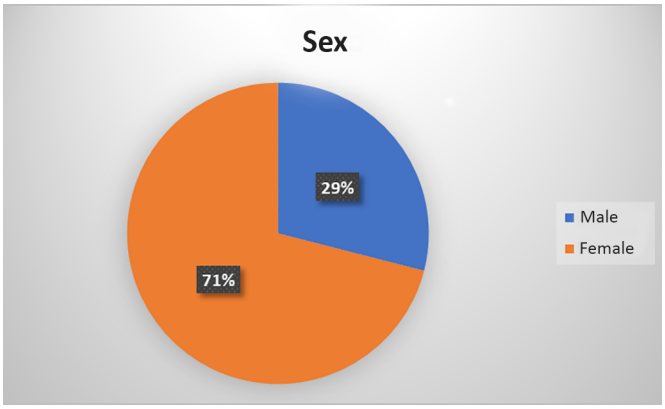

Figure 1. Percentage of men and women.

The main reasons that led patients to perform rhinoplasty were: deformities after trauma 69 (41.5%), followed by rhinomegaly 34 (20.5%), rhinomegaly with septal deviation 33 (19.8%), purely aesthetic causes 15 (9.0 %), cases of congenital deformity 10 (6.0%) and others (3.0%) (Table 1).

Table 1. Causes that motivated rhinoplasty.

Rhinoplasty reason	N	%
Trauma	69	41.5
Rinomegalia	34	20.5
Rinomegaly with septum deviation	33	19.8
Aesthetic	15	9.0
Congenital deformity	10	6.0
Other	5	3.0
Overall total	166	

Most cases were primary rhinoplasty 127 (76.5%), and 39 were secondary rhinoplasty (23.5%) (Table 2). Data excluded: patients with rhinophyma. Regarding access, 147 cases (84.5%) by the open technique and 27 (15.5%) closed-route cases (Figure 2).

Fifteen patients in this service were reapproached to a secondary rhinoplasty (9.0% surgical retouch rate); the remaining 24 came from other public and private services. Ten patients were initially treated with closed technique, and 5 with the open technique of the

Table 2. Primary versus secondary rhinoplasty.

Rhinoplasty	Primary	Secondary
	127 (76.5%)	39 (23.5%)

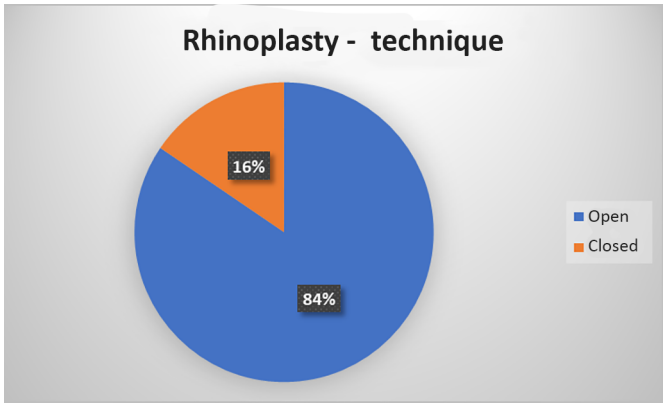

Figure 2. Rhinoplasty approach.

patients reapproached in this service. The areas that required reapproach were: nasal tip (7), dorsum (4), triangular cartilage region (2), and intranasal alteration as recurrence of septum deviation (2).

In 139 cases (83.8%), septal treatment was performed either by septoplasty or another method (Figure 3). The dorsum was treated in 131 (78.9%) cases, with the predominant tactic being scraping along with osteocartilaginous resection (Table 3).

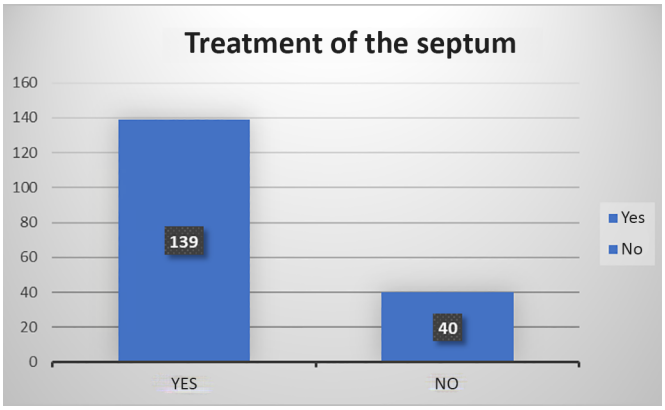

Figure 3. Treatment of the septum.

The use of *spreader* grafts or reaver flaps totaled 72 (43.3%) cases. Among these reavers, the majority were spreader grafts,57 out of 72 (79%) and 15 cases of spreader flap Shaline flaps,15 out of 72 (21%) (Figure 4). A total of 148 (89%) patients underwent rhinoplasty using some graft type (Figure 5).

Regarding the tip, 136 (81.9%) rhinoplasties reported treatment, using as main tactics in 110 of 136 cases (80.8%) the performance of columellar structure associated with inter and intradomal suture, regarding

Table 3. Back treatment.

Tactic	Number of cases
Costal cartilage	5
Onlay graft	8
Osteocartilaginous scraping	32
Scraping + Osteocartilaginous re-section	48
Diced cartilage	5
Turkish graft "Turkish delight"	2

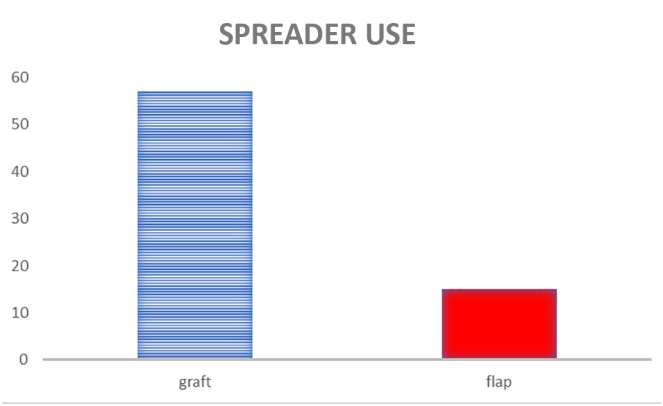

Figure 4. Spreader use.

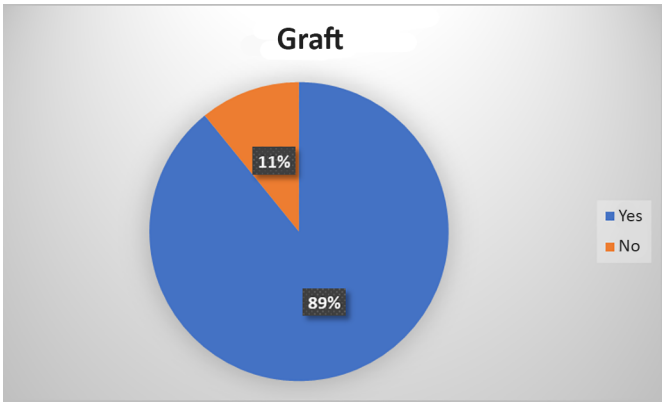

Figure 5. Use of rhinoplasty grafts.

the fracture of the nasal bones during rhinoplasty, 105 (60.3%) patients.

In 126 cases (75.9%), intra or extra nasal splint was used regarding the dressing. Regarding postoperative complications, a total of18 cases (10.8%) were observed. Of these, two patients evolved with hyperemia in the nose region, 2 with sinusitis, 5 with persistence of respiratory difficulty by structural alteration, such as persistent septum deviation or internal nasal valve (secondary rhinoplasty), 1 with hematoma, four bone calluses, one local infection, and three suture dehiscences (1 in donor area).

DISCUSSION

In this study, it was observed that most patients were female, with a mean age of 33.04 years. Previous trauma to the nose was the main motivating factor for rhinoplasty. In the literature, unfortunately, there is a scarcity of data on the aspects of the epidemiological profile of patients undergoing rhinoplasty, but studies relating to nose trauma show a prevalence in male patients[7,8], in contrast to females' prevalence. Probably women are more concerned with the changes generated by the trauma to the nose and seek the correction of this more quickly than men; this factor is well observed when we see that the demand for plastic surgeries is predominant in women[9]. In nasal trauma, man is more exposed, either by motorcycle accidents or by violence or practice of contact sports[8,10]. However, men tend to leave the surgical approach for a later time.

In this study, a prevalence of primary rhinoplasties was observed through open access. Among those who were closed-access, eight patients had to undergo a new rhinoplasty openly, showing that these patients with nose trauma and deformities need a broader visualization to correct the abnormalities more accurately[11,12]. Although most approaches were open in this study, the literature has shown that the choice of open or closed surgical approach for correction of the nasal structures is related to the surgeon's experience and that the fact that it is open or closed does not interfere with the increase of complications[13,14].

In most cases, treatment of the dorsum was performed, with predominant scraping with osteocartilaginous resection. The use of grafts was prevalent, 92.83%, corroborating the literature on the importance of structured rhinoplasty in these complex cases[15–17].

The spreader graft had a slight predominance over the "spreader flap." The use of the"spreader graft" was first described by Sheen in 1984[18], in an attempt to restore the function of the internal nasal valve; the "spreader flap" has the same objective, but no need to use a graft. The spreader also assists in the rectification of septum[19,20]. The presence of greater use of"spreader graft" in this group happens because it permits the rectification and preservation of the internal nasal valve's function with the restoration of the nasal middle third. Necessary due to these patients' characteristics, related to nasal trauma and previous deformities, hindered breathing, such as septal deviation.

The tip's treatment was present in most cases where the preparation of columellar structure associated with inter and intradomal sutures was quite frequent. Such surgical tactics improve the nose's structure and the tip's definition (Figure 5)[21,22].

Regarding the fracture of the nasal bones during rhinoplasty, 80 patients underwent the technique, while 35 patients did not require it. This procedure is important in maintaining the nose lines and correction of open dorsum in secondary surgeries[23–25]. The high frequency of the use of bone fractures in this study may be related to the critical incidence of nasal trauma in this population.

Regarding the dressing, in 48 cases (57.83%), external splints were used, 30.12% did not use it, and in 12.04%, there was no report. External splints are traditional in rhinoplasties with osteotomies since their beginning, since when they are used correctly, they allow adequate protection and reorganization of bone alignment[26]. Regarding postoperative complications, two cases of a total of 83 patients were observed. One patient evolved with hyperemia in the nose region and another with sinusitis. Both were treated with oral antibiotics, evolving well, without further complications.

This descriptive retrospective study presents limitations related to its retrospective, descriptive observational characteristic. It is performed in only one reference center, so all biases related to descriptive studies are involved in this study, such as highly selected studied individuals, absence of control group, and researcher bias.

CONCLUSION

In the study on the profile of patients submitted to rhinoplasty at the plastic surgery service of the *Centro de Reabilitação e Readaptação Dr. Henrique Santillo*, the profile of the patients found was female, with a mean age of 35.5 years, mainly seeking surgery due to nasal deformity after trauma and requiring the use of cartilage grafts for correction. Studies on epidemiology in rhinoplasty are scarce. Therefore, it is necessary to conduct further studies in several centers to determine which epidemiological profile is the most common.

COLLABORATIONS

FCFA Analysis and/or data interpretation, Conception and design study, Conceptualization, Data Curation, Final manuscript approval, Formal Analysis, Investigation, Methodology, Project Administration, Realization of operations and/or trials, Resources, Supervision, Visualization, Writing - Review & Editing

PGJ Conception and design study, Conceptualization, Data Curation, Visualization

PRF Conception and design study, Conceptualization, Writing - Original Draft Preparation

WV Data Curation, Investigation, Methodology

TAV Analysis and/or data interpretation, Data Curation

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