

SPONTANEOUS SUB-PERIOSTEAL HEMATOMA OF THE ORBIT: DIAGNOSIS ON COMPUTED TOMOGRAPHY

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Sub-periosteal hematoma is a rare cause of space occupying orbital lesion. Most of the cases are secondary to trauma, although they may rarely occur spontaneously. We present a case of spontaneous sub periosteal hematoma in a patient with thalassemia, which was timely and accurately diagnosed by high resolution computed tomography (HRCT).

REPORT

SMB, 15 years old male, known thalassemic presented to the emergency room with a 19 days history of fever and protrusion of left eye. On examination he was an anemic, toxic looking child with left eyeball almost completely protruding out of the socket with inability to close the eyelid. There was also fullness of right orbit with diminished reducibility. Ophthalmological examination showed barely light perception on left side with 6/24 visual acuity on right side. There were also corneal ulcers on left side. The laboratory investigations revealed hemoglobin concentration of 3.2 gm/dl, WBC count of 25,300/cu mm with predominantly neutrophils and platelet count of 32,00/cu mm. The clinical differential possibilities were cavernous sinus thrombosis and retro orbital abscess or hematoma. A CT scan was performed on GE 9800. Multiple, closely spaced, thin, contiguous sections (1.5 mm thick at 1.5 mm distance) were performed in coronal plane after intravenous contrast enhancement. Reconstruction was also performed in bone algorithm. CT scan revealed bony changes compatible with thalassemia (Figure 1a).

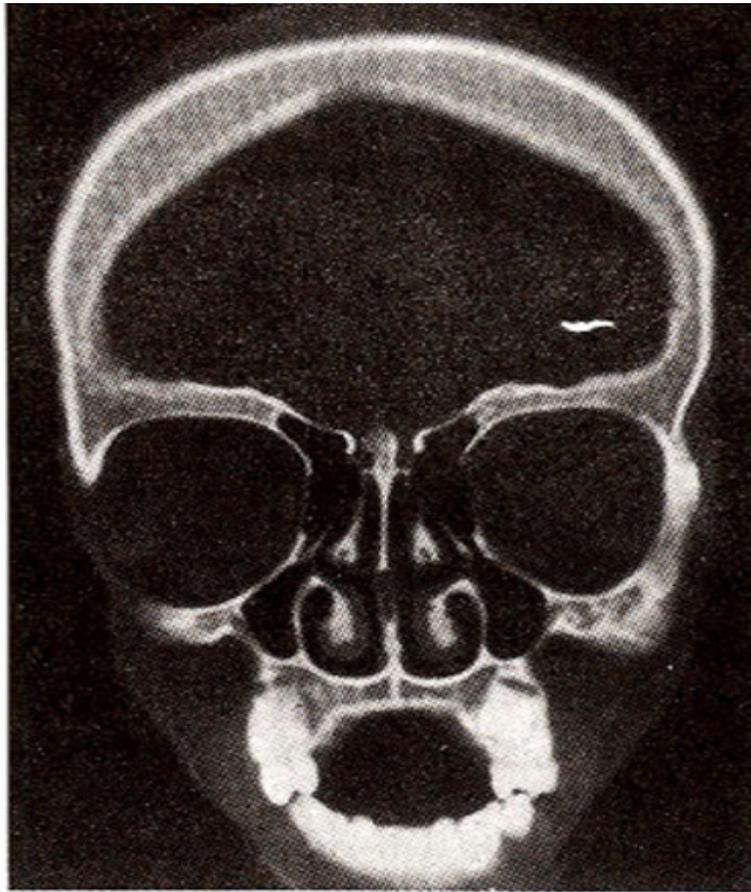


Figure 1a. Coronal section of face including orbits showing thickened calvarium with prominent bony trabeculation, a distinct feature of hemolytic anemias (W: 2220; L: 519 HU).

In the orbit there were soft tissue density, non-enhancing masses seen bilaterally in the superolateral corner of each orbit (Figure 1b).

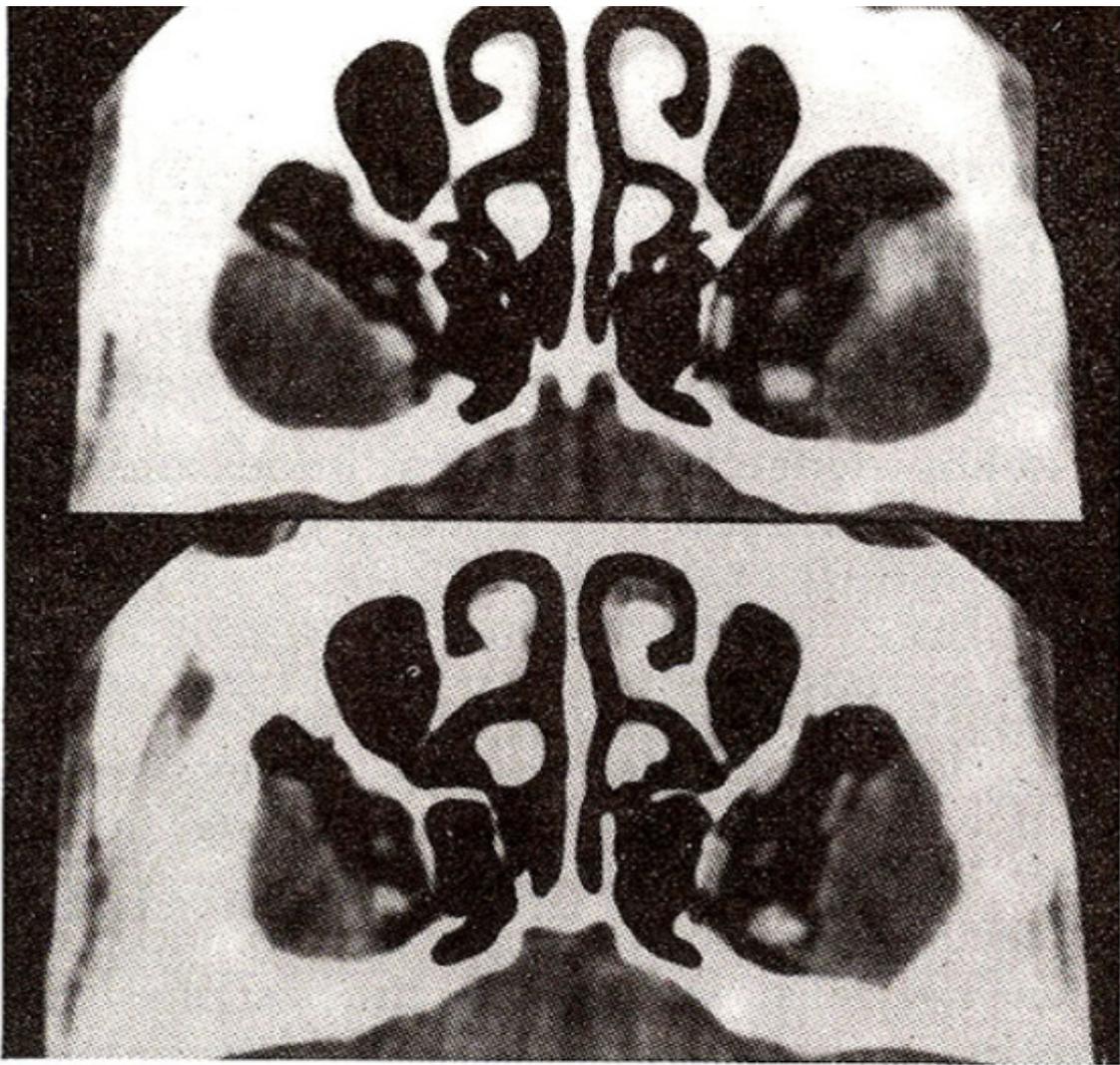


Figure 1b. Post contrast enhanced coronal sections through the orbit showing large extra conal lesions bilaterally abutting the superomedial corner of the orbit. A thin enhancing periosteal rim also seen (W: 260; L:34 HU).

The mass was larger on left side causing proptosis. These were extra conal in location and had an enhancing thin line which appeared to be continuous with periosteum. Cavernous sinuses were noted to be normally enhancing without any evidence of thrombosis. Considering patients history a diagnosis of subperiosteal hematoma was made. Because of altered hematological parameters, surgical intervention was deferred. Instead a conservative approach of management was maintained with platelet transfusions and local as well as systemic antibiotics. Over the period of 16 days the proptosis subsided almost completely with significant improvement in visual acuity of both eyes.

DISCUSSION

Hematoma is a rare cause of space occupying orbital lesion¹. Orbital hematomas may be subdivided by their location into intraorbital and suborbital type. The latter is the rarer of two². Although the great majority of them are secondary to direct facial trauma and surgery³, but they may also be seen with blunt facial and head trauma⁴. Sometime they develop insidiously with no apparent history of trauma⁵. Subperiosteal hematomas may also develop in the orbit due to direct extension from extra orbital

hematomas mostly from subgaleal and epidural hematomas^{6,7}. Spontaneous haemorrhage may occur as complication of systemic diseases like leukemia, thrombocytopenia, blood dyscrasia, hemophilia and other haemorrhagic systemic diseases⁸. It has also been documented in patients subjected to abnormal rises in central venous pressure such as strenuous straining, lifting coughing⁹. with chronic sinusitis¹⁰ and in Scuba divers¹¹. Orbital subperiosteal hematomas occur from tears in the subperiosteal vessel causing localized bleeding or from extension of extra orbital hematomas dissecting between the bones and periosteum^{12,13}. This attachment is very loose in younger age group and the mean age in a review was found to be 17 years⁷. Within the orbit there is more predilection for these hematomas to occur in relation to the orbital roof because of the fact that the roof is formed by one bone and thus is the largest surface with the orbit uninterrupted by sutures where the periosteum is anchored firmly¹². Early diagnosis is important. The radiographic features in proper setting can lead to timely intervention and prevent late sequelae such as blindness, optic atrophy, secondary strabismus, permanent choroidal folds or even a permanent exophthalmos due to hematoma and fibrosis⁴. Various diagnostic modalities have been used. Plain radiography and geometric tomography are of little use^{2,6}. Computed tomography and MR have been found to be useful⁸. High resolution, contrast enhanced, coronal CT scan was found to be of extreme help in our case in not only depicting the extent of the hematoma but also to rule out other possible diagnosis like retroorbital hematoma and cavernous sinus thrombosis. The signs of subperiosteal hematoma which helped us in timely diagnosis include: i) sharply defined broad based is to hyper dense mass lesion abutting the superior orbital roof, ii) inferior displacement of orbital contents⁸ and iii) thin enhancing line of elevated periosteum seen on contrast enhanced scan. We conclude that CT scan can help in early and prompt diagnosis of even rare intraorbital lesions.

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