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Benefit of combined endoscopic sinus surgery and aesthetic rhinoplasty

Amr G. Shafik *, Tamer A. Youssef

Ain-Shams University, Cairo, Egypt

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ABSTRACT

Introduction: Rhinoplasty is one of the most commonly performed aesthetic procedures today. Although nasal airway obstruction is frequently treated concomitantly with the aesthetic procedure, chronic sinusitis has typically postponed until full resolution of inflammatory symptoms.
Aim of the study: To investigate the feasibility of combining FESS with septorhinoplasty by measuring different outcomes including operative time, blood loss, post-operative edema of the upper and lower eyelids, periorbital ecchymosis, patient discomfort and complication rates.
Patients and methods: The study included 20 patients with deformed nose associated with chronic rhinosinusitis (CRS) not responding to medical treatment for at least 3 continuous months, irrespective to sex, of ages 20–60, and without any systemic diseases (study group), and 20 patients with deformed nose without any sinus problems (control group).
Results: There was no significant difference between the two groups in the different measured outcomes ($P > 0.05$) except for the operative time which was significantly less in the control group ($P < 0.05$).
Conclusion: Concurrent rhinoplasty and endoscopic sinus surgery may be performed safely and effectively with minimal risks. Proper patient selection and sound intraoperative judgment can avoid potential complications.

1. Introduction

Rhinoplasty is one of the most commonly performed aesthetic procedures today. Although nasal airway obstruction is frequently treated concomitantly with the aesthetic procedure, chronic sinusitis has typically postponed until full resolution of inflammatory symptoms [1].

Several retrospective studies investigated the effect of combining Functional Endoscopic Sinus Surgery (FESS) with rhinoplasty by comparing the complication rate of combining the procedures [2–10]. They found that the complication rates for combined FESS and rhinoplasty were as low as the complication rates for either procedure performed alone and that the procedures could be performed safely at the same time under optimal conditions. An important reason for delaying rhinoplasty was the presence of grossly purulent or mycotic debris at the time of FESS [2].

The aim of our study is to investigate the feasibility of combining FESS with septorhinoplasty by measuring different outcomes including operative time, blood loss, post-operative edema of the upper and lower eyelids, periorbital ecchymosis, intranasal edema, patient discomfort and complication rates.

2. Patients and methods

This prospective observational study was done in Ain Shams University Hospital between June 2007 and April 2011 following institutional review board approval and acquiring receipt of patient consent. The study was designed to include 20 patients with deformed nose associated with chronic rhinosinusitis (CRS) not responding to medical treatment for at least 3 continuous months irrespective to sex, of ages 20–60, and without any systemic diseases (study group), and 20 patients with deformed nose without any sinus problems (control group). Prophylactic antibiotics were given 1 day before the procedure and continued for 1 week. Oral steroids were used preoperatively to shrink swollen mucosa. All procedures were performed by the two authors under general anesthesia with functional endoscopic sinus surgery performed first, followed by aesthetic alterations. A 0-degree, 30-degree or occasionally a 45-degree, 4-mm endoscope was used in all patients.

All patients in the study group were treated with medical therapy for at least 3 months; this included one or more of the following: multiple trials of antibiotics (amoxicillin–clavulanate, azithromycin, trimethoprim–sulfamethoxazole, fluoroquinolones, or cephalosporins), nasal steroids (beclomethasone, budenoside, flunisolide, or azelastine), decongestants (oxymetazoline or pseudoephedrine), antihistamines (desloratidine, fexofenadine, or loratidine) and systemic steroids (methylprednisolone). If they

* Corresponding author.
E-mail address: amrgouda@hotmail.com (A.G. Shafik).

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failed medical therapy and their sinusitis interfered with their daily activities, they were considered candidates for endoscopic sinus surgery in addition to rhinoplasty. Exclusion criteria were patients with fungal sinusitis, revision cases, cases with gross purulence found during at time of surgery and patients with frontal sinusitis and in need for frontal sinusotomy.

Patient information data collected included symptoms, duration of illness, treatment history and full nasal examination including nasal endoscopy for all patients to establish the diagnosis and treatment plan. Axial and coronal computed tomographic (CT) scanning without contrast was performed in patients with CRS. From the derived data, we evaluated the extent of functional and inflammatory abnormality: lower/middle turbinate hypertrophy or pneumatization, septal deviation, obstruction of the osteomeatal complex, polyposis, or ethmoidal/maxillary/sphenoidal sinusitis. Also we evaluated desired aesthetic changes, including hump correction, modification of the nasofrontal or nasolabial angles, columellar show reduction, tip enhancement, and tip definition, among others.

The study group included twenty patients (12 females and 8 males) with a mean age of 40.6 ± 14 (range, 21–45 years) and mean follow-up of 12 ± 1.9 months (range, 8–14 months). The control group included twenty patients (14 females and 6 males) with a mean age of 32.4 ± 12.2 (range, 20–39 years) and mean follow-up of 14 ± 2.4 (range, 9–15 months). The presenting symptom in the study group were nasal obstruction (90%) and postnasal drip (60%), facial pain (50.5%) and headaches (40%) accompanied by nasal deformity in all the patients while the presenting symptom in the control group was nasal deformity in all patients accompanied by nasal obstruction in 8 patients (40%).

Five milliliters of Xylocaine 2% with 1:10,000 epinephrine was infiltrated into the different operative fields to enhance vasoconstriction (the nasal septum, dorsum, piriform apertures, and the junction of the middle turbinates with the lateral nasal walls). In cases associated with septal deviation, the septum was accessed by an upper anterior incision during the open approach or through hemitransfixion incision. Using the suction/elevator, the area of cartilage deflection was dissected on one side only and Correction of septal deviation was carried out. The deflected cartilage was sectioned from the remaining septum and set aside as potential batten or shield grafts during the aesthetic procedure. The perpendicular plate of the ethmoid was exposed and excised under direct vision as necessary. The inferior turbinates were addressed by outfracture, outfracture with submucosal bipolar cautery, or submucosal resection with a microdebrider. Concha bullosa were treated by lateral resection using a sickle knife. The uncinate process was taken down using a Cottle elevator and through biting forceps. The natural maxillary ostium was found, and if it was stenotic and polypoid, it was enlarged using backbiters and throughbiters. Any polyps or polypoid tissue was removed from the maxillary sinus. The ethmoid bulla was opened, and anterior and posterior ethmoidectomies were performed using a Blakesley forceps. If the sphenoid sinus was occluded, it was conservatively opened and allowed to drain. Nasal polyps, if present, were removed. If there was evidence of extensive swelling, purulence, or excessive bleeding with congested mucosa, the rhinoplasty was not performed. The sinuses were then irrigated with normal saline. Data of inflammatory Problems in the study group are summarized in Table 1.

All Aesthetic deformities of the nose are corrected through an open approach, but only after function have been restored. The skin soft tissue over the nasal dorsum was elevated, and the bony dorsum was taken down using a double-guarded osteotome and refined with rasps. The cartilaginous dorsum was adjusted with a No. 15 blade. The appropriate maneuvers were made to debulk, rotate, and narrow the nasal tip. Nasal-valve concerns were addressed at this time by using either spreader grafts or butterfly grafts to support the internal nasal valve after resection of the cartilaginous dorsum. Lateral crural onlay grafts or batten grafts were used to correct external-valve incompetence. Lateral osteotomies were made to narrow the upper third of the nose and close any open roof.

Table 1
Diagnosis of inflammatory disorders and type of procedure done in the study group.

Inflammatory disorder	Number of cases
Bil. Maxillary sinusitis	4
Bil. Maxillary + bil. ehtmoidal chronic sinusitis	10
Bil. Ethmoidal + bil. opacity of OMC + bil. Concha bullosa	4
Bil. Nasal polypi + pansinusitis	2
Agger nasi cell resection	0

Septocollumellar sutures were used to close the transfixion incision, and a dorsal nasal splint was placed for 10 days. Packing was performed using Merocel 8 cm (Medtronic Xomed, Jacksonville, Fla.) that is embedded with antibacterial ointment and removed within 24 h. Intrameatal packing (to avoid turbinate displacement and synechiae) is performed in the study group using Merocel 4 cm (Medtronic Xomed, Jacksonville, Fla.) and was removed within 24 h. Splinting, when needed, is performed using 0.25-mm fluoroplastic sheets tailored to the shape of the septum and stabilized with a 3-0 Vicryl mattress suture. Operative time and amount of blood loss were calculated in the study and control group.

A summary of the performed surgical procedures in the study group is listed in Table 2. Adjunctive rhinoplasty procedures included dorsal reduction (17 patients), medial (18 patients) and lateral (18 patients) osteotomies, and septoplasty (18 patients). Patients with internal nasal valve collapse underwent 12 spreader grafts, 4 butterfly grafts and 1 direct suturing of the upper lateral cartilage to the septum. Batten graft used in one patient to correct external nasal valve incompetence. The endoscopic sinus procedures consisted mainly of maxillary antrostomies (20 patients) and ethmoidectomies (15 patients). Additional sinus procedures included sphenoid surgery (4 patients) and polypectomy (2 patients).

A summary of the performed surgical procedures in the control group is listed in Table 2. Rhinoplasty procedures included dorsal reduction (17 patients), medial (15 patients) and lateral (15 patients) osteotomies, and septoplasty (8 patients). Patients with internal nasal valve collapse underwent 8 spreader grafts, 5 butterfly grafts. Batten graft used in two patients to correct external nasal valve incompetence.

Postoperatively, all patients were subjected to a unified standardized management plan that included a 7 day antibiotic course and regular nasal douches using normal saline solution at

Table 2
Surgical procedures in the 40 patient in the 2 groups.

Type of the procedure	Study group	Control group
Septoplasty	18	8
Dorsal reduction	17	17
Medial osteotomies	18	15
Lateral osteotomies	18	15
Columellar strut	14	12
Spreader graft	12	8
Butterfly graft	4	5
Batten graft	1	2
Maxillary antrostomy	20	–
Ethmoidectomy	16	–
Sphenoidotomy	2	–
Polypectomy	2	–