

Unilateral Proptosis- A Tertiary Care Experience

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Abstract: **Introduction** Proptosis is defined as forward protrusion of eye in relation to skull. It could be resulting from a variety of causes. Proptosis could be unilateral, bilateral, acute, intermittent or pulsating in nature. It is difficult to diagnose a case of proptosis as it not only involves orbit but also the surrounding structures and are inaccessible to routine methods of examination. Since a case of proptosis could be due to variety of causes, early identification of aetiology is crucial as it could be vision and life threatening.

Methods: This is a observational study of twenty cases with unilateral proptosis of different age groups over a period of 1 year. Proptosis was measured using simple ruler exophthalmometry and patients with readings more than 21 mm or a difference of more than 2mm between both eyes were included in this study. Different specialists including neurosurgeon, radiologist and ENT surgeon opinion were sought. The diagnosis was made after a complete clinical examination, radiology and histopathology report.

Results: In this study of 20 patients all patients were above 20 years of age with the majority in the age group of 50-59 years. Male preponderance was noted with most of them presenting with left sided proptosis. Swelling and eye pain were the major chief complaints among the patients. Orbital cellulitis and Rhinoorbital mucormycosis were the major causes of unilateral proptosis in our study accounting for about 20% of cases each. Majority of patients were managed surgically (45%) followed by medical management (30%) and combination of surgical and medical management (25%).

Conclusion: The cause of proptosis does not correspond to a single disease but rather to a variety of diseases. Hence it is important to do a thorough clinical examination as well as radiological scans and histopathology to confirm the diagnosis. This helps with appropriate and timely management of a case of proptosis.

Keywords: Unilateral, proptosis, aetiology, orbital inflammation, orbit

1. Introduction

Proptosis is defined as forward protrusion of eye in relation to skull. It could be resulting from a variety of causes. Proptosis could be unilateral, bilateral, acute, intermittent or pulsating in nature [1]. It is difficult to diagnose a case of proptosis as it not only involves orbit but also the surrounding structures and are inaccessible to routine methods of examination. Hence requires the expertise of ENT specialist, Neurosurgeon, Radiologist as well as a Pathologist. A proptosis is clinically best examined by worm's eye view (1). The direction of proptosis play an important role in indicating the likely pathology (2). The degree of proptosis can be measured in two ways: as an absolute measurement relating the corneal apex to a bony point on the skull or as a relative measurement comparing the position of one cornea with the other (3). Since a case of proptosis could be due to variety of causes, early identification of aetiology is crucial as it could be vision and life threatening.

2. Materials & Methods

This is a observational study of twenty cases with unilateral proptosis of different age groups over a period of 1 year who presented to the ophthalmology department in Saveetha Medical College and Hospital. A detailed history taking and ocular examination was done. Proptosis measurement was done by simple ruler exophthalmometry method.

The patient was made to look straight and measurement was taken from the from the corneal apex to the outer orbital margin of the orbit and the readings were noted. Patients with readings more than 21mm or a difference of more than 2mm between both eyes were included in this study (2).

Different specialists including neurosurgeon, radiologist and ENT surgeon opinion were sought. The diagnosis was made after complete clinical examination, radiology and histopathology report.

3. Results

In this study 20 patients with unilateral proptosis were included. All patients were above 20 years of age with majority in the age group of 50-59 years (30%) followed by 40-49 years (25%), 20-29 years(15%), 30-39 years (15%), 60-69 years (10%) and 70-79 years (5%) as shown in table I.

Table I : Age wise distribution

Age group (years)	Number of patients	Percentage(%)
20-29	3	15
30-39	3	15
40-49	5	25
50-59	6	30
60-69	2	10
70-79	1	5

13 were males (65%) and 7 were females (35%). Most of them presented with right sided proptosis (70%) and 30% were left sided. 11 of them had axial proptosis (55%) and 9 of them had eccentric proptosis (45%).

Swelling and eye pain were the major chief complaints among the patients which accounted for 25% each. The other chief complaints were protrusion of eye (15%), defective vision (10%), diplopia (15%), Headache (5%) and watering (5%) as shown in table II.

Table II : Various Chief Complaints

Chief Complaints	Number of patients	Percentage(%)
Defective vision	2	10
Diplopia	3	15
Headache	1	5
Protrusion of eye	3	15
Swelling	5	25
Eye pain	5	25
Watering	1	5

Orbital cellulitis and Rhinoorbital mucormycosis were the major causes of unilateral proptosis in our study accounting for about 20% of cases each. Various other causes are shown in table III.

Table III : Various causes of unilateral proptosis

Diagnosis	Number of patients	Percentage(%)
Frontoethmoidal SCC	1	5
Maxillary polyp	2	10
SR and SO myositis	1	5
Myxoid sarcoma	2	10
Pituitary macroadenoma	1	5
Orbital cellulitis	4	20
Rhinoorbital mucormycosis	4	20

Thyroid orbitopathy	2	10
Vestibular schwannoma	3	15

Majority of patients were managed surgically (45%) followed by medical management (30%) and combination of surgical and medical management (25%).

Few of the clinical images of the patients are shown in the figures below (Figure 1,2,3,4,5,6)



Figure 1: Rhinoorbital mucormycosis in right eye



Figure 2: Orbital cellulitis in right eye



Figure 3: Thyroid orbitopathy in right eye



Figure 4 : Right sided myxoid sarcoma

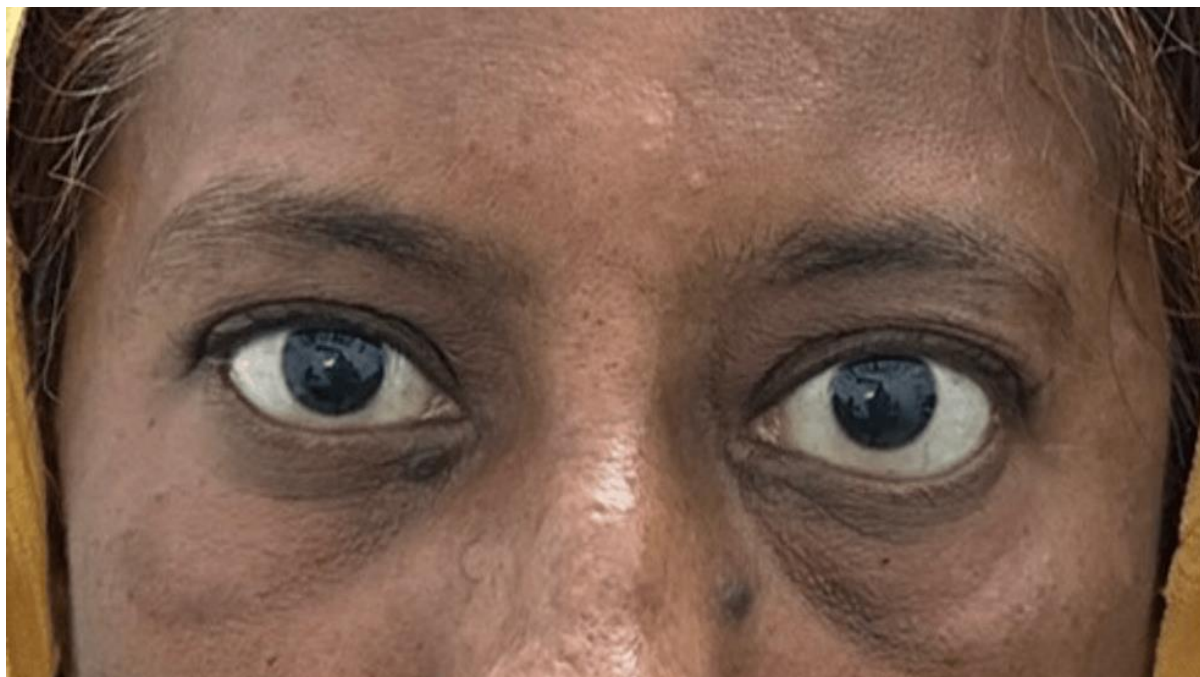


Figure 5: Superior rectus myositis in left eye



Figure 6: Right sided vestibular schwannoma

4. Discussion

Proptosis is the most common presentation of orbital disease. The increase in orbital volume is reflected in the symptoms and the lesion site is shown by the direction of proptosis (1). Proptosis can be axial, when the pathology is intraconal or eccentric when it is extraconal. Patients present with varying degrees of chronicity, visual loss and associated symptoms, with some requiring urgent treatment (4). The various causes of proptosis can be classified into infectious, inflammatory, traumatic, endocrine, autoimmune, vascular, and neoplastic causes (5).

In this study of 20 patients all patients were above 20 years of age with majority in the age group of 50-59 years. In this study male preponderance was noted and most of them presented with right sided proptosis. Swelling and eye pain were the major chief complaints among the patients. Orbital cellulitis and Rhinoorbital mucormycosis accounting for about 20% of cases each were the major causes of unilateral proptosis in our study as in Dsouza, et al. (6) and against various other studies where malignancies were found to be the most common cause of unilateral proptosis.

The orbit has been an anatomical region of significant clinical interest during the last few decades thanks to developments in surgical technique and diagnostic equipment. Orbital echography, CT, and MRI have significantly increased diagnostic precision and enabled more meticulous treatment planning (7).

Hence to ensure a satisfactory conclusion in each case, an ophthalmologist must collaborate closely with the ENT surgeon, neurosurgeon, and radiologist in order to evaluate and treat the patient with unilateral proptosis.

5. Conclusions

The cause of proptosis do not correspond to a single disease but rather to a variety of diseases. Hence it is important to do a thorough clinical examination as well as radiological scans and histopathology to confirm the diagnosis. This helps in appropriate and timely management of a case of proptosis. Unilateral proptosis is a complex clinical entity that requires comprehensive evaluation and specific management. Continued research efforts aimed at identifying the pathophysiology of various etiologies and refining treatment approaches are crucial for improving quality of life and visual prognosis for individuals affected by this condition.

6. References

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