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A Rare Etiology of a Life-Threatening Subdural Hematoma: Case Report and Literature Review

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Abstract

Background: Life-threatening subdural hematoma is commonly related to trauma and rarely revealed by neoplasm. **Observation:** We report a case of a 53-year-old suffering from mild headache and without a history of trauma, was admitted unconscious due to a subdural hematoma on radiological investigations. Beside the left subdural hematoma, there was also alytic lesion of the sphenoid wing and the temporal bone on the same side. An emergent removal of the subdural hematoma and an excision of the bone lesion were performed. Pathological examination diagnosed a cavernous hemangioma of the skull. The postoperative period was uneventful with a dramatic recovery of the patient. **Conclusion:** A quick worsening of a chronic headache, acute impairment of an uncommon headache deserve prompt investigation and emergent surgical management in case of intracranial hematoma. Any bone and dural abnormalities at the vicinity of a subdural hematoma require total excision with clean border and pathological examination.

Keywords

Cavernous Hemangioma, Subdural Hematoma, Emergency, Skull, Surgery

1. Introduction

Cavernous hemangiomas account for 0.2% of the bone neoplasm and 10% of the skull benign neoplasm [1] [2]. There are benign vascular lesions that may occur also in central nervous system as well as in other organs such us liver, or skin. The most common presentation in central nervous system is seizure (30% to 70%) followed by neurological deficit, hemorrhage and headache [3]. In skull, there are commonly revealed by headache and skull deformity [1] [2]. A

life-threatening subdural hematoma revealing a cavernous hemangioma of the shull is exceedingly rare. Only a case of progressive neurological deficit associated with a chronic subdural hematoma due to an intraosseous cavernous hemangioma has been reported in the literature [1]. Authors report this seldom case of a cavernous hemangioma of the skull revealed by a subacute subdural hematoma with a rapid loss of consciousness.

2. Case Illustration

Observation: This previously healthy 53-year-old woman with a free past medical history was admitted in our department for a loss of consciousness. She was suffering from mild headache responding to common painkillers for few days. Her condition impaired within 2 hours prior to her admission, and she became sleepy and then comatose. On examination, her Glasgow coma scale was 8/15 with a right hemiparesis and a left mydriasis.

Ragiological investigations: Computed tomography (CT) Scan and angio CT revealed a left chronic subdural hematoma with acute bleeding associated to an impressive shiftiness of the midline. They were a honeycomb appearance of the left spheno-temporal bone with a large defect (Figure 1).

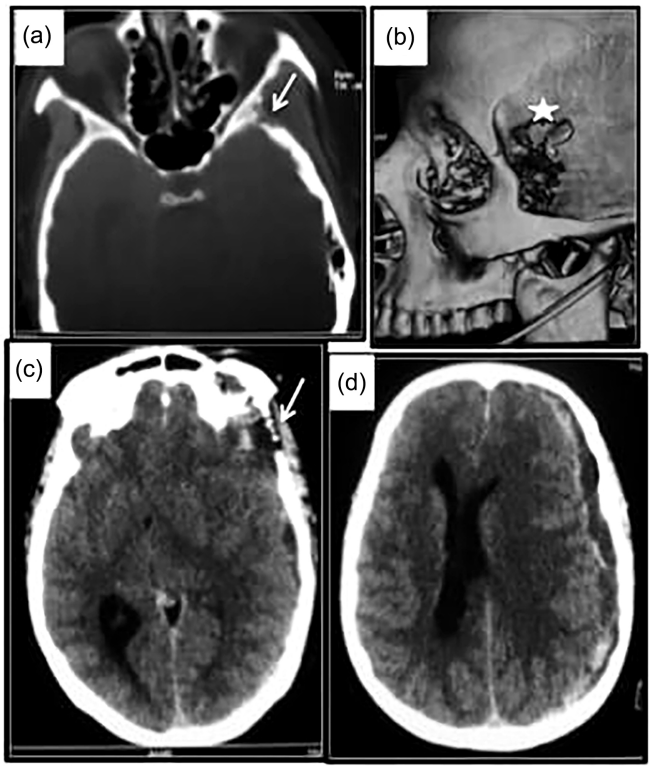

Figure 1. Preoperative images. (a) Axial cerebral CT Scan (bone slice) showing a "honey comb" appearance of the left spheno-temporal region (arrow); (b) CT Scan (3D image) showing the osteolysis with a large defect of the left spheno-temporal region (star); (c) Axial cerebral CT Scan showing an osteolysis of the temporal bone (arrow) and the beginning of the subdural left hematoma; (d) Axial CT Scan showing a left subdural hematoma with chronic and acute bleeding and a shiftiness of the midline.

Intraperative findings: An emergent evacuation of the hematoma was planned. After the skin incision, an osteolytic hole of the left pterional region including the inner and the outer table associated to a defect of the dura matter was found. There was an egress of "motor oil" like blood through this hole under pressure (Figure 2(a)). Then a left pterion-temporal bone flap was achieved, revealing subdural blood clots and membrane after the opening of the dura matter (Figure 2(b) and Figure 2(c)). These latters were resected and evacuated and the inner table of the bone surrounding the osteolytic hole was eroded in some places with a lot of pits (Figure 2(d)). These erosions and pits were also resected. Galea was used for duroplasty, but cranioplasty was not performed due to the unknown nature of the bone defect.

Post operative findings: Postoperatively, the patient was brought in intensive care unit and became alert within the first 24 hours without neurological deficit. She was discharged from hospital on postoperative day 5. The postoperative follow up period was uneventful with good radiological outcomes.

Pathological examination: Pathological examination of the inner walled of the hematoma revealed a benign vascular proliferation constitute of ecstatic thin wall blood vessels. Bone examination revealed dystrophic tissue mixed with many blood-filled sinusoidal channels lined by a single layer of endothelial cells (Figure 3). These pathological findings were suggestive of cavernous hemangioma.

Outcome: The patient was still asymptomatic at 18th month follow up, but refused the cranioplasty procedure to correct the bone defect.

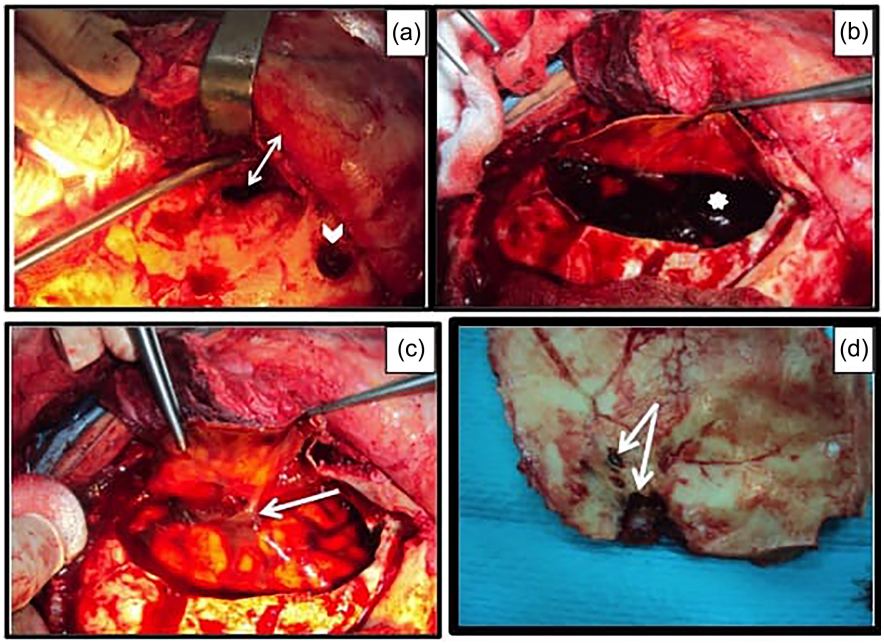

Figure 2. Intraoperative images. (a) Osteolysis with a large defect of the spheno-temporal region and the dura matter (double direction arrow). The thick head arrow is a burr hole; (b) Blood clots (Star) after the bone flap and the opening of the dura matter; (c) Evacuation of the blood clots showing the membranes (arrow); (d) Bone flap showing the pits and erosion on the internal table (arrows).

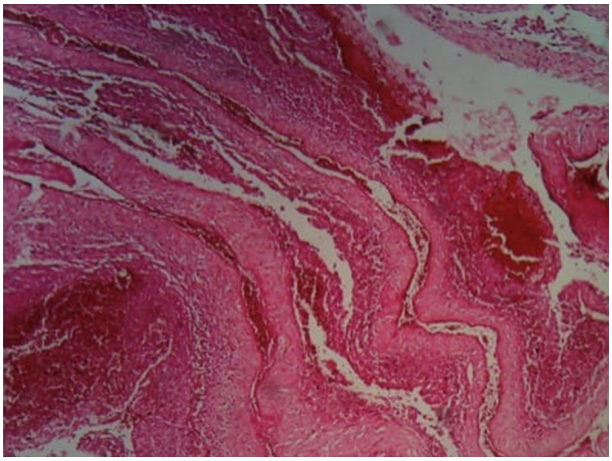

Figure 3. Pathological examination. Benign vascular proliferation with blood-filled sinusoid channel consistent with cavernous hemangioma.

3. Discussion

Cavernous hemangioma or cavernoma is a benign vascular malformation, commonly encountered in central nervous system in neurosurgery daily practice [3]. Skull cavernous hemangioma remains very rare and account for 0.2% of benign tumors of the bone [4] [5]. The first case of this location has been described by Toynbee in 1845 and till to date their origins is debated [2] [6]. Some authors reported congenital lesions that manifest in adulthood between the fourth and the fifth decade with female to male ratio of 2/1 [2] [7]. However, skull cavernous hemangioma has been reported as well as in adult, neonatal period than in cranioplasty site [8] [9]. Several symptoms have been reported to revealed cavernous hemangioma such as headache, skull deformity, seizure and progressive neurological deficit [1] [2] [5]. To the best of our knowledge and the available literature, this is the first case of cavernous hemangioma of the skull revealed by a life threatening condition of subdural hematoma. Radiological investigations often show a "sunburst" or "honey comb" appearance of trabeculation radiating from a common center [9]. This feature is consistent with osteoblastic remodeling with trabecular bone following osteoclastic activity of the tumor [9] [10]. This appearance is more accurate on CT scan than on skull X-ray [10]. Magnetic resonance imaging (MRI) images are less characteristic regarding skull cavernous hemangioma [10]. This radiological feature was less obvious in our case since the osteolytic defect was wider than the "honey comb" appearance (**Figure 1**). Some rare cases of ossified lesions revealing cavernous hemangioma have been reported [2]. This highlights the question of differential diagnosis with other skull lesions such as: aneurysmal bone cyst, giant cell tumor, Langerhans cell's histiocytosis, plasmocytoma [11] [12] [13]. The best and definitive treatment of skull cavernous hemangioma is surgery above all for small and symptomatic lesions [2] [13] [14]. Some authors have advocated preoperative embolization in large cavernous hemangioma to reduce excessive bleeding during

surgery, whereas others have emphasized that radiation therapy should stop the tumoral growth without reducing its size [2] [15]. In our case, the surgical management of this patient was demanding regarding the sudden impairment of the patient condition and the huge subdural hematoma. Thus, cavernous hemangioma should be included in the differential diagnosis of subdural hematoma associated with skull lesions.

4. Conclusion

A life threatening subdural hematoma revealing skull cavernous hemangioma is an exceptional presentation of cavernous hemangioma. This condition requires not only a quick evacuation of the hematoma but also a simultaneous removal of the bone lesion to avoid recurrences.

Informed Consent

The informed consent has been obtained from the patient.

Conflict of Interest

Authors disclose no conflict of interest and any funding sources or acknowledgments.

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