The role of prelacrimal recess approach in complete removal of anterior maxillary sinus lesions “a continuous study”

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Objective
The aim of the study was to assess the role of the intranasal prelacrimal recess approach (PLRA) in complete removal of anterior maxillary lesions.

Introduction
In spite of development of curved instrument, a reaching hidden area in the maxillary sinus (MS) is still problematic. Prelacrimal recess (PLR) is a concavity in the medial, anterosuperior part of the MS. It is located in front of the eminence of the lacrimal passages on the medial sinus wall (Fig. 3) (Hosemann W et. al 2003). Good visualization is provided for complete excision of the lesion, from the viewpoint of minimal invasion, a drawback still exists in both external and intranasal surgical procedures. Compromise of the inferior turbinate (IT) and nasolacrimal duct (NLD) is often unavoidable (Brors D, et. al 1999).

Study design
This was a prospective study in which 20 patients were recruited between July 2013 and September 2014 from the Otorhinolaryngology outpatient clinic, Kasr Al-Ainy hospital, Cairo University.

Patients and methods
Patients with anterior maxillary sinus (MS) lesions underwent endoscopic sinus surgery and had their lesions removed through the maxillary ostium. The PLRA was then used to assess the presence of any anterior maxillary remnants, which were then removed.

The operation was performed under general hypotensive anaesthesia, in supine head-up position. The nasal cavity was decongested and the middle meatus lesion was removed. Uncinctomy was performed and the MS ostium identified, which was then widened posteriorly and also anteriorly using backbiting forceps while ensuring that the nasolacrimal duct (NLD) was not injured. After complete removal of the sinus lesion using different angled nasal endoscopes, when cannot completely remove the maxillary sinus lesion, the PLRA was performed.

The incision
The incision site was infiltrated with 1% lidocaine (xylocaine) with 1: 100 000 epinephrine solution. A curved mucosal incision was made on the lateral wall of the nasal cavity between the anterior aspect of the IT and the posterior end of the nasal vestibule, so that the depth of the incision reached the underlying bone (Fig. 1).

Mucoperiosteal elevation
Using a chisel, the mucoperiosteum was lifted posteriorly until the attachment of inferior turbinate (IT) to the lateral nasal wall and then the bony attachment of IT were disconnected (Fig. 2).

Bone removal
Bone removal was achieved using a gauch and hammer and a high-speed electric drill, the anterior bony portion of the medial wall of the MS (parts of the frontal process of the maxilla) was chiseled off, as this part forms the medial part of the prelacrimal recess (Fig. 3).

Inferior turbinate–nasolacrimal duct flap medialization:
Chiseling the bone posteriorly exposed the NLD and then the IT-NLD flap was formed. It was pushed medially and medial mucosal wall of the MS was exposed (Fig. 4).

Widening the prelacrimal recess:
The amteromedial bony wall of maxillary sinus was partially removed according to the extent of maxillary sinus pneumatization or the location of lesion (Fig. 5). At this step we assessed if there is a remnant pathological lesion or not. The whole maxillary sinus pathology can be eradicated under the clear and wide view provided by an endoscope inserted from the openings of prelacrimal recess, the IT-NLD mucosal flap was repositioned (Fig 6).

Inclusion criteria
(1) Age more than 17 years.
(2) Any sex.
(3) Presence of MS tumours such as inverted papilloma.
(4) Incidence of extensive recurrent sinonasal polyps.
(5) A history of revision endoscopic nasal surgery in which anterior maxillary remnants are suspected

Exclusion criteria
(1) Age less than 17 years.
(2) Presence of vascular tumours.
(3) Presence of an aggressive tumour extending out of the MS.
(4) Having contraindications for surgery.

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The result
Twenty MS of 20 patients were included in this prospective study. Eleven (55%) patients were men, and nine (45%) were women. The male to female ratio was 11: 9. Their ages ranged from 24 to 71 years with an average age of 27.8 ± 11.5 years.

Conclusion
Our preliminary study demonstrated that without the PLRA 45% of the cases will have remnants missed in hidden areas of the MS. The PLRA is a minimally invasive technique to deal with anterior MS lesions.

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Figure 1
Figure 2
Figure 3
Figure 4
Figure 5
Figure 6