

CHAPTER 4

RESULTS

4.1 Demographic Data

Sixty patients were enrolled in the study. Functional endoscopic sinus surgery was performed by the author with the assistant of the senior residents at the Department of Otolaryngology, King Chulalongorn Memorial Hospital. Simple randomized technique by EPIINFO program for allocation of which side of maxillary sinus to be the large middle meatal antrostomy side was used and it was sealed by the other person. The demographic baseline data were shown in the Table 2.

All 60 patients were underwent surgery under local anesthesia. The surgical time and blood loss of each surgical technique side were recorded separately from the first incision until packing. The surgical time and blood loss of each side were shown in Table 3.

There was no immediate or delayed major complication, which included excessive hemorrhage, orbital complication and intracranial complication. One patient had a delayed bleeding from the large middle meatal antrostomy side 4 days after surgery due to early removing the packing. This patient needed repacking without blood transfusion. Four sides from the large middle meatal antrostomy technique and other four sides from the small-hole maxillary ostium widening technique developed synechiae at the anterior superior of the ethmoidal area without blockage of the drainage lumens.

Table 2 Demographic characteristics

Patients	60 (100%)
Male	34 (56.7%)
Female	26 (43.3%)
Age (years)*	36.8 [13.8] {16-68}
Duration of nasal polyposis (months)*	47.9 [41.1]
Duration of sinusitis (months)*	5.9 [4.0]
Skin test (n=45)	
Negative	24 (53.3%)
Positive	21 (46.7%)
Grading of polyps from nasal endoscope (n = 60)	
Grade 1	10 (16.7%)
Grade 2	50 (83.3%)
Grading of chronic sinusitis from CT-scan (n = 60)	
Grade 1	29 (48.3%)
Grade 2	31 (51.7%)

Values were expressed in number (percent)

* Values were expressed in mean, [SD] and {range}

Table 3 the surgical time and blood loss of each surgical technique.

	Large middle meatal antrostomy side	Small-hole maxillary ostium side	Mean difference
Surgical time (min) (n = 59)	49.1 (13.2)	46.4 (13.2)	2.6 (14) [0.156],{-1.0,6.3}
Blood loss (ml) (n = 58)	71.9 (59.9)	68.1 (48.8)	3.8 (43.8) [0.513],{-7.7,15.3}

Values were expressed in mean,(SD), [p-value], {95% confidence intervals}



4.2 Primary Outcome Analysis

The evaluator analyzed the endoscopic examination of patients at the third month follow up after the surgery from the video tape each side separately. The results by considering the discharge presentation from the drainage lumens and air-fluid level of the maxillary sinus cavity in CT-scans which represented failure of the technique were demonstrated in the Table4.

Table 4. The nasal endoscopic finding and CT-scan results

	Large middle meatal antrostomy side	Small-hole maxillary ostium side
Patent drainage lumens with purulent discharge	5 (8.3%)	1 (1.7%)
Polypoid formation, edema and adhesion or scar with purulent discharge from blockage of drainage lumens	14 (23.3%)	23 (38.3%)
Polyoid formation, edema, adhesion or scar with occlusion of the drainage lumens / an air-fluid level of maxillary cavity in CT-scans	1 (1.7%)	4 (6.7%)
Total	20 (33.3%)	28 (46.7%)

The McNemar Chi-square was used to compare the failure rate between the large middle meatal antrostomy technique and the small-hole maxillary ostium widening technique and the result was significantly different (p-value = 0.039). The small-hole maxillary ostium widening technique had greater failure rate (recurrent maxillary sinusitis) than the large middle meatal antrostomy technique. The detail was shown in Table 5.

Table 5 The analysis of primary outcomes

		Small-hole maxillary ostium side		Total
		Failure	Success	
Large middle meatal antrostomy side	Failure	18	2	20
	Success	10	30	40
Total		28	32	60

McNemar Chi-square was used, p-value =0.039.

4.3 Secondary Outcome Analysis

4.3.1 The symptom score

The symptom scores were analyzed and shown in Table 6. It was demonstrated that the symptoms, including nasal congestion, pain, nasal discharge and post nasal drip, in each side of different surgical techniques were improved significantly at the third month after surgery but there was statistically non-significant difference between both surgical techniques.

Table 6. The symptom score difference between both surgical techniques

	Preoperative evaluation		Post operative evaluation (third month)		
	LMMA side	SHMO side	LMMA side	SHMO side	Mean diff.
Congestion N = 51	7.0 (2.5)	7.0 (2.1)	1.9 (2.1)	1.8 (2.1)	p-value=0.477
Pain N = 51	2.7 (2.9)	3.4 (3.3)	0.8 (1.4)	1.1 (1.7)	p-value=0.201
Discharge N = 51	6.3 (2.5)	6.2 (2.5)	2.2 (1.7)	2.5 (2.0)	p-value=0.476
Post nasal drip, n = 51	5.0 (2.4)	5.0 (2.3)	1.9 (2.0)	2.0 (1.9)	p-value=0.727

LMMA side = Large middle meatal antrostomy technique side

SHMO side = Small-hole maxillary ostium widening technique side

Mean differences of nasal congestion, pain, nasal discharge and post nasal drip between before and after surgery of each side were statistically significant (all p-value = 0.000).

4.3.2 Acoustic rhinometry evaluation

The acoustic rhinometry was used to evaluate patency of the nasal cavity in the area of polyp formation both before and at the third month after surgery. The data were shown in the Table 7. The results were that there were statistically significant increase in volume (p -value <0.05) and minimal square area (p -value <0.05) after surgery in each side of both surgical technique but there were no significant difference in volume (p -value >0.05) and minimal square area (p -value >0.05) between both sides of surgical technique.

Table 7.The acoustic rhinometry evaluation

	Volume (ml)			Minimal area (cm ²)		
	before	after	Mean diff.	Before	after	Mean diff.
Large middle antrostomy side	7.8 (4.1) n=54	12.9 (5.6) n=52	-5.0(5.4) [0.000] {-6.5,-3.4 }	1.1 (0.7) n=54	2.0 (0.8) n=52	-0.8 (1.0) [0.000] {-1.0,-0.5 }
Small-hole maxillary ostium side	7.3 (3.1) n=54	11.8 (5.2) n=52	-4.2 (4.3) [0.000] {-5.5,-3.0 }	1.0 (0.6) n=54	1.7 (0.8) n=52	-0.6 (0.6) [0.000] {-0.8, -0.4 }
Mean difference between technique	0.5(3.2) [0.253] {-0.4,1.4}	1.1(4.1) [0.065] {-7.1,2.2}		0.1(0.5) [0.120] {-3.0,0.2}	0.2(0.8) [0.053] {-3.2,0.4}	

Values were expressed in mean, (SD), [p-value], {95% confidence intervals}.

4.3.3 The patency rate of the drainage lumens

The patency rate of the large middle meatal antrostomy technique at the third month after surgery was 80 percent.

The patency rate of small-hole maxillary ostium widening technique at the third month after surgery was 63.3 percent.

The results were considered significantly different {p-value = 0.021, (McNemar Chi-square)}.