

CLINICAL PROSPECTIVE STUDY OF THE APPLICATION OF THE ENDOSCOPIC PRELACRIMAL RECESS APPROACH IN UNILATERAL MAXILLARY SINUS DISEASES

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Introduction

The maxillary sinus (MS) is the most common sinus to be affected by disease. It varies greatly in shape, size, position and pneumatization, not only in different individuals, but also in different sides of the same individual. Several disease processes can involve the maxillary sinus, such as infective, odontogenic and neoplastic. In simple cases, a standard uncinectomy and middle meatal antrostomy (MMA) may be sufficient for visualization and clearance of disease but despite this, a drawback still exists in both external and endoscopic intranasal surgical procedures. Compromise of the inferior turbinate (IT) and nasolacrimal duct (NLD) is often unavoidable. According to the anatomy of maxillary sinus (MS) and the nature of diseases originated from MS assessed with multi-angled telescopes, including 30°,45° and 70° telescopes, with kinds of curved instruments, there are still some areas which cannot be viewed and handled. Such critical areas as the inferior, lateral, anterior wall, zygomatic recess, alveolar recess and prelacrimal recess (PLR) of maxillary sinus are difficult to approach. For this reason other approaches are needed like canine fossa approach (CFA), prelacrimal recess approach (PLRA) and medial maxillectomy approach. The endonasal endoscopic prelacrimal recess approach (PLRA) provides a clear view through wide access to all walls of the maxillary sinus while still preserving the nasolacrimal duct and inferior turbinate. It enables us to remove MS lesions accurately and completely. It is a physiological and functional surgery, and has great advantages in treating the diseases of the nasal cavity. Instead of using a 70° endoscope and microdebrider through the canine fossa puncture, a 0° endoscope can be applied through the prelacrimal recess antrostomy with the instrument at the same time. It is easy to perform the endoscopic surgery on the maxillary sinus, pterygopalatine fossa (PPF), and infratemporal fossa (ITF).

Aim of the work

The aim of this study is the Comparison between prelacrimal recess approach and traditional middle meatal antrostomy in visualization and handling of anteromedial lesions in maxillary sinus, assessment of prelacrimal recess radiologically, selection of patients preoperatively who are ideal candidates for prelacrimal recess approach and radiologic assessment of the dimensions of the prelacrimal recess and its impact on proper patient selection for this approach.

PATIENTS & METHODS

This was a prospective study conducted in the Department of otorhinolaryngology (ORL), Alexandria Main University Hospital. The study was conducted on 50 patients in the period between January 2020 to Mars 2022. All patients aged (15-60 years) with unilateral maxillary sinus lesions such as inflammatory lesions of the MS and benign maxillary sinus lesions like inverted papilloma, antrochoanal polyp and odontogenic cysts were included. All cases were preoperatively evaluated by history taking, complete nasal endoscopic evaluation and radiological evaluation. The latter included two parameters; Angle of pyriform Notch (APN) and prelacrimal recess anteroposterior diameter (PLRD). We performed both traditional middle meatal antrostomy and prelacrimal recess approach in ACP, Inverted papilloma and fungal ball cases

Results

The results cleared that, the higher incidences of numbness observed in A angle of pyriform notch (APN) as it reached to 14 (70 %), followed by B angle of pyriform notch that reached to 5 (25 %), and the lower Numbness observed in C angle of pyriform notch as it reached to 1 (5 %).

Table (1): Relation between Numbness and Angle of pyriform notch (n=50)

	Numbness				c ²	p
	No (n=30)		Yes (n=20)			
	No.	%	No.	%		
Angle of pyriform notch (APN)						
A	2	6.7	14	70.0	22.33**	<0.001**
B	20	66.7	5	25.0		
C	8	26.7	1	5.0		



Our results cleared that, the incidences of numbness among prelacrimal recess anteroposterior diameter (PLRD) differ significantly (P < 0.01). The higher incidences of numbness among PLRD showed in type I 7 (77.77 %), followed by its incidence in Type II 9 (32.15) and the lower incidences observed in type III that reached to 2 (15.39 %). The higher incidences of epiphora observed among PLRD type I were 6 cases (66.70 %), followed by its incidences in Type II 3 cases (10.70) and the lower incidences observed in type III that reached to 1 case (7.70 %).

Table (2): Relation between PLRD with Numbness and Epiphora:.

	Prelacrimal recess anteroposterior diameter (PLRD)						c ²	p
	Type I (n=9)		Type II (n=28)		Type III (n=13)			
	No.	%	No.	%	No.	%		
Numbness								
No	2	22.23	19	67.85	11	84.61	17.502*	<0.001*
Yes	7	77.77	9	32.15	2	15.39		
Epiphora								
No	3	33.3	25	89.3	12	92.3	11.732*	FEp= 0.002*
Yes	6	66.7	3	10.7	1	7.7		

Conclusion

MMA is not enough to access all walls of the maxillary sinus and should be combined with another approach like PLRA especially in cases where the origin of the lesion is from the anteromedial wall of the maxillary sinus. Preoperative evaluation of the prelacrimal recess area is a crucial step when we pretend to apply PLRA on the MS lesions. Degree of pneumatization of the anteroposterior diameter of prelacrimal recess is inversely related to the rate of postoperative complications and directly related to the feasibility and accessibility of all walls of the maxillary sinus even with the use of less angled endoscopes and instruments. PLRD is not enough to reflect the accessibility and maneuverability of the PLRA and we need to combine this parameter with angle of pyriform notch (APN) parameter.