Efficacy of a Multidisciplinary Surgeon Team Approach to Pediatric Endoscopic Septorhinoplasty

Kolby Quillin BA[2], Nathan Demian[1], Claire Teresa Galavotti[1], Jemma Maynard BA[1], Kelly Giroux CPNP-PC[1] , Isaac Kistler MS[4], Gregory Pearson MD[3], Charles Elmaraghy MD[1]

Department of Otolaryngology—Head and Neck Surgery, Nationwide Children's Hospital, Columbus, OH[1], The University of Toledo College of Medicine, Toledo, OH[2], Department of Plastic and Reconstructive Surgery, Nationwide Children's Hospital, Columbus OH[3], Biostatistics Resource at Nationwide Children's Hospital, Abigail Wexner Research Institute at Nationwide Children's Hospital, Columbus, OH[4]

Introduction

- Pediatric septorhinoplasties are performed by both plastic surgeons and otolaryngologists.[1]
- May be warranted in case of severe trauma, cleft nasal deformity, reconstruction, or for functional purposes.[2]
- Advantages of endoscopic septorhinoplasty include illumination and magnification, lack of tissue distortion, and opportunity for educational moments and instruction.[3]
- Multidisciplinary surgeon teams allow for the utilization of multiple specialty specific skills and smooth transition to different procedures during one anesthesia event.[4]
- Since April 2023, a plastic surgeon and otolaryngologist at Nationwide Children's Hospital in Columbus, Ohio have collaborated during septorhinoplasties.
- During the procedure, the plastic surgeon opens as normal, and the otolaryngologist assists with endoscopic removal of the nasal septal spur posteriorly.

Methods

- **Study Design:** Retrospective Case Series
- **Inclusion Criteria:**
  - Patients who received an endoscopic septorhinoplasty by the dual surgeon team from Jan. 2020- Jul. 2024.
  - Patients who received an open septorhinoplasty by the plastic surgeon alone from Jan. 2020- Jul. 2024.
- **Variables:** Surgical time, Dual vs. Solo Surgeon, Cleft vs. No Cleft, Number of Additional Procedures, Revision Rates.
- **Descriptive Analysis:** Averages (SD), Percentages.

Procedure Steps

1. An endoscopic evaluation of the nasal cavity is done to determine the degree of septal deviation and turbinate hypertrophy.
2. After prepping and injecting the nasal tip and septum, the plastic surgery team proceeds with an open rhinoplasty approach, using a transcolumellar and marginal incision.
3. The mucoperichondrial flaps are then elevated initially with the open approach.
4. Quadrangular cartilage incisions are made with a caudal or freer elevator, and a cartilage window is created.
5. The bone spurs are removed with endoscopic sinus instruments; the maxillary crest is removed endoscopically with an osteotome.
6. The nasal cavity is the re-evaluated for any additional obstruction and a turbinate reduction is performed.
7. The flaps and nasal incisions are reapproximated.

Results

Table 1: Procedure Characteristics

Characteristic	Overall, N = 21[1]	Dual Surgeon, N = 15[1]	Solo Surgeon, N = 6[1]
Cleft Palate			
Cleft palate Y/N	8 (38%)	4 (27%)	4 (67%)
Concurrent procedures			
Number of concurrent procedures			
0	2 (9.5%)	0 (0%)	2 (33%)
1	6 (29%)	4 (27%)	2 (33%)
2	12 (57%)	10 (67%)	2 (33%)
3	1 (4.8%)	1 (6.7%)	0 (0%)
Average concurrent procedures	1.52 (0.75)	1.80 (0.56)	0.83 (0.75)
Revisions			
Revision needed Y/N	1 (6.3%)	0 (0%)	1 (25%)
No follow-up available	5	1	4

[1]n (%); Mean (SD)

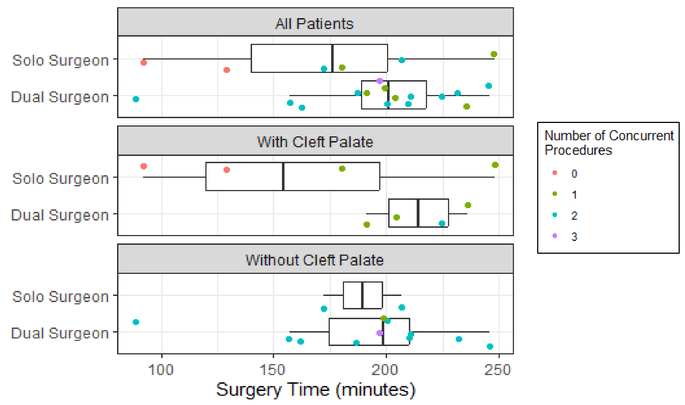

Figure 1: Comparison of Surgical Times

Discussion

- The dual surgeon approach was found to have a 14.6% longer anesthesia times compared to the solo surgeon group.
- However, the dual surgeon group had an average of 0.97 more procedures performed compared to the solo surgeon group (i.e. turbinate reduction; nasal cautery; adenotonsillectomy; adenoidectomy).
- The advantage of having two surgical specialists may be weighed against the potential increased surgical time.
- Endoscopes are a useful tool for maximizing the field of vision for the surgeon (Figures 2 & 3).
- The use of an endoscope varies with plastic surgeons so having an otolaryngologist's expertise with an endoscope could be beneficial.
- Criteria to assess the success of each procedure in operative notes can be used to compare surgery success rates.

Figure 2: Endoscope being placed through external rhinoplasty incision.

Figure 3: View of posterior septal dissection provided by an endoscope.

References