

# UNILATERAL PROPTOSIS IN E.N.T. PRACTICE

Pages with reference to book, From 248 To 250

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## ABSTRACT

Seventeen cases of unilateral proptosis aged 11-54 years are presented. The proptosis was due to mucormycosis in 7, ethmoid polyposis in 4, malignancy in 4, and one each due to Ringert's tumour and fibrous dysplasia. Surgery was performed in all cases with the aim of total extirpation of disease and orbital repositioning. The surgical approaches included transverse maxillary osteotomy, transantral ethmoidectomy, modified lateral rhinotomy, and orbital decompression. There was one fatality, and two recurrences. Three cases showed satisfactory and eleven excellent results (JPMA 41:248, 1991).

## INTRODUCTION

The term 'exophthalmos' and 'proptosis' are usually used synonymously but a subtle difference must be kept in view to define such conditions of the eye - which involve a change in the horizontal plane of the orbit<sup>1</sup>. Majority of cases of unilateral or bilateral proptosis are seen by ophthalmologists and only few are referred to E.N.T. department for evaluation and treatment. Surgical management depends upon the treatment of the cause. In a simple pathology like nasal polyposis little more than ethmoidectomy is required, but in extensive lesions, various approaches have been recommended for orbital decompression and relief of symptoms<sup>2-6</sup>. A particularly sinister disease, recognized only lately but on the increase every day, is the mycotic infections of the deep paranasal sinuses, such as rhinocerebral mucormycosis and cephalic aspergillosis<sup>7-11</sup>, which seems to be affecting young, healthy and otherwise immunocompetent patients in Pakistan. This is much in contrast to the incidence of these infections in Europe and U.S.A., where only the immunocompromised and metabolically moribund patients, are affected<sup>10,11</sup>. Despite aggressive surgical and rather toxic medical treatment, results in fungal disease causing proptosis are not quite upto the mark<sup>16,17</sup>.

## PATIENTS AND METHODS

Seventeen cases of unilateral proptosis seen either in this department primarily, or referred from the departments of Ophthalmology or Neurosurgery, between April, 88 to March, 90 were included in the study. The presenting features included unilateral orbital proptosis marked diplopia, a fixed gaze, worsening headache, epistaxis, unilateral or bilateral nasal obstruction, nasal mass and anosmia. Routine E.N.T. examination was supplemented with detailed ophthalmological evaluation and neurological assessment. In addition to the standard laboratory investigations, radiological examination was carried out. Water's view, Caldwell's view, the Law's lateral view, and the skull base view were recorded in all cases. To establish the nature and extent of disease, computerized scanning (C.T.) was performed in all patients. Nasopharyngoscopy with a fiberoptic flexible endoscope was performed and a biopsy was taken when indicated. Surgical approaches include transverse maxillary osteotomy alias Le-Fort I osteotomy, Horgan's ethmoidectomy, modified lateral rhinotomy, and Ogura's orbital decompression technique. Orbital exenteration was performed in extensive cases, and the repair carried out using a pericranial flap, or a temporary prosthesis, followed by an artificial eye.

## RESULTS

Of 17 cases there were 9 females and 8 males with ages ranging between 11-54 years. (mean = 32 years). Majority (70%) were in the second or the third decade of life. None of the patients suffered from diabetes, AIDS, or immune deficiencies. Clinical examination revealed that 3 cases were blind in the affected eye, 7 showed significant error of refraction, 6 prominent disc changes, and 2 papilloedema. Epistaxis was the presenting feature in 5 cases and 9 complained of unilateral or bilateral nasal obstruction. All the patients presented with unilateral proptosis of moderate to severe degree. Telorism was observed in 4, bilateral nasal mass in 3 and nasopharyngeal mass in 2 patients. Routine radiographs demonstrated the involvement of maxilloethmoid complex, bony erosion, periorbital mass, nasal or nasopharyngeal mass. The CT. scans confirmed the extent of disease and involvement of the skull base in 4 patients. Trans-antral ethmoidectomy was performed for removal of disease in 4 patients, with extensive aspergillosis. Orbital decompression, using Ogura's method was carried out in 5 patients, which resulted in satisfactory repositioning of the affected orbit. Two patients underwent orbital exenteration for adenoid cystic carcinoma and extensive mucormycosis respectively, resulting in unsightly orbital defect and exposure of the frontal dura. Repair was carried with a pericranial flap and a ping-pong ball wrapped in a dermal graft was used as a temporary prosthesis. None developed any intracranial complication, due to proper cover with antimicrobial agents and infusion of metronidazole. Both these patients underwent postoperative irradiation and chemotherapy. One patient died following a skull base resection, due to uncontrollable bleeding from an aberrant artery in the perisphenoid region, resulting in intracerebral haemorrhage and coma. Another sustained severe intraoperative haemorrhage from the ophthalmic artery, requiring ligation of ipsilateral external carotid artery, and temporary occlusion of the common carotid. She developed temporary hemiparesis, which improved in due course. There have been 2 recurrences with nasopharyngeal malignancies. Both these patients are currently receiving adjuvant chemotherapy, with guarded prognosis. Three patients have shown adequate repositioning of the orbit, total extirpation of disease and minimal facial scarring, but they suffer from atrophic rhinitis. Eleven (64.8%) patients have responded extremely well to the treatment, without any evidence of recurrence so far.

## DISCUSSION

Unilateral proptosis is seldom treated by an otolaryngologist; but when required, a comprehensive head and neck examination including the evaluation of C. N.S. must follow a carefully taken history. Particular emphasis must be laid upon the mode of onset, duration of proptosis, loss of acuity of vision, chemosis, ecchymosis, nasal bleeding, nasal mass, faciomaxillary prominence, a palatine bulge, rhinolalia clausa, foul swelling nasal discharge, worsening headache and history of low grade chronic repeated sinus infection - all of which could be pathognomonic of mucormycosis, aspergillosis, nasal, nasopharyngeal or a sinus malignancy. An essential method of evaluating proptosis is to perform 'exophthalmometry' with 'Hertel's exophthalmometer'. The normal values range from 14-20 mm for the lateral projection of cornea. A difference of 2 mm or more between two corneas would indicate proptosis<sup>13</sup>. Flexible endoscopy is a useful tool in evaluating occult primaries such as those in the nasopharynx. A biopsy is indicated in all except vascular pathologies, e.g., an angiofibroma. Routine radiology is helpful in diagnosis as indeed is ultrasonography. The latter is a non-invasive procedure but not quite so frequently used in the head and neck region. Four types of mass patterns can be discerned with a 'B' Scanner in orbital ultrasonography, namely solid, cystic, vascular and invasive<sup>14</sup>. Computerized scanning is somehow, quite illusive in evaluating a periorbital mass. A linear cut at 5mm or so is liable to miss the involvement of lamina papyracea, which is an extremely thin bony septum. Hence the decision, whether or not, to remove the orbital contents cannot be based upon the C.T. findings. M. R. I. seems to offer new hopes, with the advantage of lack of irradiation, and the ability to

obtain coronal or sagittal images without simulated reconstructions. About 90% of the cases of unilateral proptosis have primary pathology in the orbit itself. Remaining may be derived from the neighbourhood, e.g., the nose, ethmoids, maxillary sinuses, sphenoidal sinus, the frontal sinuses, the nasopharynx, and the skull base<sup>15</sup>. Nasal polyps may cause displacement of one or both orbits. Broadening of the nasal root in such cases is called 'Telorism'. However, sometimes benign nasal polyps may damage the lamina papracea resulting in unilateral proptosis on the affected side. Rarely such a polyp may turn malignant and become highly aggressive. Therefore, a flashy bleeding nasal polyp in an elderly patient must be subjected to biopsy. Fungal infections of the paranasal sinuses seem to be gaining ground lately. A case of chronic maxillary sinusitis, not responding to standard treatment must be suspected of aspergillosis as indeed should a case of unilateral proptosis with a blackish sanguinous nasal discharge or a pigmented fragile mass in the nasal cavity<sup>16</sup>. These mycotic infections are liable to destroy the base of skull and invade the intracranial structures. In addition to radical surgery, as mentioned below, antifungal treatment with Ketaconazole, Fluconazole or Amphotericin-B is mandatory<sup>17</sup>. In this series transverse maxillary osteotomy or Le-Fort Type 1 osteotomy<sup>12</sup> was used as an approach to the skull base. It provided excellent exposure of the orbital apex and parasphenoid regions. However, this technique demands a sound knowledge of anatomy of this complex area, a good control over the operating microscope and dexterity, as untoward hazards are liable to occur if one is unguarded. Horgan's ethmoidectomy was used in some cases, providing excellent exposure of the maxillary sinus as well as the ethmoid complex. Posterior ethmoid cells and the areas beyond are not amenable to this approach, for which lateral rhinotomy is a good choice. Orbital decompression was carried out in this series, following Ogura's method<sup>2</sup>. It requires careful dissection of the nasolacrimal region, separation and preservation of the nasolacrimal duct as well as the sac, identification and preservation of the infra-orbital nerve, and piecemeal removal of the medial wall and a large portion of the orbital floor. Excellent repositioning was obtained without any complications. Exenteration of the orbit is indicated in malignancies invading the eyeball. Ophthalmic artery must be secured and ligated to prevent haemorrhage. A synthetic eye fitted at a later date can provide satisfactory cosmetic effect in these cases. To summarize one might say that infections causing unilateral proptosis should be treated with appropriate antibiotics, or anti-mycotic agents with or without the use of surgery. Pseudotumours are treated with steroids; endocrine exophthalmos is managed medically but may also require orbital decompression. Benign as well as malignant tumours affecting the orbit require aggressive surgical treatment through various approaches some of which are described in this article.

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