Original Article

Profile of Proptosis in a Tertiary Care Centre

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Abstract

Purpose- *Proptosis is forward protrusion of eye ball. Due to its varied presentation, a profile of these cases would be helpful for an ophthalmologist to understand the spectrum of etio-pathology and thus take an early measure to save vision and even life of a patient.*

Material and Methods*- This retrospective study was conducted at a tertiary care centre in West Bengal based on records on clinical analysis of patients attending eye OPD, eye emergency and those admitted to the inpatient department of ophthalmology and referred from other departments of this institution during July 2015 to July 2018. Demographic details, clinical presentation, investigation (X-Ray, CT scan, USG- B Scan, MRI, Pathology report) details were obtained. A total of 142 patients with 167 eyes were included in the study.*

Results- *Among them, 85 were male and 57 were female with M:F ratio 1.47:1. Most frequent group (81; 57.4%) belonged to 50 to 65 years of age. 33 patients (23.4%) were below 15 years of age. Unilateral proptosis (82.4%) was more common than bilateral (17.6%) one and non- axial (53.89%) was more common than axial (46%) proptosis. Neoplasia was most common (41.91%) etiology followed by thyroid ophthalmopathy (15.56%), orbital cellulitis (11.37%), pseudo-tumour (8.98%), congenital lesions (5.9%), vascular lesions (5.9%), cystic lesions (5.3%) and trauma (2.39%). One patient presented with bilateral proptosis due to sarcoidosis (1.1%). Diagnosis was not confirmed in 2 eyes (1.1%) .*

Conclusion- *Unilateral proptosis was more common than bilateral one and neoplasia was the commonest cause of proptosis.*

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Keywords: *Proptosis, non-axial, neoplasia, thyroid ophthalmopathy*

Introduction

Proptosis is forward protrusion or displacement of eye ball.[1] It may be caused by local orbital diseases, diseases of paranasal sinuses or systemic disorders involving some distant organs. The etiological spectrum of proptosis is wide ranging from inflammation, infection, neoplasia to endocrine and vascular disorders.[2] Several studies on proptosis revealed that the incidence and sex and age distribution of proptosis varies in different population in different geographic area.[3,4,5] There is a very little information on various aspects of proptosis in this part of eastern India. This retrospective study is likely to reflect the demographic and etiological profile of proptosis in this area.

Material and methods

This retrospective study on profile of proptosis was conducted in a tertiary care centre in West Bengal based on records on clinical analysis of patients who attended eye OPD, eye emergency and those admitted to the inpatient department of ophthalmology and referred from other departments of this institution during July 2016 to July 2019. Plastic ruler was used and a measurement of 18mm or more and/or a difference of 2 mm between two eyes were considered significant. Demographic details, clinical presentation, detailed ophthalmological and systemic examination and investigation (X-Ray, CT scan, USG- B Scan, MRI, Pathology report) details were obtained. A total of 142 patients with 167 eyes were included in the study. Patients with inadequate/ incomplte information were excluded. Data analysis was done using microsoft excel.

Results

Among 142 patients, 85 were male and 57 were female (Table 1). Age range was 4 months to 80 years. But most of the patients (81) were between 50 to 65 years of age. Thirty three patients with 37 eyes were below 15 years of age. Bilateral proptosis were seen in 25 patients and unilateral

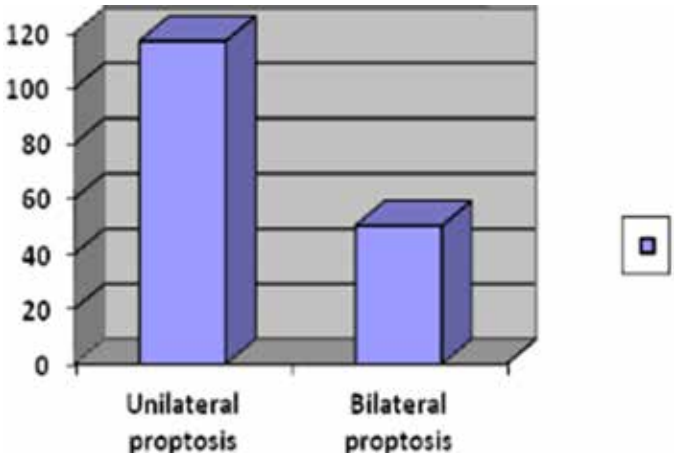

Figure 1: *Unilateral (117) and bilateral proptosis (50) [Total number of eyes=167]*

Table 1: Showing sex distribution (Total no of patients 142)

Male (M)	Female (F)	M:F
85	57	1.47:1

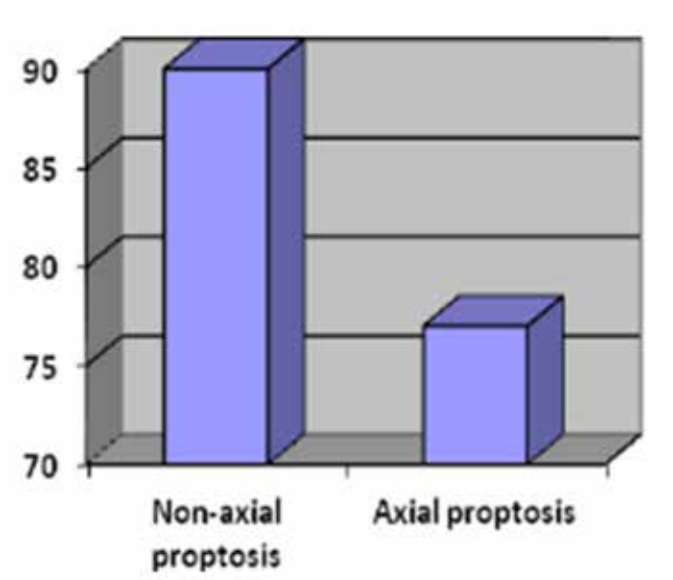

Figure 2: *Axial (90) and non-axial (77) proptosis. [Total number of eyes=167]*

proptosis in 117 patients (Figure 1). Out of 167 eyes, non-axial proptosis were more common to be present in 90 eyes and axial proptosis in 77 eyes (Figure 2). Neoplastic proptosis was most common affecting 70 eyes of 62 patients. In this group, 54 patients had unilateral proptosis and only 8 patients had bilateral proptosis. Thyroid ophthalmopathy was seen in 26 eye of 16 patients.

Table 2: Aetiology of proptosis

Aetiology	No. of patients	No. of eyes involved in two age groups		Total eyes	Percentage of eyes
		4M-15 yrs	> 1 5 yrs		
Neoplasms	62	17	53	70	41.91
Thyroid ophthalmopathy	16	0	26	26	15.56
Orbital cellulitis	18	5	14	19	11.37
Pseudo-tumour	14	0	15	15	8.98
Vascular lesions	10	4	6	10	5.98
Congenital lesions	6	10	0	10	5.98
Cystic lesions	9	0	9	9	5.38
Trauma	4	1	3	4	2.39
Sarcoidosis	1	0	2	2	1.19
Undiagnosed	2	0	2	2	1.19

Orbital cellulitis was responsible for 19 cases of proptosis. Only one patient had bilateral cellulitis. Orbital pseudo-tumour was seen in 15 eyes. Congenital lesions (10 eyes) of 6 patients and vascular lesions (10 eyes) of 10 patients had equal distribution. Cystic lesions were seen in 9 eyes of 9 patients of which 2 cases were orbital myocysticercosis, 2 frontal and 2 ethmoidal mucocele, 1 haematic cyst and 1 hydatid cyst. Trauma was responsible for 4 cases of unilateral proptosis. One patient presented with bilateral proptosis due to sarcoidosis. Diagnosis was not confirmed in 2 cases of unilateral proptosis (1.1%). Etiologic profile is shown in (Table 2). Profile of neoplastic proptosis in paediatric and adult age group has been shown in
(Table 3) and (Table 4).

Table 3: Neoplastic proptosis in 4M -15 Yrs age group

Type of neoplasia	No. of eyes involved (Total eyes=17)
Retinoblastoma	13
Rhabdomyosarcoma	1
Optic nerve glioma	1
Teratoma	1
Neuroblastoma	1

Table 4: Neoplastic proptosis in >15 yrs age group

Type of neoplasia	No. of eyes involved (Total eyes=53)
NHL	14
Sinonasal malignancy	12
AML	6
Lacrimal gland neoplasia	5
Neurofibroma	3
Optic nerve sheath meningioma	3
Eye lid malignancy involving orbit	2
Metastasis from breast, prostate and lungs	5
Eosinophilic granuloma	2
Fibrous dysplasia	1

Discussion

Proptosis is not very common in ophthalmology practice but its varied presentation and etiology need to be carefully evaluated as it may be vision threatening and even a sign of a life threatening systemic diseases. This study showed a male predominance similer to the finding by Khan et al Loganathan and Radhakrishnan[6] and Sharma et al[7] but unlike the study by Zaidi SH et al[8] which showed a female predominance. Unilateral proptosis was more common in this study as was found by S. Guthorpe JD and Hochman M.[9] Neoplastic proptosis (41.91%) was the commonest variety found in this study. Similer results were obtained by several other studies.[10,11] Neoplastic etiology probably explained the predominance of unilateral and non-axial proptosis in this study. Thyroid ophthalmopathy was the second most common (15.56%) cause of proptosis found by us. As this is a tertiary care hospital, early cases might have been treated in the dapartment of endocrinology. This study showed frequent occurrence of bilateral proptosis in thyroid ophthalmopathy which is consistent with the findings by Naidu et al. Orbital cellulitis was the most cause of proptosis showed by several studies[12] though we found it the third most common variety accounting for 11.37% cases. This could be due to early diagnosis and treatment with potent antibiotics

of nasal and paranasal infections by the otolaryngologists. In paediatric age group neoplastic proptosis was most frequently encountered (17 eyes, 46%) which is consistent with the findings by Chandana Chakraborti et al.[13] Other causes included congenital lesions, vascular lesions, orbital cellulitis and trauma. In our study, orbital cysticercosis was found in 2 eyes (1.19%) making it a rare one which is similer to the finding by Kruger et al.[14] Diagnosis was not confirmed in 2 cases. According to A. Mordata,[15] some cases remain unexplained for which orbital exploration might be needed.

Conclusion

This study showed a large number of proptosis cases which were neoplastic. This might be alarming. But again, being a tertiary care centre, a large number of cases were referred from different specialities. So to get a more precise picture of etio-pathologic profile of proptosis, a population based study is necessary in this part of eastern India.

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