

SUBPERIOSTEAL AND INTRACONAL HAEMATOMA ASSOCIATED WITH FRONTAL AND SUBFRONTAL EXTRADURAL HAEMATOMA. CASE REPORT

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Intraorbital subperiosteal haematoma is a rare entity described in the radiology, ophthalmology and neurosurgical literature produced in most of the cases by head traumas. The authors present the case of a woman suffered a car accident who caused deep coma, bilateral exophthalmia with dominance in the right eye, left hemiparesis. CT Scan of the head showed DAI, huge extradural right frontotemporal haematoma, subperiosteal and intraorbital haematoma in the right orbit, intraventricular hemorrhage, falx cerebelli hemorrhage, fracture of the etmoidal bone with etmoid haemosinus. It was done emergent succesfull surgical removal of the epidural haematoma, and partial removal of the subperiosteal and intraorbital haematoma. by trepanation of the orbit on the fracture site. Postoperative evolution was eventless and control CT Scann showed healed radiologically.

Keywords: subperiosteal hematoma, head trauma, extradural haematoma

Intraorbital subperiosteal haematoma is a rare with pathology reported in the literature The etiology of subperiosteal haematoma of the orbit is in most of the cases of traumatic origin (4, 6, 17) and may be associated with an adjacent orbital fracture A much more rare entity appears to be the sickle cell and kidney disease. The haemorrhage admits a vascular, bony or mixt etiology.

The suggested mechanism of subperiosteal orbital hematomas is bleeding from subgaleal vessels, that enlarges and dissects the subgaleal space, extending to the orbita. A fracture of the orbital roof can dissect the periorbita and create room for blood to collect.

Differential diagnosis includes subperiosteal abscess, rhabdomyosarcoma, orbital pseudotumour, lymphangioma, carotid cavernous fistula, arteriovenous malformation, orbital haematoma, or frontal sinus mucocele.

CASE REPORT

Female, 36 years old, admitted as an emergency at The Department of Neurosurgery, CEH Constanta, for multiple trauma with head and face injury due to a car accident, 2 hours after the accident.

Clinical examination revealed: deep comatose patient, intense alcoholic halena, bilateral exophthalmia, non axial, with dominance in the right eye, left hemiparesis.

CT scan of the head showed: Huge extradural right frontotemporal haematoma, multiple hemorrhagic concussions (right posterior thalamus, left frontal-DAI), intraventricular hemorrhage (right frontal and left occipital horn of the lateral ventricles), falx cerebelli hemorrhage, multiple frontal pneumocephalus. fracture of the etmoidal bone with etmoid haemosinus, haemorrhage in the left maxilar sinus, fracture of the medial wall of the right orbit, subperiosteal and intraorbital haematoma in the right orbit especially in the superior part. (Fig. 1, 2, 3, 4, 5, 6)

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FIG. 1, 2 Falx cerebelli hemorrhage (white arrow), left intraventricular haemorrhage, occipital horn (black arrow), left ethmoid sinus haemorrhage, left maxilar sinus haemorrhage, medial right orbital wall fractures



FIG. 3, 4 Huge extradural right frontotemporal haematoma, subperiosteal haematoma in the right orbit especially in the superior part (double white arrows), intraconal haematoma especially in the lateral right orbit (triple white arrows) DAI (right frontal basal haemorrhage, right posterior thalamus haemorrhage (double black arrows), left frontal concussion), left intraventricular haemorrhage (occipital horn)

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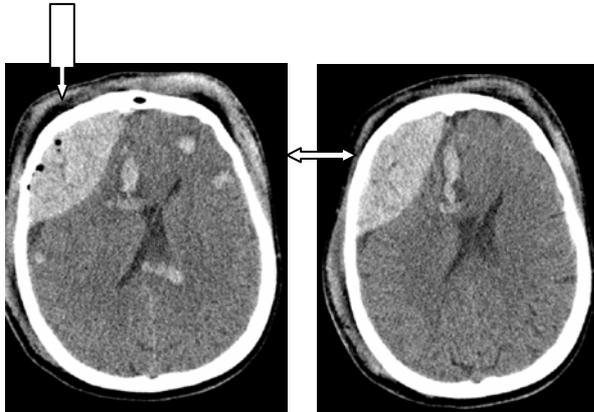


FIG. 5

FIG. 6

Huge extradural right frontotemporal haematoma (double headed white arrow), multiple frontal pneumocephalus (special white arrow)

SURGICAL THERAPY

I found a frontal fracture which crossed the roof of the right orbita and the lateral frontal bone bleeding in the extraconal space of the right orbita and in the extradural space.

Frontotemporal craniotomy was performed on the right side (for the extradural right frontotemporal haematoma) and the opening of the roof of the orbita was done by a small craniectomy in the roof of the orbita followed by removal of few milliliters of fresh blood, two small clots under pressure and lavage with warm serum.

A frontal extradural and upper intraorbital extraconal drain was left for 24 hours.

Postoperative CT Scann: healed surgically (Fig 7, 8, 9).

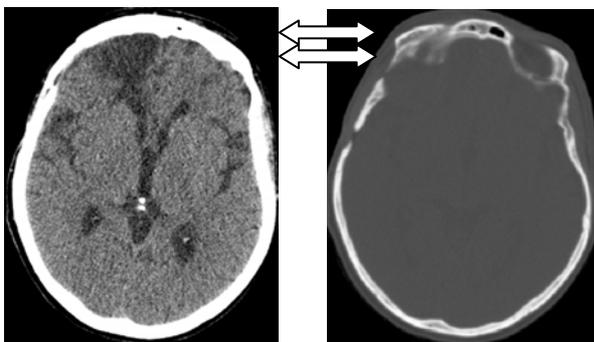


FIG. 7 Cerebrum window

FIG. 8

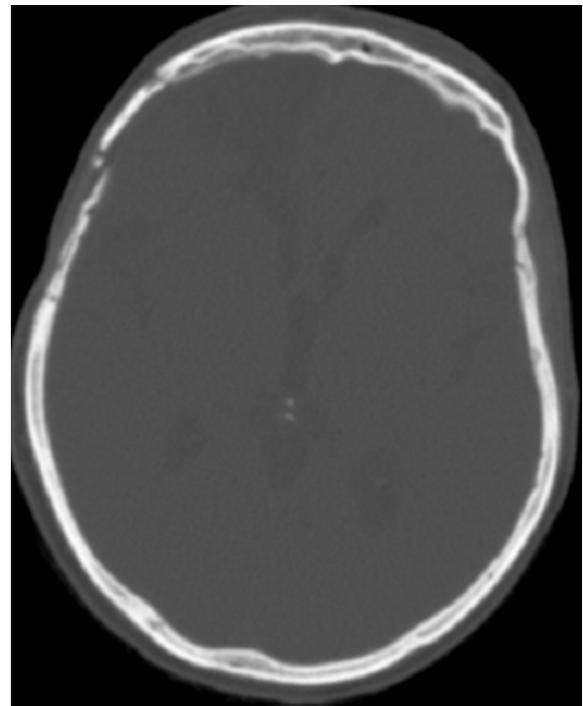


FIG. 9 Bone window

The fracture line lateral fronto-orbital trepanated is figured with duple duple headed white arrow.

The ophthalmologic control done in the 4th day postoperative was normal.

The patient was transferred to other hospital at the 20th day with GOS 5.

DISCUSSION

Orbital hematomas are classified by Landa5 either as intraorbital or subperiosteal. Subperiosteal haematomas of the orbit are rare lesions, reported in early literature as "blood cyst". Almost all cases are associated with trauma. Proptosis, downward globe displacement, ophthalmoplegia, chemosis, lid hematoma, subgaleal hematoma and visual dysfunction are the most commonly related to clinical manifestations, that occur most often acutely or within days of the traumatic event. The differential diagnosis should include carotid-cavernous fistulae, orbital subperiosteal abscess, orbital roof fractures, frontal mucocele, sinusites, complication of orbital and sinus surgery, tumors

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(rhabdomyosarcoma, leukemia, lymphangioma) and coagulopathies.

The suggested mechanism of subperiosteal orbital hematomas is bleeding from subgaleal vessels, that enlarges and dissects the subgaleal space, extending to the orbita. A fracture of the orbital roof can dissect the periorbita and make room for blood to collect.

Treatment options include observation, needle aspiration, and surgical evacuation. Needle aspiration is less technically demanding, but has the disadvantages of possible rebleeding and of not allowing removal of clotted blood. With orbital exploration, the surgeon can stop any active bleeding, reduce possible orbital roof fractures, remove coagulated blood and to leave a drain, if necessary.

Extradural hematoma (EDH) is a frequent lesion, with an incidence varying from 0.2 to 6% in patients admitted to hospital due to traumatic head injury.

The association of EDH with subperiosteal intraorbital hematomas is rarely reported. We founded in the literature only 5 cases reported. (7, 8, 13, 16, 17)

In our case, the etiology was a linear lateral frontal fracture prolonged in the lateral orbital roof who bled in 3 compartments: anterior cranial fossae, middle cranial fossae (with dominance in the anterior cranial fossae) and the orbit. (Fig. 10) with dominance in the periorbital space.

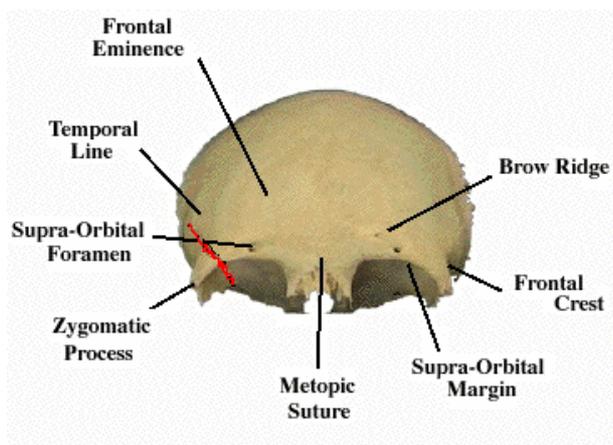


FIG. 10

The fracture line is figured in red colour

We choose to approach the hematomas with craniotomies instead of using any of other approaches,

because it was the only option to treat properly the extradural haematoma and intraorbital haematoma (with dominance in the subperiosteal space).

We propose the protocol used by the most of the authors (7, 8, 18):

- In comatose patients or those with important impairment of the level of consciousness, a subperiosteal haematoma must be operated as soon as possible.

- For the conscious patient surgical solution becomes necessary if the blurred vision and/or paralysis of the eye movements develops.

- In case of an association between extradural haematoma and subperiosteal haematoma, emergency surgical intervention for both haematomas is mandatory.

CONCLUSION

- All the patients with craniofacial injuries with clinical signs or symptoms of eye lesions (proptosis, downward globe displacement, ophthalmoplegia, chemosis, lid hematoma, subgaleal hematoma and visual dysfunction) must be suspected of having a subperiosteal or intraorbital haematoma.

- The surgical decompression of the orbit is an emergency and is mandatory for saving the patient eyes function.

- Early diagnosis is mandatory to the potential for severe neurological sequela, including transient or permanent blindness.

- In case of an association between extradural haematoma and subperiosteal haematoma, emergency surgical intervention for both haematomas is mandatory for saving patients life and eyes function.

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