

Surgical Management of Unilateral Proptosis in Al-Ramadi Teaching Hospital.

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Background: Proptosis is defined as any forward displacement or bulging of an eye, and is frequently used to describe a change in the position of the globe.

Objectives: This paper presents the surgical experience in management of unilateral proptosis at Al-Ramadi teaching hospital.

Patients and Method: Eighteen patients of unilateral proptosis were evaluated and managed Al-Ramadi teaching hospital during the period from July 2008 to October 2010.

Results: There was a male predominance with a male to female ratio of 2:1. Age range observed was 9 to 60 years with an average age of 30 years. Median age was 32 years with a mode of 20 years.

Conclusion: Non-thyroidal unilateral proptosis is a serious sign and must be dealt with in the early stage. Its management requires a multidisciplinary approach which includes neurosurgeon; maxillofacial surgeon, radiologist, ophthalmologist, oncologist and radiation therapist.

Keywords: Unilateral proptosis, CT scan, Surgical Treatment.

Introduction:

Orbital tumors constitute a heterogeneous array of lesions and, as such, pose numerous challenges in terms of diagnosis, imaging and management. Given the variety of structures within the relatively confined orbit, a systematic approach is necessary to understand the classification and clinical features of orbital tumors. Schematically, Orbital tumors can be classified based on origin: 1) primary lesions, which originate from the orbit itself; 2) secondary lesions, which extend to the orbit from neighboring structures and include such lesions as intracranial tumors and tumors of the paranasal sinuses that, by contiguity, extend to involve the orbit; and 3) metastatic tumors. Orbital tumors are also divided anatomically into intraconal and extraconal depending on their relationship with the muscle cone. The muscle cone is formed by the Extraocular rectus muscles and their intermuscular septae, which separate the intraconal from the extraconal space. The muscle cone has a conical shape with the globe serving as the base and the optic canal as its apex.^[1-5] Proptosis is defined as any forward displacement or bulging of an eye, and is frequently used to describe a change in the position of the globe. The corneal apex is normally 15 to 18 mm anterior to the lateral orbital rim in adults, with more than 21 mm or a difference of 2 mm between the eye positions being abnormal.^[6]

The causes of unilateral proptosis are innumerable. The aetiology and frequency of occurrence reported varies with age and the methods used to collect a

series of patients. Infections, inflammatory diseases and tumours invading the orbit from adjacent areas have rapidly evolving symptoms and pain. Chemosis and injection suggest an inflammatory lesion when combined with proptosis.^[7] This paper presents the experience with unilateral proptosis at Al-Ramadi teaching hospital over a period of about 2 years and 3 months.

Patients and Methods:

Eighteen patients with unilateral proptosis were evaluated and managed during the period from July 2008 to October 2010. The proforma was filled up to determine the demographic data, associated symptoms, physical examination, laboratory studies and radiological workup. All patients referred to computerized tomography (CT-) scan, some of them followed by magnetic resonance imaging (MRI). All patients referred to ophthalmological evaluation pre- and post-operatively. Different surgical approaches were performed according to the type, size, site of origin, and extension of the lesion. Treatment was also noticed along with follow-up.



Results:

Over a period of 2 years and 3 months from July 2008 to October 2010, 18 cases of unilateral proptosis were managed. There was a female predominance with a female to male ratio of 2:1. Age range observed was 9 to 60 years with an average age of 34.5 years. Median age was 32 years with a mode of 20 years. Distribution of cases with reference to duration of proptosis is depicted in (Table 1). Fever was found as an associated symptom in 4 patients. Computerized tomography was performed in all cases. In 6 patients biopsy was performed prior to definitive management, through antral approach (Caldwell–Luc incision). Five patients had malignant tumours (Table 2). Seven patients had benign tumors (Table 3). Four patients presented with acute orbit (Orbital cellulites or acute abscess). Two patients had invasive mucormycosis. Treatment modalities applied are shown in (Table 4). Surgical approaches adapted are shown in (Table 5).

Among them 11 (61.11%) were cured, 4 (22.22%) are living with disease, 1 (5.55%) died of disease, And 2 (11.11%) were lost to follow up.

Table 1: Duration of proptosis.

Disease duration	No.
1 month	4 Cases
> One month to 6 months	6 Cases
> Six months to one year	6 Cases
> One Year	2 Cases

Table2: Malignant tumours 5 Cases.

Malignant tumors	No.
Adenoid Cystic Carcinoma	2
Hemangiopericytoma	2
Mucoepidermoid carcinoma	1

Table 3: Benign tumours (7 cases).

Benign Tumors	No.
Meningioma	1
Hemangioma	2
Osteoma	2
Fibrous dysplasia	1
Neurofibroma	1

Table 4: Treatment, modalities.

Treatments	No.
Surgery	11
Surgery ,Radiation ± CT	5
Antifungal (Amphotericin-B)	2

Table 5: Surgical approaches.

Approaches	No.
Lateral Rhinotomy	5
Weber Fergusson	4
Orbital Exenteration	2
Infraorbital	5
Left frontal craniotomy	2

Discussion

A complete history is essential in the evaluation of unilateral proptosis. The outset, progression and the presence of associated signs and symptoms such as fever, pain, visual loss and diplopia should be established. A history of allergies, sinus infection, epistaxis, nasal discharge, airway obstruction and tearing suggest a sinonasal origin.^[7] An associated fever with proptosis may indicate acute inflammation of orbit. Four of our patients showed fever as an associated symptom and were shown to have orbital abscess. Infections, inflammatory diseases and tumours invading the orbit from adjacent areas have rapidly evolving symptoms and pain. Chemosis and pain suggest an inflammatory lesion when combined with proptosis.^[7] Two out of twelve patients who had underlying orbital tumor, presented with acute inflammatory symptoms.

Computerized tomography was the main modality utilized. It was obtained in all cases. The advantage of visualizing the orbital soft tissues and surrounding bony walls simultaneously cannot be over - emphasized. Coronal images are particularly revealing when disease arises from the paranasal sinuses.^[6]

The most common neoplasms involving the orbit are of paranasal origin. [2] In our series 12/18 (66.6%) patients had a benign or malignant neoplasm. Paranasal sinuses were the origin of the orbital tumors in five cases. Four cases were malignant (one mucoepidermoid carcinoma, two adenoid cystic carcinoma and one hemangiopericytoma). One case was benign (fibrous dysplasia). In case of malignant tumours if periorbit are involved, orbital exenteration may be indicated^[7]. Orbital exenteration may also be required if it is a primary malignant tumour of the orbit. Only 2/18 (11.11%) of our patients required orbital exenteration. Different surgical approaches were performed depending on the type, size, site of origin, and extension of the lesion. Lateral rhinotomy was performed in five cases as the lesions were originated from the maxillary antrum and extended medially in to the orbit. Weber Fergusson approach was preferred in four patients as wide exposure was needed to excise large and aggressive lesions. Combined approaches (left frontal craniotomy and infraorbital) were performed in two cases to excise large tumors that extended intracranially. Patients with malignant tumours and mucormycosis showed a poor prognosis.

Conclusions

Non-thyroidal unilateral proptosis is a serious sign and must be dealt with in the early stage. Its management requires a multidisciplinary approach which includes neurosurgeon; maxillofacial surgeon, radiologist, ophthalmologist, oncologist and radiation therapist. Most tumors confined to the orbit can indeed be approached via an extradural approach

either from the medial-lateral-superior or inferior aspect of the orbit.

Recommendation: create orbital clinic in Al-Ramadi teaching hospital involving neurosurgeon, maxillofacial surgeon, radiologist, & ophthalmologist.

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