

## Original articles

# Pattern of orbital exenteration at a tertiary eye care centre in North India

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### Abstract

**Objective:** To analyze cases undergoing orbital exenteration in terms of demographic and socioeconomic profile of patients, indications for surgery, histopathological diagnosis and to assess the magnitude of eyelid malignancies as indication of orbital exenteration.

**Materials and methods:** A case record analysis of 25 patients who underwent orbital exenteration at a tertiary care centre in India between October 2002 and October 2007 was undertaken. The case records were reviewed to obtain demographic data, presenting symptoms, duration of symptoms, laterality, best-corrected visual acuity (BCVA), and the clinical and histopathological diagnosis.

**Results:** The age group of patients undergoing exenteration ranged from 1 year to 78 years (Mean  $46.92 \pm 10$  years). Proptosis and/or a palpable mass were the main presenting complaints in 80 % of cases. The duration of symptoms was more than 5 years in 80 % cases. Primary orbital malignancies were the commonest indication for exenteration and were diagnosed in 11 cases (44 %), followed by lid malignancies in 8 cases (32 %), retinoblastoma in 4 cases (16 %) and conjunctival malignancies in 2 cases (8 %). Sebaceous gland carcinoma was the commonest lid malignancy followed by basal cell carcinoma and squamous cell carcinoma.

**Conclusion:** Lid malignancies contribute the majority of the patients undergoing orbital exenteration in this part of the world, leading to an extreme sacrifice of eyes with good visual acuity. Increase in awareness, early diagnosis and prompt referral may help to overcome this grim scenario.

**Key-words:** orbital exenteration, sebaceous gland carcinoma, eyelid malignancy

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### Introduction

Exenteration of orbit, a mutilating surgery, is performed mainly for advanced primary and secondary orbital tumors. Exenteration not only is sight losing, but also disfiguring and carries a lot of psy-

chosocial morbidity for the patient. This study was conducted to review the profile of patients undergoing orbital exenteration, their clinical indications with emphasis on secondary orbital tumors in eyes having good visual acuity.

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### Materials and methods

This study is a tertiary care centre based, consecutive case record analysis conducted on patients who

underwent orbital exenteration at a tertiary care centre in North India between October 2002 and October 2007. Case records of 25 patients who underwent exenteration at Department of Ophthalmology of this centre by a single surgeon were reviewed. Data for demography, socio-economic status, symptomatology, laterality, general, systemic and local physical examination, visual acuity, and pre-op diagnosis made on clinical, radiological (CT scan) and histopathological basis was retrieved, tabulated and analyzed.

### Results

All cases (100 %) belonged to low socio-economic class as per Kuppusamy Scale (Mishra et al 2006). Twenty males (80 %) and 5 females (20 %) underwent orbital exenteration. Male: female ratio was 4:1 in our study. Age-wise distribution of cases revealed maximum number of patients (10 cases) > 60 years (40 %) followed by 6 cases between 41 to 60 years (24 %). There were four patients (16 %) between 21-40 years and 5 patients (20 %) between 1-20 years. Duration of symptoms was more than 5 years in 20 patients (80 %). Three patients (12 %) had symptoms for past 2-5 years while 2 patients (8 %) had symptoms for less than 2 years. Primary orbital malignancy was diagnosed in 10 cases (50 %), lid malignancy in 6 cases (30 %), 2 cases (10 %) were diagnosed with retinoblastoma, 1 case (5 %) with conjunctival malignancy and 1 case (5 %) with recurrent lacrimal gland tumor. Mode of hospital visit was direct in 7 cases (28.0 %) while 18 cases (72 %) were referred from smaller health care centers.

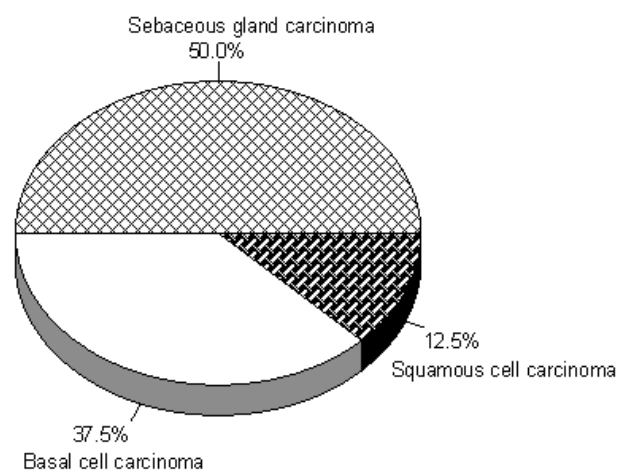
Out of the referred cases, 8 cases were of eye-lid malignancies (44.4 %), 6 cases of primary orbital malignancies (33.4 %), 2 cases of retinoblastoma (11.1 %) and 2 cases were of conjunctival malignancy (11.1 %). More than 80 % of lid and conjunctival masses had been excised earlier at periphery and have either recurred or have persisted.

Analysis of symptoms and clinical examination revealed presence of proptosis (Measured on Hertel's Exophthalmometer) in 20 cases (80 %) and expo-

sure keratopathy leading to redness and watering in 16 cases (64 %). Palpable lid mass occurred in 8 cases (32.0 %). No evidence of distant metastasis was seen in any case. Of the total 25 exenterations performed, 20 cases were on right side (80 %), while 5 cases were on left side (20 %).

Clinico-radiological diagnosis revealed that 17 cases (68 %) had primary orbital pathology while 8 cases (32 %) had secondary orbital pathology following lid malignancies. Among secondary orbital lesions, post-operative histopathological examination revealed sebaceous gland carcinoma to be the commonest lid malignancy (50 % cases), followed by basal cell carcinoma (37.5 %) and squamous cell carcinoma (12.5 cases).

### Histopathological diagnosis of secondary orbital lesions



Analysis of pre-operative Best Corrected Visual Acuity (BCVA) in the operated eye revealed that 2 cases (8 %) with no perception of light (PL) in the involved eye. Nine eyes (36 %) had BCVA of perception of light/ hand movements close to face. Eight eyes (32 %) had vision between finger counting close to face and 20/200 on Snellen's chart. Six eyes (24.0 %) had vision better than 20/200. Low BCVA was due to more than one cause (Fig.6). Six eyes of cases with eyelid malignancies had BCVA of more than 20/200.

### Discussion

Orbital exenteration is an anatomically and psycho-

logically disfiguring procedure reserved for the treatment of potentially life threatening orbital malignancies or relentlessly progressive conditions unresponsive to other treatments. Review of literature from various case series indicate the mean age group of patients at the time of exenteration to be above 60 years. At our set up, we found it to be 46.92 years. Lower age at the time of exenteration may be attributed to the higher percentage of lid malignancies (32 %), ignored, misdiagnosed and mismanaged in past which became an indication for orbital exenteration.

Although no sex predilection was found in other studies we found 4:1 male:female ratio. This might be reflective of the social bias towards male dominance in this part of the world. Males being the earning member of family get priority in health issues by the family. Mean duration of symptoms at the time of surgery was found to be 6 years in our study which is considerably higher than study conducted by Taylor et al (2006) who found it to be 10 months. This again reflects ignorance and poverty in this part of world.

More than 80% of lid & conjunctival masses had been excised earlier at the outset and have either recurred or have persisted due to the failure of treatment. This shows that misdiagnosis and mismanagement of diseases at smaller health centers further extended the duration of illness and ultimately the disease culminated into exenteration. Role of previous treatments was also emphasized by Rahman et al (2005).

Of the total 25 exenterations performed, 20 cases were on right side (80 %) while 5 cases were on left side (20 %). Left dominant laterality was found in study conducted by Taylor et al (2006). However this difference appears to be coincidental. Significance of secondary tumors especially from the eyelids was emphasized by Nemet et al (2007) and Gunalp et al (1995) in their studies.

The chief indication of exenteration has been different in various studies of past. Emphasis on paranasal sinus tumors was given by Levin et al

(1991) while basal cell carcinoma was the chief indication in study of Rahman et al (2005). Significance of squamous cell carcinoma was laid upon by Atique Tacla et al (2006) and Ben Simon et al (2005). On the contrary, Taylor et al (2006) found malignant melanoma to be the chief indication of exenteration in their study. Similar study in India was conducted by Pushker et al (2004) who also found higher incidence of squamous cell carcinoma and sebaceous gland carcinoma culminating into exenteration. Thus geographical factors appear to have an influence over the prevalence of different orbital malignancies in various parts of the world.

Analysis of BCVA in eyes undergoing exenteration was done by Atique-Tacla et al, (2006) which ranged from 20/40 to no light perception. Our findings are in concurrence. In our study, 24 % of the exenterated eyes had BCVA more than 20/200. 85.71 % of the cases with lid malignancies had BCVA more than 20/200. Such significant loss of seeing eyes is a grim scenario in this part of the world.

### Conclusion

Our analysis draws attention to the fact that a large section of orbital exenterations was performed in middle aged population with seeing eyes. Primary lid malignancies that were misdiagnosed and mismanaged elsewhere in the early stage of disease contributed to the majority of the exenterations performed. Thus increase in awareness, better training and improved diagnostic modalities for lid and orbital diseases are the need of day to prevent the loss of seeing eyes in a socio-economically challenged society.

### References

- Atique-Tacla M, Paves L, Pereira MD, Manso PG (2006). Exenteration: a retrospective study. *Arq Bras Oftalmol*;69:679-82.
- Ben Simon GJ, Schwarcz RM, Douglas R, Fiaschetti D, McCann JD, Goldberg RA (2005). Orbital exenteration: one size does not fit all. *Am J Ophthalmol*; 139:11-7.



Günalp I, Gündüz K, Dürük K (1996). Orbital exenteration. A review of 429 cases. *Int Ophthalmol*; 19:177-84.

Levin PS, Dutton JJ (1991). A 20 year series of orbital exenteration. *Am J Ophthalmol*; 112:496-501.

Mishra D, Singh HP (2003). Kuppuswamy's socioeconomic status scale- a revision. *Indian J Pediatr*; 70: 273-274.

Nemet AY, Martin P, Bengner R, Kourt G, Sharma V, Ghabrial R, Danks J (2007). Orbital exenteration: a 15-year study of 38 cases. *Ophthalm Plast Reconstr Surg*; 23:468-72.

Pushker N, Kashyap S, Balasubramanya R, Bajaj MS, Sen S, Betharia SM et al (2004). Pattern of orbital exenteration in a tertiary eye care centre in India. *Clinical & Experimental Ophthalmology*; 32:51-54.

Rahman I, Cook AE, Leatherbarrow B (2005). Orbital exenteration: A 13 year Manchester experience. *Br J Ophthalmol*; 89:1335-40.

Taylor A, Roberts F, Kemp EG (2006). Orbital exenteration-A retrospective study over an 11 year period analyzing all cases from a single unit. *Orbit*; 25:185-93.

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