SONOLOGY IN ORBITAL HYDATID DISEASE

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Introduction

The larval form of *Echinococcus granulosus* (*Taenia echinococcus*) is found within the Hydatid cyst developing inside the intermediate host i.e. man. It represents the structure of the Scolex of the future adult worm and remains invaginated within a vesicular body. On entering the definite host the scolex with four suckers and rostellar hooklets becomes invaginated and develops into an adult worm.

Hydatid disease of the visual apparatus appears to affect the orbit while *Cysticercus cellulosae* (larval stage of *T.solium*) shows affinity for ocular involvement [1,2,4,5]. The predilection for the right orbit is more prevalent. However it does not rank amongst the commoner causes of proptosis. The disease is generally seen in the younger age group below 30 years, and is uncommon before the age of 10 years [3,6]. In the orbit, the nasal side is the favourite site probably because of the peculiar course of the Ophthalmic artery, which after giving off the lacrimal branches along the medial side of the orbit, divides into its terminal branches [7,13].

Case Report:

A seven-years-old female child belonging to the Muslim community, reported for Ultrasonographic scanning with complaints of gradual bulging of the right eye noticed since the last four months. There had been no association of pain, redness or watering from the affected eye, neither the child complained of any diminished vision. There was no history of trauma or any infection in the past. Clinical examination revealed significant proptosis of the right eye, the deviation being upwards & laterally. On palpation the margins of the orbit were well delineated and a diffuse firm mass was felt in the retrobulbar region, raising the globe superolaterally. Fundoscopy revealed exudative retinal detachment & oedematous changes in the Macula.

Patient was then taken up for Ultrasound scanning of the Orbit. The examination was performed with the patient in the supine position. A 7.5 MHz transducer with a conventional B mode Ultrasound scanner, L & T Medical Sigma 1 AC was used. A coupling jelly was used with the Transducer head held over the closed eye lids. Both eyes were scanned serially in both transverse and sagittal planes. The patient was instructed to move the eyeball

upwards, downwards, nasal and temporal side for better delineation of anatomy & demonstration of mobile intra ocular lesions. The relevant Images were recorded by a Multi format Camera.

The scanning of the left globe revealed no abnormality. However the affected right eye had features of retinal detachment with old vitreous haemorrhage. The retrobulbar region showed a well defined, encapsulated oval cystic mass lesion 32 mm in diameter, without any posterior acoustic shadowing or enhancement. The cyst was located in the retrobulbar region (intra-conal) medial to medial rectus muscle & in close proximity of the orbital wall. The contents were predominantly anechoic (Fig 1). The Optic nerve had a normal appearance.

The peculiarity of this cystic lesion, led to a conclusion of parasitic aetiology. A subsequent contrast enhanced, axial (Fig 2) & coronal CT Scan, though could not reveal any additional information, managed to help us study a considerable section of the Brain, which appeared normal. The lesion was surgically removed and histopathological report confirmed Hydatid disease.

Discussion

Hydatid disease in this era is considered a very rare aetiology of the retro bulbar cystic lesions. The modality of choice for Imaging of the retrobulbar structures in orbital diseases are Computerised Tomography & Magnetic Resonance Imaging. These provide superior

Fig. 1 : Ultrasound images depicting the well encapsulated intra-conal, retrobulbar cystic lesion. No posterior enhancement or shadowing. The optic nerve is free.

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Fig. 2 : Post contrast axial CT scan demonstrating the described low attenuating oval lesion. The visible sections through the brain are normal. The optic nerve is free as seen on USS.

images of posterior & apical parts of the orbit, adjacent sinuses and intra cranial structures with high resolution Thin sections, magnification techniques & capability to cut in coronal planes are added advantages. Ultra sound has the advantage of rapidity and accessibility, and its ability to identify the orbital walls, optic nerve extra ocular muscles & orbital masses make it a useful first line investigation in proptosis [9]. The other sonoluscent lesions in the retrobulbar region encountered, could be Orbital varices, where widening of the veins during a valsalva manoeuvre can be demonstrated on Ultrasound scanning. Cavernous haemangioma, a common tumour of adulthood, lies in the muscle cone and is encapsulated. The framework of acoustic interface produces a strong acoustic reflectivity [8]. Lymphangioma has a typical

clinical picture. They grow expansively & occasionally the central orbital space is also involved. Metastases undergoing necrosis or degeneration are rare but may present anywhere in the orbit. Oedema in retrobulbar fascia (Tenons' capsule) tracks along the optic nerve sheath to form a 'T' sign [10]. A mucocele is a smoothly outlined cystoid, extension of a paranasal sinus with a capsule like border.

Ultrasound scanning is noninvasive, cost effective, & an instant frontline modern modality which can be conveniently used in the OPD, with fairly high degree of diagnostic accuracy, especially in the investigation of retrobulbar mass lesions causing proptosis.

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