The Modified Lothrop Procedure (Draf III Frontal Sinusotomy) in the Management of Frontal Sinus Disease: A Patient Outcomes Study

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Introduction

The Modified Lothrop Procedure or Draf III frontal sinusotomy is well described for treatment of recalcitrant frontal sinus disease. It is typically used in cases where frontal sinus obliteration is the alternative and involves drill out of the frontal sinus floor. Studies have shown this to be generally successful procedure and long term outcomes have been described. The purpose of this study was to assess our clinical outcomes in patients who underwent a Draf III frontal sinusotomy procedure for benign frontal sinus disease.

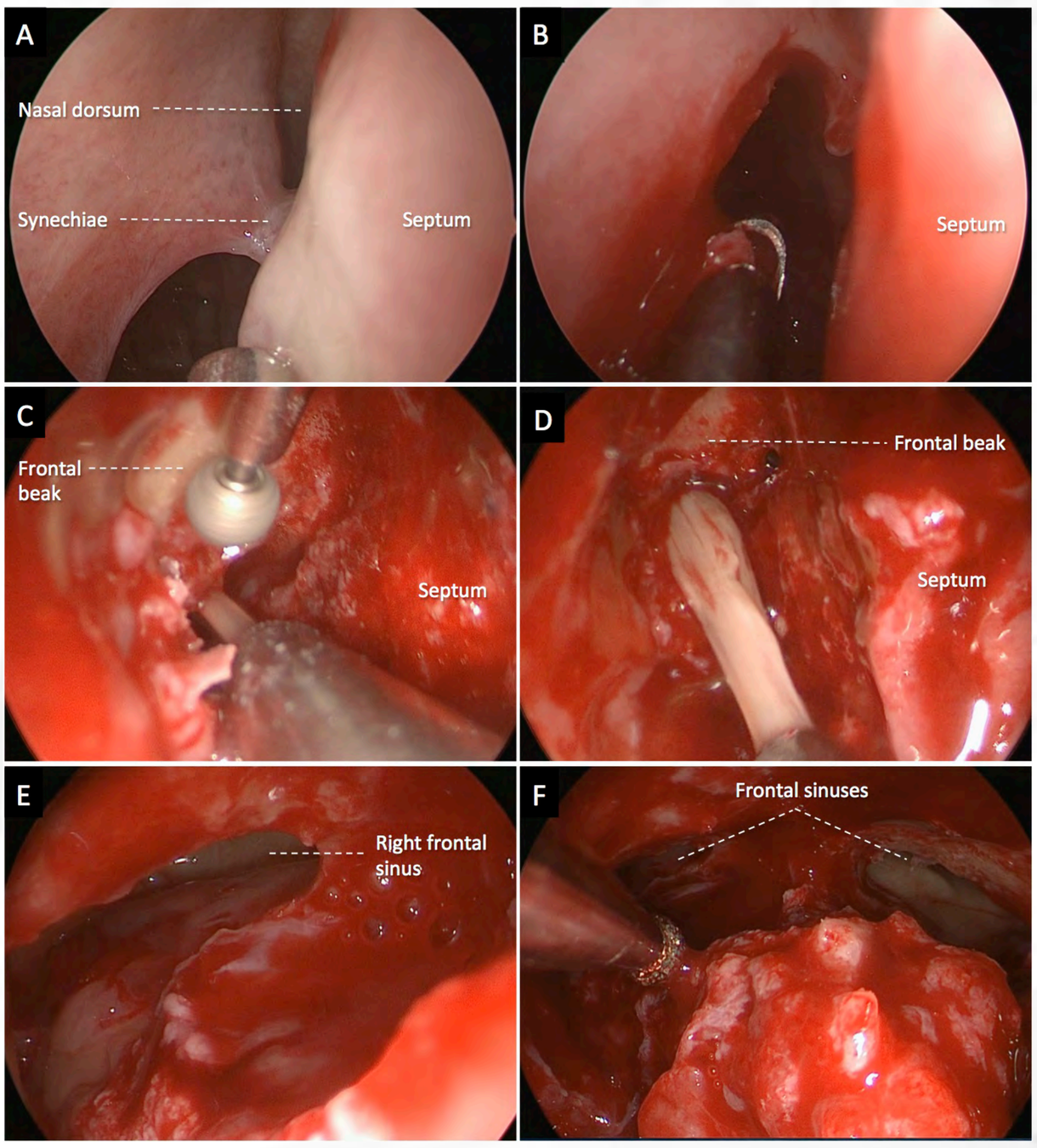

Figure 1. Intraoperative images of Draf III procedure obtained with 45° endoscope**.** A. Right side nasal dorsum with synechiae. B. Kerrison was used to open the frontal recess. C. Drilling out of frontal beak. D. Drainage of purulent secretion from frontal sinus. E. Open right frontal sinus after drill out. F. Bilateral patent frontal sinuses after superior septectomy.

Methods

A retrospective chart review and outcomes assessment was performed on a series of patients who underwent a Draf III procedure (figure 1) for benign frontal sinus disease by a single surgeon during the years 2012 to 2015. All patients with chronic inflammatory disease who underwent Draf III frontal sinusotomy had previous endoscopic sinus surgery to the frontal sinus with no resolution of the symptoms. Absorbable releasing steroid stents were placed in the frontal sinus opening in the majority of cases.

Outcomes were based on chart review with subjective symptom improvement, nasal endoscopy assessing patency (figure 2) described as widely patent (1), >50% stenosis (2) and obstructed (3), and need for revision surgery. Demographics and comorbidities were identified and used to assess for relation to post-operative stenosis. Statistical analysis was performed using SAS statistical analysis software (SAS Institute Inc., Cary NC).

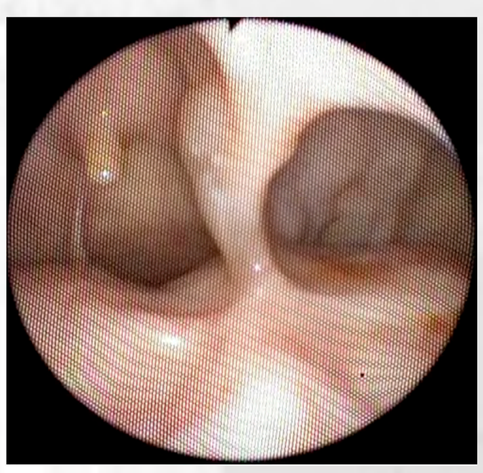

Figure 2. Post Draf III endoscopy showing widely patent frontal sinus.

Results

A series of 35 patients having undergone a Draf III sinusotomy procedure for benign frontal sinus disease were identified during the specified time period. Mean duration of follow-up was 6.7 months (range 0.2 to 28.5 months). A majority of patients (94%) saw resolution of pre-surgical symptoms with 97% without symptomatic re-obstruction at latest follow-up. Endoscopic evaluation showed 86%, 14% and 0% for grade 1, grade 2, and grade 3 respectively. No patients required surgical revision after their Draf III. There were no statistically significant restenosis rates in regards to indication for surgery, comorbidities, age or sex (see table I and II). Pre and postoperative SNOT scores were available for 7 patients with a mean improvement of 11.4 (p value = 0.2654).

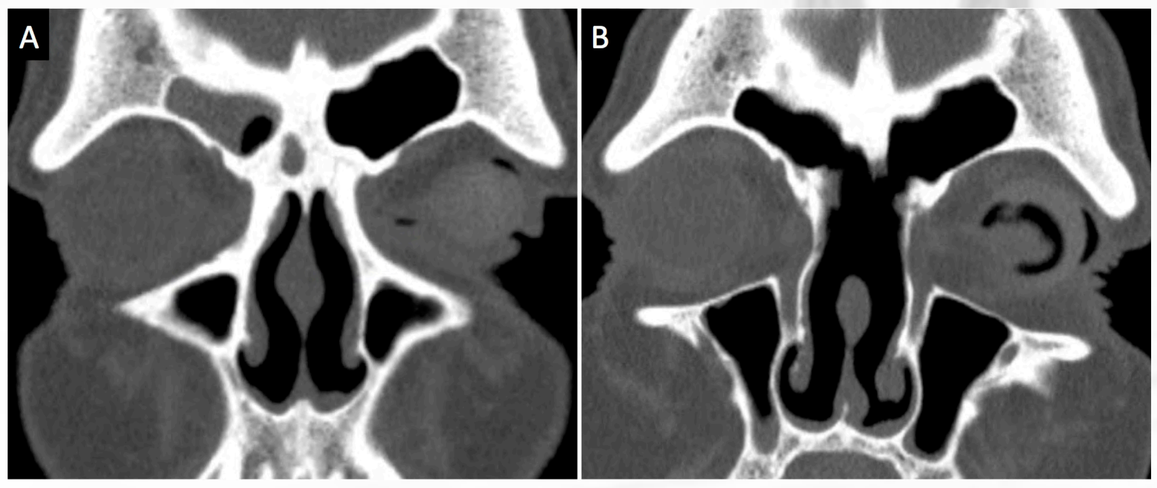

Figure 3. Pre (A) and post (B) Draf III procedure coronal CT images of sinuses

Table I. Indications for surgery and stenosis rates

	All patients (n=35)	Widely Patent (n=30)	>50% Stenosis (n=5)	P value
CRS with polyps	10	9	1	0.38
CRS without polyps	8	7	1	0.41
Mucocele	9	7	2	0.29
Pott's Puff Tumor	3	3	0	0.62
Abscess	2	2	0	0.73
Cholesterol Granuloma	1	1	0	0.86
Inverted Papilloma	1	0	1	0.14

CRS=chronic rhinosinusitis

Table II. Patient demographics and stenosis rates

	All patients (n=35)	Widely Patent (n=30)	>50% Stenosis (n=5)	P value
Male	26	22	4	0.41
Female	9	7	1	
Smoking	8	6	2	0.26
Polyps	13	11	2	0.37
Asthma	7	5	1	0.44
Allergy	9	8	1	0.41
Aspirin Sensitivity	2	1	0	0.72
Steroid Stent Placement	30	25	4	0.42
Age >50 years	14	10	4	0.06

Conclusions

Draf III is an effective treatment choice in the management of frontal sinus disease. It provides long-term patency of frontal sinuses and results in improvement of patient quality of life.

Surgical VIDEO

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