Sino-Orbital Tumour- Exenteration

History

60 yr old male presented with a history of chronic nasal obstruction caused by a nasal mass diagnosed 3 months previously and associated with headache and difficulty in opening the left eye for the past one month (Fig 1)

O/E The left nasal cavity is filled with a mass lesion, with plenty of nasal discharge and bleeding on probing was also noticed. There was a mass in nasopharynx in (L) choana and the infraorbital margin (L) appeared soft

Investigations

X ray PNS: (L) Maxillary sinus hazy with destruction of bone

CT Scan: Malignant mass involving sinonasal cavity (L) side with extension to adjacent structures. Evidence of acute right maxillary sinusitis was also noticed. (Fig 2 a & b)

Fig. 2. a & b : CT scan demonstrating mass filling sinonasal cavity (L) side with extension into adjacent structure and evidence of (L) maxillary sinusitis

Biopsy from (L) nasal cavity was carried out and a histopathological evaluation was performed. The histopathological study revealed a Sinonasal non-keratinising squamous cell carcinoma

Fig. 1. Full face view showing narrow palpebral aperture left eye and hypotropic position of the globe on left side

Fig. 3. a & b : Showing the globe in 15-20° Hypertropia and abduction with gross restriction of adduction and depression
The patient was advised maxillectomy with orbital exenteration after a thorough ophthalmic evaluation. Ophthalmic evaluation revealed a visual acuity of 6/6 in right eye and 6/9 in left eye. The left eye showed 15-20° hypertropia with abduction (Fig 3 a and b). Adduction and depression were absent. Both eyes also had incipient cataracts. Fundus evaluation in the right eye was normal while in the left eye the inferior half of the fundus could not be evaluated as depression was greatly restricted.

A left (L) total maxillectomy with orbital exenteration done under general anaesthesia and the specimen was subjected to histopathological examination (Fig 4 a and b).

The histopathological study showed a sinonasal non keratinizing squamous cell carcinoma.

**Prognosis**

The prognosis of maxillary sinus tumour depends upon the staging of the tumour. Advanced stage is associated with worse prognosis. T1 & T2 - 5 yr survival rate is 70% whereas T3 & T4 - 5 yr survival rate is only 30%.

**Treatment**

Previously radical excision with orbital exenteration was done for all cases of orbital involvement. Currently, preoperative radiotherapy and / or chemotherapy preferred if there is only orbital wall involvement with preservation of periosteum. But with extension of the tumour mass into the orbital contents, as in this case, orbital exentration is the only option.

**Orbital exenteration**

**Indications**

1. Malignant tumours of eye and ocular adnexa
2. Malignant tumours extending to orbit from cranium or PNS
3. Severe trauma
4. Congenital deformities of eye and orbit
5. Mucormycosis and fungal diseases of orbit
6. Occasional cases of severe orbital contracture

Most common ophthalmic indication for orbital exenteration is basal cell carcinoma of lid extending to orbit in Speath's series of 38 cases. Basic principle of exenteration is to remove all diseased tissue while preserving as much normal tissue as possible. It can range from extended enucleation or partial exenteration to radical procedure.

The simplified method of exenteration is the proposed by Coston & Small if eyelid can be saved.
**Technique**

The periosteum is incised around the entire superior, medial and lateral circumference of orbit; the inferior segment is excised with the en bloc resection of maxilla. Periosteal elevators, then elevate the periorbita to the apex of orbit. With the globe retracted down and medially, a curved clamp is then passed through the inferior orbital fissure to grasp the Gigli saw. Occasionally fracture of some thin bone will be required to introduce the clamp. If it is not possible to pass the clamp, the lateral orbital rim is sectioned using a sagittal plane saw. Directing the Gigli saw upward and forward transects the lateral orbital rim. The optic nerve is severed midway between the globe and optic foramen or as far as posterior as indicated. Avoid excess traction on the optic nerve because it may produce damage to optic chiasma and subsequent visual field defects in the opposite eye. The ophthalmic artery which is medial to the optic nerve is ligated. Within the fat pads are small vessels that should likewise be ligated.

**References**

3. Smith’s “Ophthalmic Plastic and Reconstructive Surgery”; 2nd Edition; Mosby publication; 1998; Chapter 50; Orbital exenteration; Pgs 931-944 and Chapter 48; Paranasal disease and Orbit; Pgs 896-927.