



Etiological Profile of Proptosis – A Prospective Study

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ABSTRACT

Purpose: To analyze the etiological profile of proptosis and to evaluate the outcome following treatment.

Materials & Methods: All patients with proptosis, who attended the ophthalmology outpatient department at a tertiary care hospital during a period of one and half years were included in the study. Information regarding history and clinical presentations were recorded. Patients were examined clinically and necessary investigations were done to confirm the etiopathological diagnosis. Treatment modalities were decided depending upon the etiology. Follow up was done after 1 week, 3 week, 6 week, 3 months, 6 months subsequently following treatment. Final analysis was done at 6 months follow up. In a period of one and half years, 40 patients were evaluated.

Results: 42.5% had inflammatory diseases, 35% with thyroid associated ophthalmopathy, 12.5% were neoplasms, 5% were trauma, and 2.5% each were vascular and other category. 72.5% were treated medically and 7.5% treated surgically. On final analysis, 52.5% were fully recovered, 40% were partially recovered, and 7.5% were not recovered following treatment. 40% had improvement in vision while 2.5% had worsening following treatment due to development of complications.

Conclusion: Proptosis being a symptom can be due to various diseases affecting the orbit. It can be symptomatic or asymptomatic depending upon the etiology and associated clinical features. The final visual outcome is fairly good with early diagnosis and prompt treatment.

Keywords: Proptosis, visual acuity, exophthalmometry, visual outcome, recovery.

INTRODUCTION

Proptosis is defined as abnormal protrusion of the eye ball in relation to the skull, while the patients look straight ahead¹. As orbit is a non expansile closed box, bounded on its sides and behind by bony walls¹, any demands for increased

accommodation within it either by inflammatory infiltration, neoplastic growth, edematous fluids, or blood, or any encroachment from without by swelling around it can be met only by pushing the globe forward resulting in proptosis. Studies shows incidence of orbital disease causing proptosis varies among different geographic areas.

Most common cause of unilateral/ bilateral proptosis in adults is thyroid eye disease². In children, unilateral proptosis is often due to an orbital cellulitis and, in bilateral cases, neuroblastoma, and leukemia are the likely causes. Among orbital tumors 60 % are benign and 40 % malignant². Malignant lesions are more common in adults. In Children 90 % of orbital tumors are benign². Depending up on the etiology there may be associated systemic illness like lymphoma, thyroid disorders, and other malignancies elsewhere in the body. Delay in early diagnosis and appropriate management has its attendant danger of loss of vision or even life threatening complications. Here lies the importance of understanding the various etiological factors causing proptosis. Disease specific management at an early stage will prevent further disease progression and complications.

MATERIALS AND METHODS

In a tertiary care hospital based prospective study, all patients with proptosis who attended the ophthalmology outpatient department, during a period of one and half years were studied. After taking a thorough history, patients underwent detailed general, systemic, and ocular examination along with necessary investigations for confirmation of diagnosis. Care was taken to exclude the cases of pseudoproptosis. Best corrected visual acuity and refraction of both eyes were recorded. Slit lamp examination was done. Evaluation and measurement of proptosis was done. Reading of both eyes were recorded and compared. Vertical and horizontal displacements were taken in case of eccentric proptosis. Associated anterior segment signs were noted. Special attention was given for examination of ocular movements for any restriction, pupil for relative afferent papillary defect (RAPD), recording of intraocular pressure, examination of fundus by direct and, indirect ophthalmoscopy and B scan if needed. Depending up on the clinical diagnosis various investigations like routine blood investigations, thyroid function test, CT or MRI,

FNAC or biopsy was done for confirmation of etiopathological diagnosis. Treatment modality whether medical, surgical, combined or conservative therapy to be given was determined depending on the etiology. Inflammatory cases like orbital cellulitis were treated with intravenous and topical antibiotics, anti-inflammatory drugs, and analgesics. Invasive fungal sinusitis with orbital cellulitis was treated with systemic anti fungals along with intravenous and topical antibiotics, anti-inflammatory drugs, and analgesics. Pseudo tumor cases were treated mainly with steroids and symptomatic therapy. Steroid was given to patients with TAO with active inflammation along with antithyroid drugs and other symptomatic measurements to prevent complications. Those who developed complications were treated accordingly. Neoplasms and vascular causes which required surgical intervention were treated with the assistance of Neurosurgeon and ENT surgeon. Those patients who may not be benefitted from either medical or surgical therapy were treated conservatively. Follow up was done after 1 week , 3 week, 6 week, 3 months, 6 months, subsequently following treatment. On each review, vision recording and exophthalmometry readings were noted to assess the outcome following treatment and looked for any development of complications.

RESULTS

The study included 40 cases of proptosis who satisfied the inclusion criteria. Data entered in Microsoft excel and analyzed using SPSS version 16 software. Qualitative variables were summarized using percentage and frequencies. Quantitative variables were summarized using mean and standard deviation. Association was checked using Chi – square test and Fisher’s Exact test.

Figure 1: Incidence Of Orbital Diseases causing Proptosis

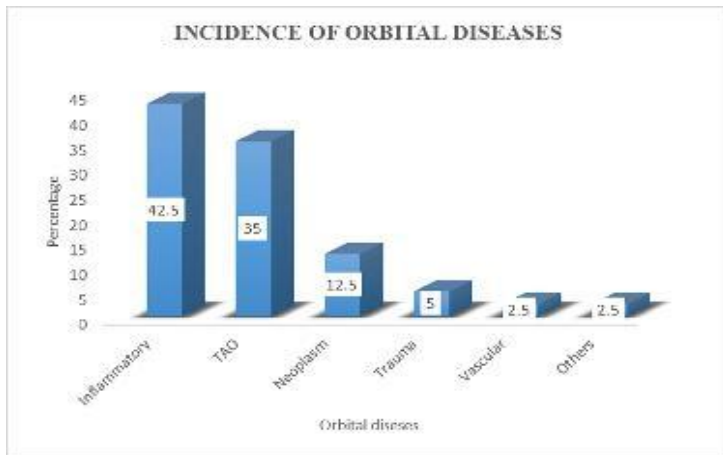
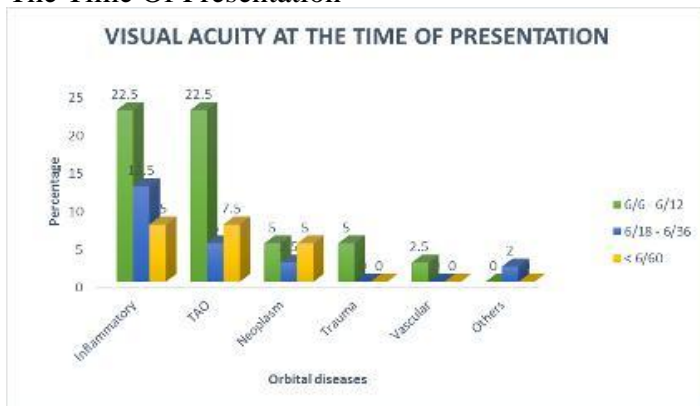


Figure 2: Orbital Diseases And Visual Acuity At The Time Of Presentation



Chi-square value is 71.501 and p value is 0.00.

Figure 3: Treatment Modality

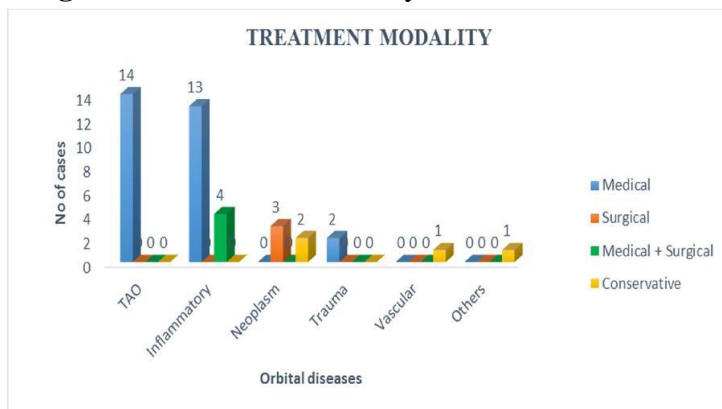
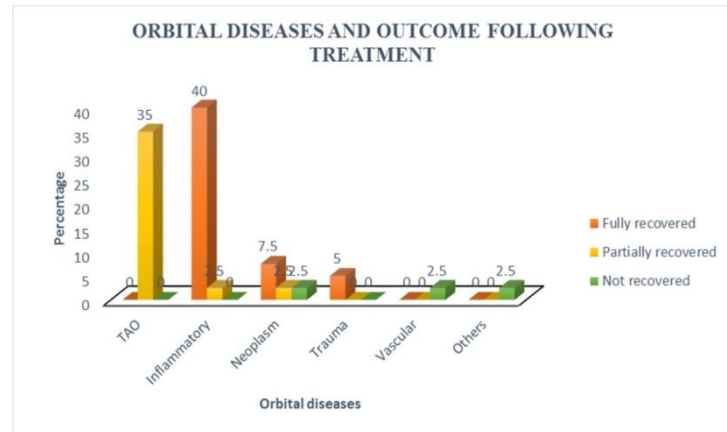
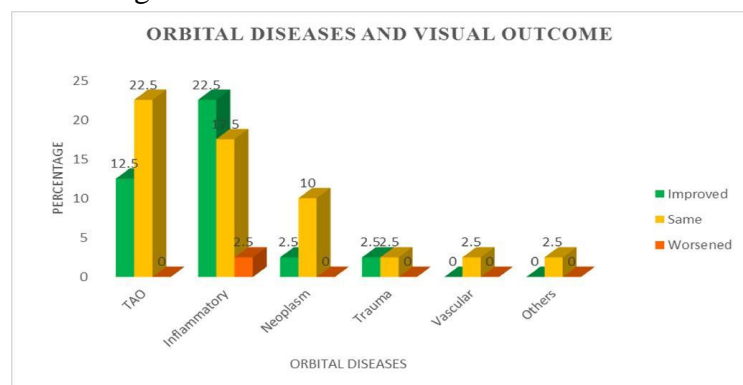


Figure 4: Orbital Diseases And Outcome Following Treatment



Chi-square value 1.458 and p value 0.00.

Figure 5: Orbital Diseases and Visual Outcome Following Treatment



Chi-square value is 71.052 and p value is 0.00

DISCUSSION

The present study showed orbital inflammatory diseases as a major cause accounting to 42.5% which is similar to Sharma P et al³ study and Kennedy series. Other disorders in decreasing order of frequency being TAO (35%), neoplasms (12.5%), trauma (5%), vascular (2.5%) and other category (2.5%). Out of the 17 cases of orbital inflammatory diseases, 9 cases (52.94%) were infectious and 8 cases (47.06%) were non infectious. Among the 9 infectious cases 7 cases (47.06%) were bacterial and 2 cases (11.76%) were fungal in origin. Association of fungal orbital cellulitis with diabetes is seen in studies by Ferry and Abedi et al (81%) and Yohai⁴ et al (60%). Analyzing etiology, this study showed sinusitis as a major cause of orbital cellulitis. Studies by Wright et al and Bergin et al⁵ showed

similar results. Regarding non infectious causes, the incidence was 47.06% and all the cases were pseudotumors in this study while Scartozzi et al and Shields et al⁶ series showed an incidence of 11.%. The peak incidence was seen in the age group >60 years⁷ The incidence of TAO was 35% which is in accordance with literature⁸. Most commonly affected age group was between 40- 60 years (50%). Females were predominated⁹ with 71.43%. 64.29% were unilateral and 71.43% were euthyroid. Among the neoplasms which constitutes 12.5%, maximum incidence was seen in the sixth decade similar to Rootman¹⁰ and Henderson series. There was female preponderance with 4:1 ratio. Other cases included in this study were 2 cases of RBH, one case of CCF and one case of NF 1 with trigeminal schwannoma. Trauma cases treated medically and others conservatively. Vision was affected in 57.5% of the study subjects and most of them had inflammatory diseases (27.5%). 80% of neoplasm had vision affected at the time of presentation. Least affected was TAO. 57.5% had visual acuity falling in the range of 6/6 to 6/12. Majority of study subjects received medical treatment (72.5 %) which includes all cases of TAO (48.26%) and most of the inflammatory diseases (44.83%). When comparing orbital diseases with outcome following treatment by recording the exophthalmometric value at 6 months, it was found that, 57.5% had full recovery in which 40% were inflammatory diseases, 40% had partial recovery in which 35% were TAO, and 7.5% had no recovery. Orbital diseases and visual outcome were compared. Visual improvement was noticed in 40% of cases in which 22.5% were inflammatory and worsening was noticed in 2.5%. Though vision was affected in 64.71% of inflammatory diseases at the time of presentation, by early diagnosis and proper treatment 52.94% had visual improvement on follow up and worsening in 5.88% due to development of complication.

CONCLUSION

The most common orbital disorder causing proptosis was found to be inflammatory disease. The maximum incidence was seen in the age group >60 years and least in 11- 30years. Female to male ratio was found to be 1.6:1. Most of the cases were unilateral. Axial proptosis predominated over eccentric variety. Majority of patients received medical treatment. Response to treatment was full recovery for majority. Visual improvement was more for inflammatory diseases. This study concluded that importance lies in early diagnosis, timely intervention, and prevention of complications as it can cause potentially blinding and even life threatening events.

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