

INTRAOBITAL DERMOID: CT IMAGING

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ABSTRACT

A case of intraorbital dermoid was reported with the findings on the CT imaging
Revision of the articles on intraorbital dermoid was done

CASE REPORT

A 43-year-old female patient had the problem of left exophthalmos. CT scan of the orbits was performed with contrast enhancement. It showed a mass at the upper outer quadrant of left orbital cavity. The size of the mass was $1.5 \times 1.5 \times 5$ cm. The mass has well defined rim without calcification. There were two densities in the mass, i.e. soft tissue density component, 41.1 H.U., as a majority and smaller area of fat component at the superior part of the mass, -143.7 H.U. The medial margin was attached to the outer margin of the eyeball and the lateral margin to the lateral rectus muscle. The globe was displaced anteriorly and medially. There was no bone changes. The degree of enhancement could not be determined due to lack of noncontrast study. The lacrimal gland was shown to be well separated from the mass.

DISCUSSION

Dermoids are the most common congenital lesions of the orbits, accounting for 2% of all orbital masses (1,2). Ten percent of orbital region dermoids are intraorbital (3). Gorve (4) classified orbital region dermoids anatomically into subconjunctival, superficial subcutaneous, and deep groups.

Orbital dermoids occur as a result of developmental sequestration of ectoderm within the suture lines of the orbital bones (4). The most common location is the superior temporal quadrant at the frontozygomatic suture. Histologically, these lesion have a well-defined wall, with the outer portion consisting of a fibrous envelope containing sebaceous glands, hair follicles and sweat glands. These dermal appendages are not present in epidermoid cysts. The inner lining is a true epidermis with stratified squamous epithelium. The

central cavity contains laminated keratin and cholesterol crystals. Rupture of a dermoid lesion is a frequent event that is often clinically silent (5). Histologically, such an occurrence can induce granulomatous inflammation, as well as calcification and scar formation. Dermoids may extend in a dumbbell configuration through a bone canal to reach an extraorbital space such as the anterior or middle cranial fossa, temporal fossa, paranasal sinuses and through the orbital fissure (6).

Deep orbital dermoids typically present with proptosis in older children and adults. The posterior margins cannot be palpated (5). They have generally been described as having density similar to that of fat on CT scans (7,8). The presence of fat within an orbital mass lesion is virtually pathognomonic of a dermoid (9), especially since orbital lipomas and liposarcomas are extremely rare (2). Layering of different density components within the dermoid has been reported occasionally (10). Some dermoids had intermediate density, suggesting a cystic or partially fatty lesion (1). Lesions of muscle density, a pattern that is not very specific, represented the least common pattern (1), however, these lesions enhanced minimally or not at all. The margin is distinct with calcification. The lack of enhancement helps to differentiate dermoids from other orbital soft tissue tumors.

The bone changes with these lesions were particularly characteristic, especially the pattern of excavation. This pattern of notching reflects the origin within the suture followed by the slow erosion of bone as the lesion enlarges. Other bone changes are erosion, sclerosis and orbital enlargement. (1).

Nugent RA, et al (1) reported 13 deep lesions, the CT features are shown in the table 1.



Fig.1.A Axial view of the mass showed fatty component (-143.3 H.U.)

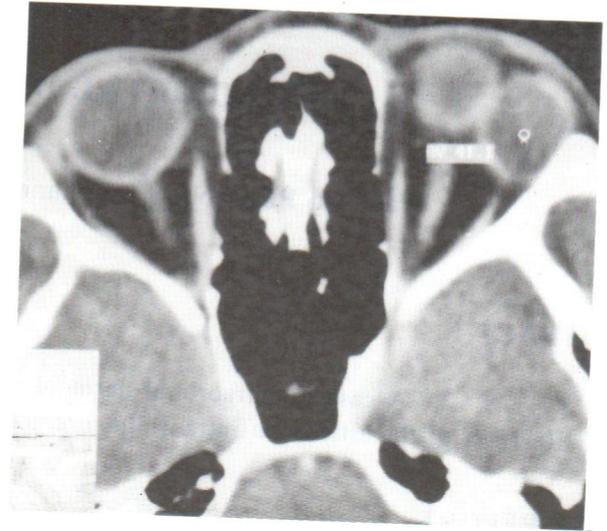


Fig.1.B Axial view of the mass showed soft tissue component (41.1 H.U.)

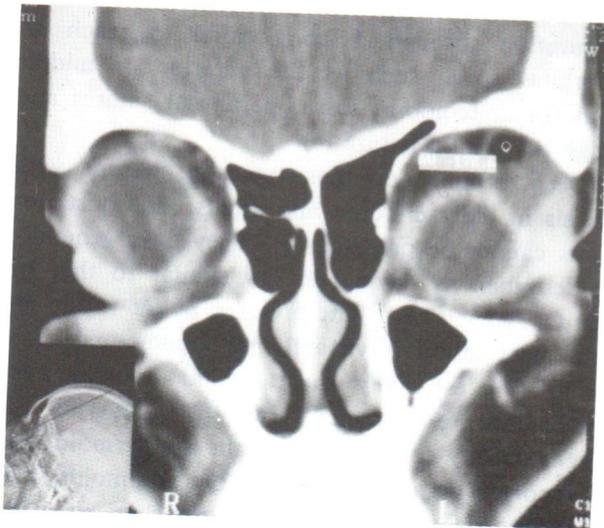


Fig.1.C Coronal view CT scan of the mass revealed fatty content (-172 H.U.)



Fig.1.D Coronal view CT scan of the mass showed soft tissue content (25.5 H.U.)

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Table 1. Summary of findings on CT scans in 13 patients with deep dermoid orbital lesions.

CT features	No. of cases
1. Location	
lateral	9
medial	2
inferior	1
intraconal	1
2. Density	
fat	5
muscle	4
intermediate	4
3. Rim	
no rim visible	6
rim with calcification	6
rim without calcification	1
4. Globe displacement	
none	1
downward	5
medial	2
axial	2
globe flattening	3
5. Size of lesion (mm)	
range	10-40
6. Increased orbital size	
no increase	4
general	5
focal	4
7. Bone changes	
none	2
thinning or notching	11
full thickness defect	3
linear	2
sclerosis	2
8. Contrast enhancement	2/5

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