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Case Report

Orbital Cellulitis: A Rare Case Report

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Abstract

Orbital cellulitis is common due to the infective etiologies. It can also rarely occur due to benign and malignant lesions. The differential diagnoses of orbital cellulites include mucormycosis (fungal infection), sarcoidosis and dysthyroid exophthalmos, neoplasia with inflammation, lymphoma, and glioma of optic nerve, pseudotumour and so on.

We here present a case of orbital cellulitis in 70 year female who was referred to us. She also complained of gradual, painless, progressive swelling in the left parietal region since 1 year. The soft tissue was also seen to extend in the left orbit as well as in left infra temporal fossa. The soft tissue in the orbit was extraconal and was displacing the eyeball infero-medially. No obvious invasion of the optic nerve or sclera was seen.

Keywords: Orbital Cellulites; Osteogenic Sarcoma; Parietal Bone; Orbit; Infra-Temporal Fosse; Extraconal Lesion.

Case Report

A 70 yr female came to the ophthalmology department with complaints of gradual, painless forward bulging of left eye along with restricted ocular movements in the same eye since 3 months. She also complained of painless swelling in the temporal region which was gradual and slowly progressing past 1 year. But now the swelling had progressed suddenly to approximately 5*3cm.The swelling was firm in consistency. There was no local rise of temperature. The overlying skin was intact. The swelling was tender. The patient was put on the treatment for orbital cellulites past 2 months for which she did not respond and so she was referred to us. She had no history of trauma, diplopia, sinusitis, any ocular surgery in the past. No history of diabetes mellitus, hypertension, tuberculosis, allergy etc.

She was afebrile, conscious, oriented of time, place and person. Pulse was 70 beats per minute BP was 130/80mmhg. Respiratory rate was 20cycles. She had signs of pallor. She had no signs of clubbing, icterus, lymphadenopathy, cyanosis and oedema.

B-scan was done. It showed extraconal soft tissue on lateral compartment displacing the eyeball medially. The lateral rectus appears separate. No invasion of the eyeball was noted. Incidentally noted was soft tissue in the left temporal region. It showed increased vascularity. The patient was not able to move the eye ball laterally.

CT scan was ordered for further evaluation of swelling over the parietal bone. Contrast enhanced CT scan was done. It showed erosive lesion in the left parietal bone. The lesion had wide zone of transition. The margins were not well appreciated. The cranial part showed linear onion peel like periosteal reaction. There was associated well defined soft tissue component in the intracranial as well as extra cranial compartments. The intracranial component of the soft tissue was seen to cause mass effect over the

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On Local Examination		
	OD	**OS**
Visual acuity	No PL	Fcat 1m
Head Posture	N	N
Facial Symmetry	Bilaterally Symmetry	-
Occular Movements	Phthisis Bulb	Restricted in all Directions
Eyebrow, Eyelid, Eyelash	N	N
Conunctiva	Atrophed	Chemosed
Cornea	Mated	Clear
A/C	-	**N Content Depth**
Iris	-	N Colour Pattern
Pupil	-	Sluggishly Reacting to light
Lens	-	Nuclear .....
Iop	N	N

Investigations	
HB	8gm%
WBC	12000ells per cubic millimeter (cmm)
Neutrophils	75%
LDH	375IU/L
Platelets	100000 Lakhs/cmm
ESR	30mm/hr
LFT	N
RFT	N
Alkaline phosphatase	200IU/L

underlying cerebral hemisphere with associated oedema The soft tissue was also seen to extend in the left orbit as well as in left infra temporal fossa. The soft tissue in the orbit was extraconal and was displacing the eyeball infero-medially. No obvious invasion of the optic nerve or sclera was seen .The soft tissue showed moderate heterogeneous contrast enhancement.

The CT findings indicated neoplastic aetiology. As patient was 60 yrs strong possibility of osteosarcoma was considered. It was proved on biopsy. Patient denied surgery and hence was referred to radiotherapy department.

Fig. 1: 70 yr old with swelling over left parietal and orbital region with proptosis of left globe.

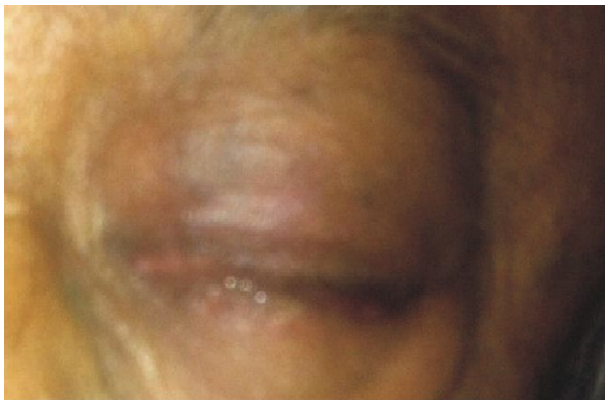


Fig. 2: Soft tissue extraconal mass displacing the globe inferomedially.

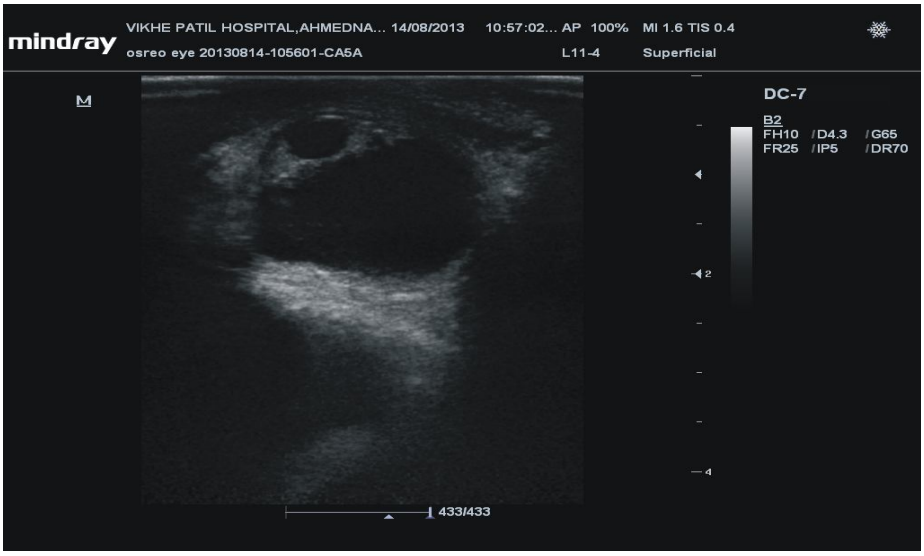
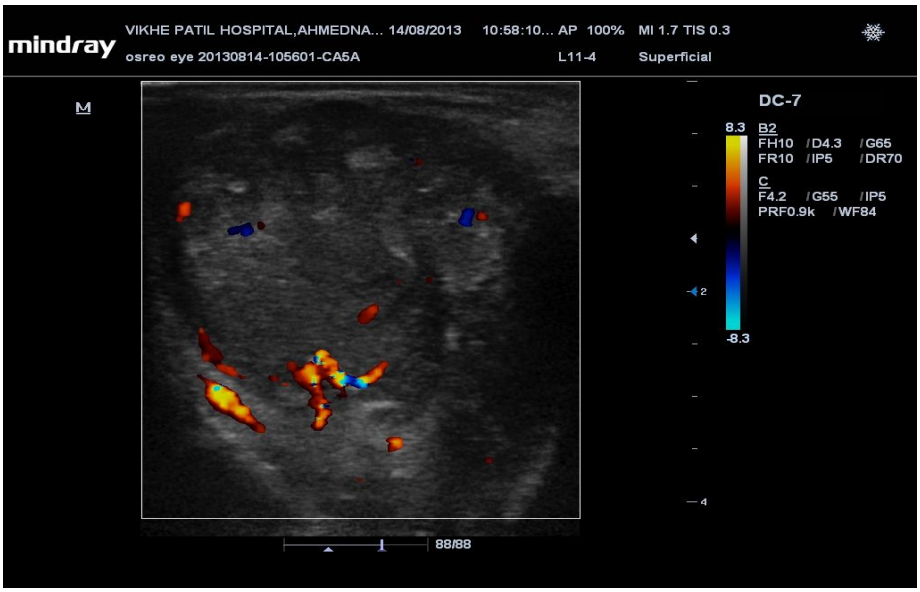
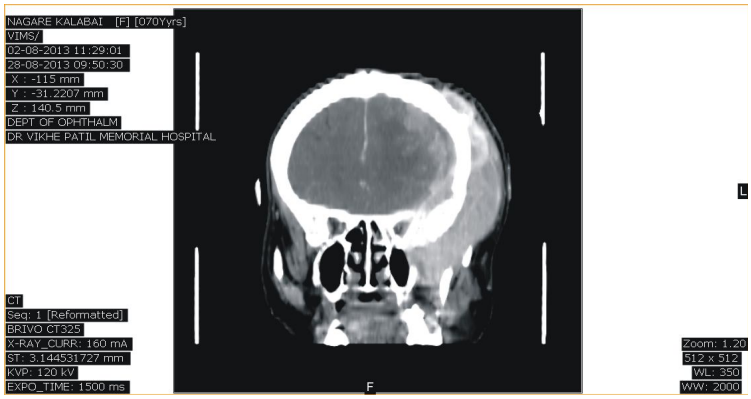


Fig. 3: Doppler study of the mass showing increased vasularity.

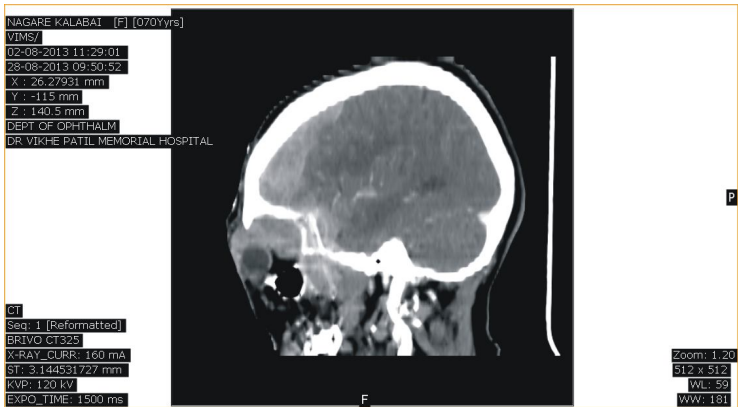


CECT was done. CT scan showed erosive lesion in the left parietal bone .The lesion had wide zone of transition. The margins were not well appreciated. The cranial part showed linear onion peel like periosteal reaction. There was associated well defined soft tissue component in the intracranial as well as extra cranial compartments. The intracranial component of the soft tissue was seen to cause mass effect over the underlying cerebral hemisphere with associated oedema. The soft tissue was also seen to extend in the left orbit as well as in left infra temporal fossa. The soft tissue in the orbit was extra-conal and was displacing the eyeball infero-medially. No obvious invasion of the optic nerve or sclera was seen. The soft tissue showed moderate heterogeneous contrast enhancement.

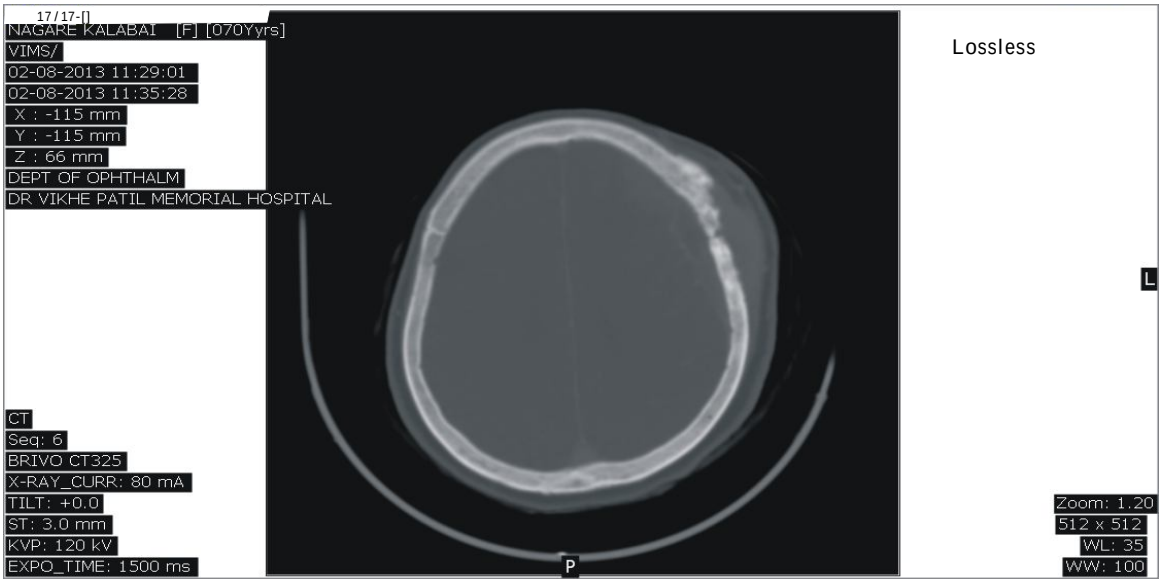
(A)



(B)



Coronal CECT image shows mass in intracranial as well as extra cranial.(A)Mass is displacing left globe medially and inferiorly.(B) Sagittal images shows mass in intra orbit and extending into infra temporal fossa.



CECT in bone window showing erosive lesion involving left parietal bone.

Chest x-ray and USG abdomen and pelvis were normal.

Histopathology

USG guided biopsy from the edge of the swelling was taken. On histopathology report they confirmed with the diagnosis of osteosarcoma.

Histologically osteosarcoma shows malignant osteoblast which shows osteoid production and has osteoblastic, chondroblastic and fibroblastic subtypes.

Treatment

She was treated for orbital cellulitis. The patient was referred to the higher centre for chemotherapy as the mass was unresectable .Osteosarcoma is often treated with a combination of therapies that can include surgery, chemotherapy and radiation therapy. Most patients with high grade tumours receive about three months of chemotherapy, known as neo-adjuvant therapy, before surgery. Now the follow up of the patient post therapy is awaited.

Discussion

Orbital cellulites are common due to the infective aetiologies. It can also rarely occur due to benign and malignant lesions. The differential diagnoses of orbital cellulites include mucormycosis (fungal infection), sarcoidosis, dysthyroid exophthalmos, neoplasia with inflammation, lymphoma and glioma of optic nerve, pseudotumour and so on.

So based on histopathology report here is a rare case of osteosarcoma of parietal bone causing orbital cellulites. Osteosarcoma is more common in boys than girls [1]. It has predilection for the metaphyseal region of the long bones Any bone in the body can be affected, but the most common sites are the arms or legs, particularly around the knee joint [2]. The incidence of primary osteogenic sarcomas of the skull is about 1 to 2% of all skull tumors [3].

There are several different types of osteosarcoma, such as parosteal [4], periosteal telangiectatic and small cell osteosarcoma.

Primary osteosarcoma arises from the metaphysis of the long bones usually and approx. 10 % are located in the flat bone mainly pelvis and 1-2 % ribs, sternum and clavicle [5].

There are many corresponding studies that reported the rarity of osteosarcoma of the skull. For

instance, Nora et al, reported that 21 of 1,000 osteosarcoma cases had tumor in the skull, and only 14 out of 21 cases (1.4%) were de novo tumor. Huvos et al, reported that only 10 out of 1,200 osteosarcoma cases (0.8%) over a 60 year period were de novo osteosarcoma of the skull.

Biochemical studies are usually normal, except for elevations in ALP, LDH, and ESR. As the osteosarcoma of the skull is very rare it is difficult to arrive at definitive treatment plan.

Orbital cellulitis due to parietal bone osteosarcoma is an example of a rare, potentially fatal condition, and an early diagnosis is often a challenge. So we should consider orbital cellulitis due to parietal bone osteosarcoma in cases. It is a rare presentation with orbital cellulitis still on should keep in mind while investigating a case of orbital cellulitis.

Osteosarcoma treatment has progressed greatly over the past thirty years. The standard treatment of osteosarcoma consists of the combination of chemotherapy and surgery, and in some cases radiation [6].

If a cure is to be achieved, surgical removal of all the tumor tissue at any site should always be attempted. Complete surgery is the treatment of choice for osteosarcoma [7]. In selected cases, however, radiotherapy has proven helpful [8].

Conclusion

This case describes a patient with osteosarcoma invading into the orbit, mimicking orbital cellulites. The case underscores the importance of considering alternative diagnoses when patients with orbital cellulites do not respond to antibiotic treatment. We here by conclude that osteosarcoma of skull is very rare entity and needed early diagnosis and treatment due to its aggressive nature and poor prognosis. Biopsy and histological confirmation is needed for suspected sites of metastatic disease. Chemotherapy can successfully eradicate primary deposits if initiated at a time when disease burden is low. The prognosis depends mainly on the degree of intracranial involvement at the time of the diagnosis is rather than the mode of therapy.

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