

EVALUATION OF TRANSNASAL ENDOSCOPIC APPROACH IN THE TREATMENT OF ORBITAL COMPLICATIONS OF RHINOSINUSITIS

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Introduction

Complications of rhinosinusitis, though reduced in frequency with modern antibiotics, remain clinically important and are classified as orbital, intracranial, or bony. Orbital complications are the most common, particularly in children, due to the proximity of the ethmoid sinus to the orbit. The Chandler classification outlines five progressive orbital stages: preseptal cellulitis, orbital cellulitis, subperiosteal abscess, orbital abscess, and cavernous sinus thrombosis. Management requires timely intervention to prevent vision loss and intracranial spread. Early stages such as preseptal and orbital cellulitis are usually treated with medical treatment. Subperiosteal abscesses may be medically managed in selected young patients with favorable features, but surgical drainage is required when vision deteriorates, antibiotics fail, or there is risk of intracranial extension.

Aim of the work

The aim of this study was to illustrate the Department of Otorhinolaryngology of Alexandria university experience with the transnasal endoscopic approach for the treatment of orbital complications of rhinosinusitis and to assess the outcome and safety of transnasal endoscopic approach as a minimally invasive approach for the management of orbital complications of rhinosinusitis.

Patients and Methods

A retrospective analysis was conducted on medical records of patients presenting with orbital complications secondary to rhinosinusitis who were admitted to the Otorhinolaryngology Department, Faculty of Medicine, Alexandria University, between August 2020 and May 2023. Eligible participants included patients of all ages diagnosed with orbital complications secondary to rhinosinusitis who underwent endoscopic management, while exclusions applied to those who declined surgery, had incomplete records, were successfully treated with medical therapy alone, or were managed entirely through an external approach. Postoperative follow-up extended for at least one year, Evaluated outcomes comprised the resolution of symptoms and clinical signs, occurrence of complications including blindness, visual impairment, ptosis, and hemorrhage, as well as recurrence rates and the requirement for revision surgery.

Results

Table 1: Frequencies of patients with one or more ophthalmic symptoms at admission and after 12 months of follow up.

Stage	Proptosis	Chemosis	Reduced Visual Acuity	Limited EOM mobility
Orbital cellulitis (n = 11)	3	1	1	3
Subperiosteal abscess (n = 44)	30	26	15	31
Orbital abscess (n = 1)	0	1	1	1
Total	33 (58.9%)	28 (50%)	17 (30.4%)	35 (62.5%)
follow up	0	0	1	0

Table 2: The surgical approaches for different stages of orbital complications and the need for second surgery.

	ESS (n = 40)		Combined approach (n = 16)		x²	p
	No.	%	No.	%		
Stage						
Orbital cellulitis	9	22.5	2	12.5	1.116	MCp= 0.621
Subperiosteal abscess	30	75.0	14	87.5		
Orbital Abscess	1	2.5	0	0.0		
Second Surgery	4	10.0	0	0.0	1.723	FEp=0.315

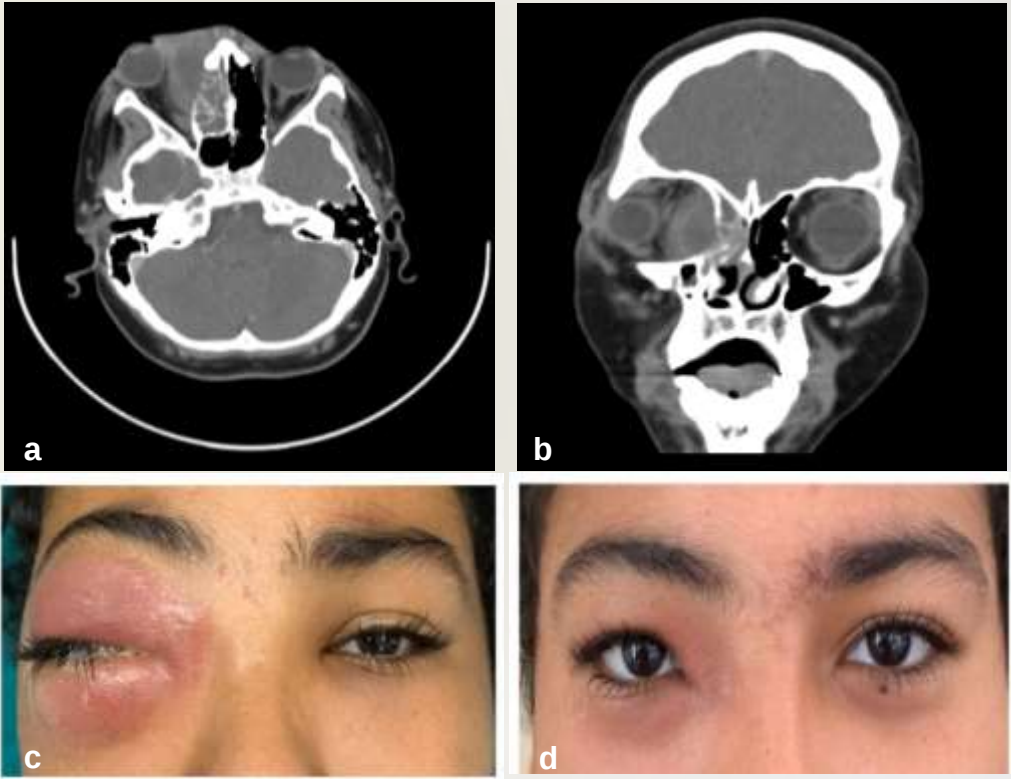


Figure 1: Subperiosteal abscess. (a,b) Axial and coronal CT scans of RT-sided medial subperiosteal abscess . (c,d) Pre- and post operative after ESS surgery.

Conclusion

- The management of rhinosinusitis-related orbital complications presents considerable diagnostic and therapeutic challenges. Optimal outcomes require a multidisciplinary team involving pediatricians, otorhinolaryngologists, ophthalmologists, and neurosurgeons. Preoperative CT imaging is essential for all surgical candidates, both to confirm the diagnosis and to guide surgical planning with precision.
- Endoscopic sinus surgery (ESS) is a minimally invasive, safe, and effective therapeutic option for orbital complications of rhinosinusitis. Nevertheless, a combined surgical approach remains crucial for abscesses that are not accessible endoscopically, particularly lateral subperiosteal abscesses (SPA) and palpebral abscesses.