The role of endoscopic sinus surgery in chronic rhinosinusitis with minimally affected computed tomography

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Backgrounds

- The management of **medically refractory CRS with a low disease burden on CT** often presents a clinical conundrum and poses significant challenges in patient care.

- There is a significant reluctance to proceed with endoscopic sinus surgery (ESS) for patients whose CT scans display mild CRS changes, **particularly in cases where sino-nasal symptoms continue unabated despite appropriate medical therapy.**

- The purpose of this study was **to determine the effectiveness of ESS in a select group of CRS patients with minimally irregular CT scans with respect to sino-nasal specific symptoms.**

Methods

1. Subjects

- Retrospective study
- Refractory CRS patients who underwent ESS from 2017 January to 2019 December
- Low-grade CT group: 31 adult patients (22 CRS without nasal polyp(NP), 9 CRS with NP)

  Mod/High-grade CT group: 274 patients

2. Low-grade CT group was defined as

1) having a total Lund-Mackay score (LMS) of 5 or less,
2) having each sinus LMS of 0 (no abnormalities) or 1 (partial opacification).

3. Sino-Nasal Outcome Test (SNOT-22) questionnaires : preESS, postESS (6mo)

4. Korean Version of Sniffin' Sticks Test II (KVSS-II) : preESS, postESS (6mo)

5. Exclusion criteria

- Postoperative medical treatment: LDLT, Immunotherapy

Results

Figure 1. SNOT-22 in Low-grade CT group

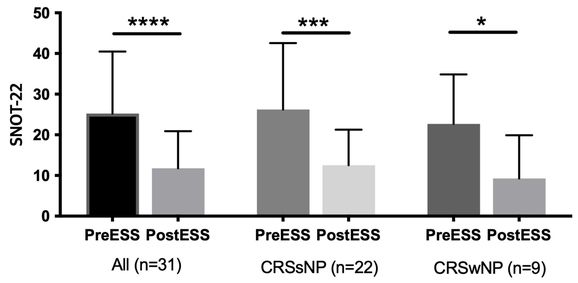

Figure 2. KVSS-II in Low-grade CT group

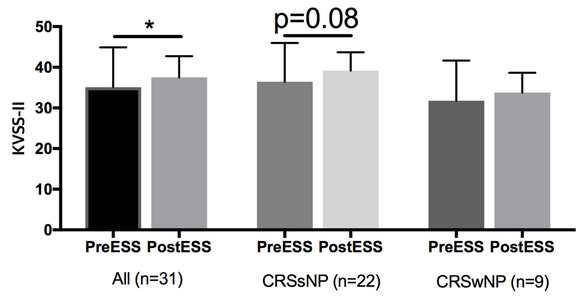

Table 1. Individual items of SNOT-22 in Low-grade CT group

	All (n=31, mean, SD)		CRSsNP (n=22, mean, SD)		CRSwNP (n=9, mean, SD)	
	PreESS	PostESS	PreESS	PostESS	PreESS	PostESS
Need to blow nose	2.1 (1.6)	0.9 (1.1)	1.9 (1.7)	1.1 (1.2)	2.4 (1.6)	0.4 (0.7)
Nasal blockage	2.0 (1.6)	0.9 (0.9)	0.9 (0.7)	0.6 (1.0)	2.2 (1.0)	0.6 (0.9)
Sneezing	1.2 (1.0)	0.5 (0.8)	1.1 (1.2)	0.6 (0.8)	1.2 (0.7)	0.3 (0.7)
Runny nose	1.8 (1.3)	0.8 (1.2)	1.2 (1.4)	1 (1.3)	1.9 (1.1)	0.3 (0.5)
Cough	1.4 (1.5)	0.4 (0.9)	1.1 (1.3)	0.5 (1.1)	2.1 (1.6)	0.1 (0.3)
PND	1.8 (1.5)	1.0 (1.6)	1.8 (1.4)	1.0 (1.6)	1.8 (1.9)	0.8 (1.6)
Thick nasal discharge	1.4 (1.6)	0.5 (0.9)	1.3 (1.5)	0.7 (1.0)	1.8 (1.8)	0.1 (0.3)
Ear fullness	0.7(1.2)	0.2(0.7)	0.7 (1.1)	0.2 (0.5)	0.7 (1.4)	0.3 (1.0)
Dizziness	0.8 (1.2)	0.2 (0.8)	1.0 (1.3)	0.3 (0.9)	0.3 (0.7)	0.1 (0.3)
Ear pain	0.6 (1.0)	0.3 (0.8)	0.7 (1.2)	0.4 (1.0)	0.3 (0.5)	0.0 (0.0)
Facial pain/pressure	0.7 (1.4)	0.5 (1.0)	1.0 (1.5)	0.5 (1.1)	0.1 (0.1)	0.2 (0.7)
Decreased sense of smell/taste	0.9 (1.4)	0.7 (1.0)	0.8 (1.1)	0.7 (1.0)	1.3 (1.2)	0.9 (1.1)
Difficulty falling asleep	1.5 (1.5)	0.5 (1.0)	1.5 (1.5)	0.5 (1.1)	1.4 (1.6)	0.4 (0.9)
Wake up at night	1.6 (1.6)	0.9 (1.3)	1.6 (1.6)	1.0 (1.4)	1.7 (1.7)	0.6 (1.1)
Lake of good night's sleep	2.1 (1.5)	0.9 (1.1)	2.3 (1.5)	1.1 (1.1)	1.4 (1.4)	0.6 (0.9)
Wake up tired	2.0 (1.5)	1.0 (1.1)	2.3 (1.5)	1.1 (1.2)	1.3 (1.4)	0.6 (0.9)
Fatigue	2.2 (1.6)	1.0 (1.1)	2.5 (1.6)	1.1 (1.2)	1.4 (1.4)	0.6 (0.9)
Reduced productivity	1.5 (1.3)	0.4 (0.8)	1.6 (1.4)	0.4 (0.7)	1.2 (1.3)	0.4 (0.9)
Reduced concentration	1.6 (1.3)	0.3 (0.6)	1.6 (1.3)	0.2 (0.5)	1.6 (1.2)	0.4 (0.9)
Frustrated/restless/irritable	1.2 (1.3)	0.2 (0.7)	1.1 (1.4)	0.2(0.7)	1.2 (1.3)	0.2 (0.7)
Sad	1.2 (1.3)	0.4 (0.9)	1.2 (1.3)	0.4(0.9)	1.2 (1.2)	0.4 (0.9)
Embarrassed	1.1 (1.5)	0.2 (0.5)	1.1 (1.6)	0.1(0.5)	1.0 (1.3)	0.2 (0.7)

p<0.0001, p<0.001, p<0.01, p<0.05

Table 2. Comparison of Mean Improvements of SNOT-22 between Low-stage CT and Mod/High-stage CT

	Low-stage CT	Mod/High-stage CT	P
Total	**-15.1 (15.6)**	**-22.3 (19.9)**	**0.1**
Need to blow nose	-1.2 (1.8)	-1.8 (1.7)	0.06
Nasal blockage	-1.5 (1.5)	-1.9 (1.3)	0.05
Sneezing	-0.6 (0.9)	-0.9 (1.6)	0.25
Runny nose	-1.0 (1.2)	-1.2 (1.7)	0.315
Cough	-1 (1.6)	-0.7 (1.4)	0.132
PND	-0.8 (1.6)	-1.2 (2.0)	0.333
Thick nasal discharge	-0.9 (1.6)	-1.2 (2.0)	0.131
Ear fullness	-0.5 (1.2)	-0.8 (1.5)	0.25
Dizziness	-0.5 (1.1)	-0.5 (1.4)	0.5
Ear pain	-0.3 (0.9)	-0.4 (1.1)	>0.99
Facial pain/pressure	-0.3 (1.2)	-0.6 (1.6)	0.09
Decreased sense of smell/taste	-0.8 (1.6)	-1.4 (1.0)	0.383
Difficulty falling asleep	-1.0 (1.7)	-1.2 (1.6)	0.433
Wake up at night	-0.7 (1.7)	-1.2 (1.6)	>0.99
Lake of good night's sleep	-1.1 (1.5)	-1.2 (1.7)	0.181
Wake up tired	-1.1 (1.6)	-0.9 (1.5)	0.252
Fatigue	-1.3 (1.6)	-1.2 (1.6)	0.443
Reduced productivity	-1.1 (1.5)	-1.1 (1.6)	>0.99
Reduced concentration	-1.3 (1.4)	-1.2 (1.6)	0.343
Frustrated/restless/irritable	-1.0 (1.5)	-0.7 (1.5)	0.109
Sad	-0.8 (1.5)	-0.7 (1.4)	0.25
Embarrassed	-0.9 (1.7)	-0.7 (1.5)	0.121

Conclusions

1. ESS is associated with improved sino-nasal specific symptoms in patients with low-grade CT CRS.
2. ESS can provide significant benefit to carefully selected patients with minimally affected CT scans.