Olgu Sunumu

Iatrogenic Chronic Calcified/Ossified Epidural Hematoma: Case Report

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✔ Chronic calcified/ossified epidural hematomas are rare complications of head trauma or cranial procedures. A case of iatrogenic chronic calcified/ossified epidural hematoma is presented here to discuss its causes and emphasize the importance of appropriate dural closure. A 3-year- old girl was admitted to our clinic with an initial diagnosis of huge cystic craniopharyngioma. Ten months after operative resection chronic calcified/ossified epidural hematoma was detected in control MRI's. She was reoperated and the encapsulated hematoma was evacuated. The ossified tissue and the recurrent tumor were excised in the same operation. Primary causes of chronic epidural hematomas are detachment of dura from inner calvarial surface as a result of trauma or surgery and venous bleeding from the dura and the bone. Additionally, decrease in local tissue pressure makes it easier for blood to accumulate in the epidural space. Regressive changes or repair processes may cause the hematoma to be a calcified/ossified lesion. Inappropriately performed dural closures may cause chronic ossified/calcified epidural hematomas. These hematomas should be evacuated in order to prevent future complications.

Key words: Chronic epidural hematoma, ossification, calcification

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Yatrojenik Kronik Kalsifiye/Osifiye Epidural Kanama: Olgu Sunumu

✔ Kronik kalsifiye/ ossifiye epidural hematomlar kafa travması ve kranial girişimlerin nadir görülen komplikasyonlarıdır. Burada yeni bir iyatrojenik kronik kalsifiye/ ossifiye epidural olgusu sunularak bu lezyonların sebepleri tartışılmış ve dura kapatılmasının önemi vurgulanmıştır. Üç yaşında kız çocuğu dev kistik kraniofarenjioma ön tanısıyla kliniğimize yatırıldı. Ameliyattan on ay sonra yapılan kontrol MR tetkikinde kronik kalsifiye/ossifiye epidural hematom saptandı. Hasta tekrar opere edilerek kapsüle hematom boşaltıldı. Kemikleşmiş doku ve nüks tümör dokusu da aynı ameliyatta çıkarıldı. Kronik epidural kanamaların birincil sebebi kafa travması veya cerrahiye bağlı duranın kalvarial yüzeyden ayrılması ve dura ile kemikten olan venöz kanamalardır. Ek olarak, lokal doku basıncındaki azalma da kanın epidural mesafede birikmesini kolaylaştırır. Regresif değişiklikler veya onarım süreçleri hematomun kalsifiye veya ossifiye olmasına neden olabilir. Bu hematomlar ileride oluşabilecek komplikasyonların önlenmesi için boşaltılmalıdır.

Anahtar kelimeler: Kronik epidural kanama, osifikasyon, kalsifikasyon

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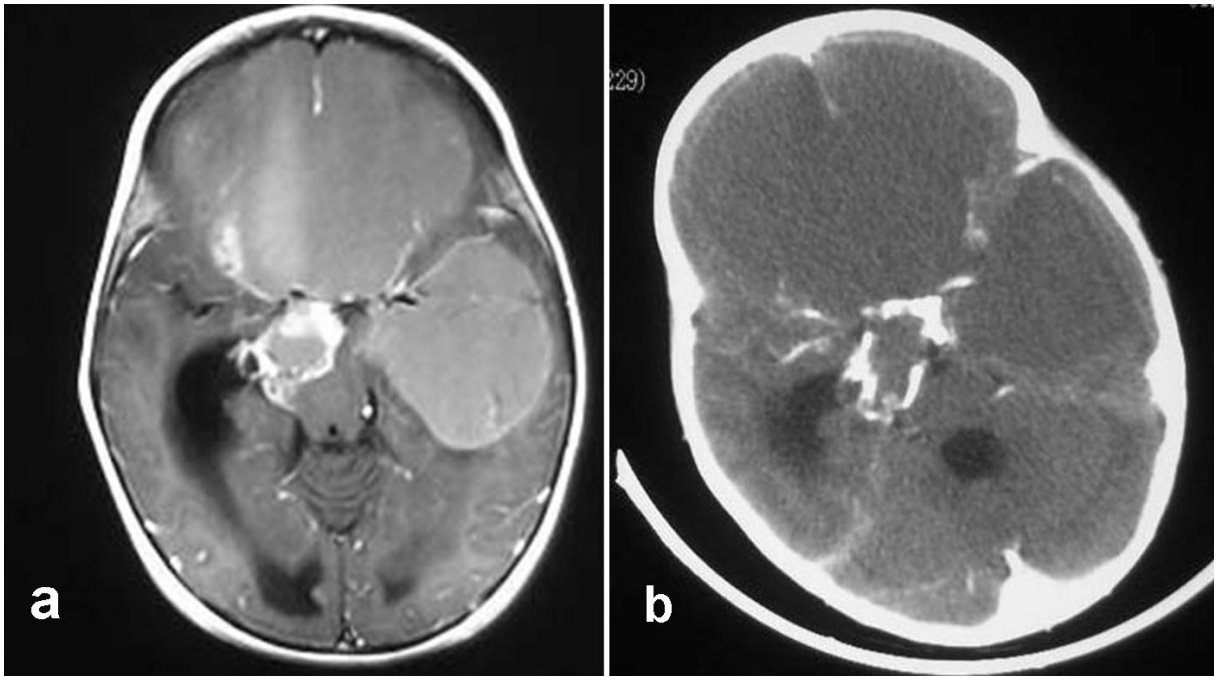
Chronic epidural hematomas account for 3-30 % of all epidural bleedings [16]. Most of them have been observed after cranial trauma while others are complications of neurosurgical procedures like shunts or posterior fossa operations [14]. Some of them may become ossified or calcified leading to complications in the therapy. An iatrogenic calcified/ossified chronic epidural hematoma which developed after craniotomy is presented in this case report.

CASE REPORT

A three-year old girl was admitted to our clinic with the complaints of macrocephaly, right sided

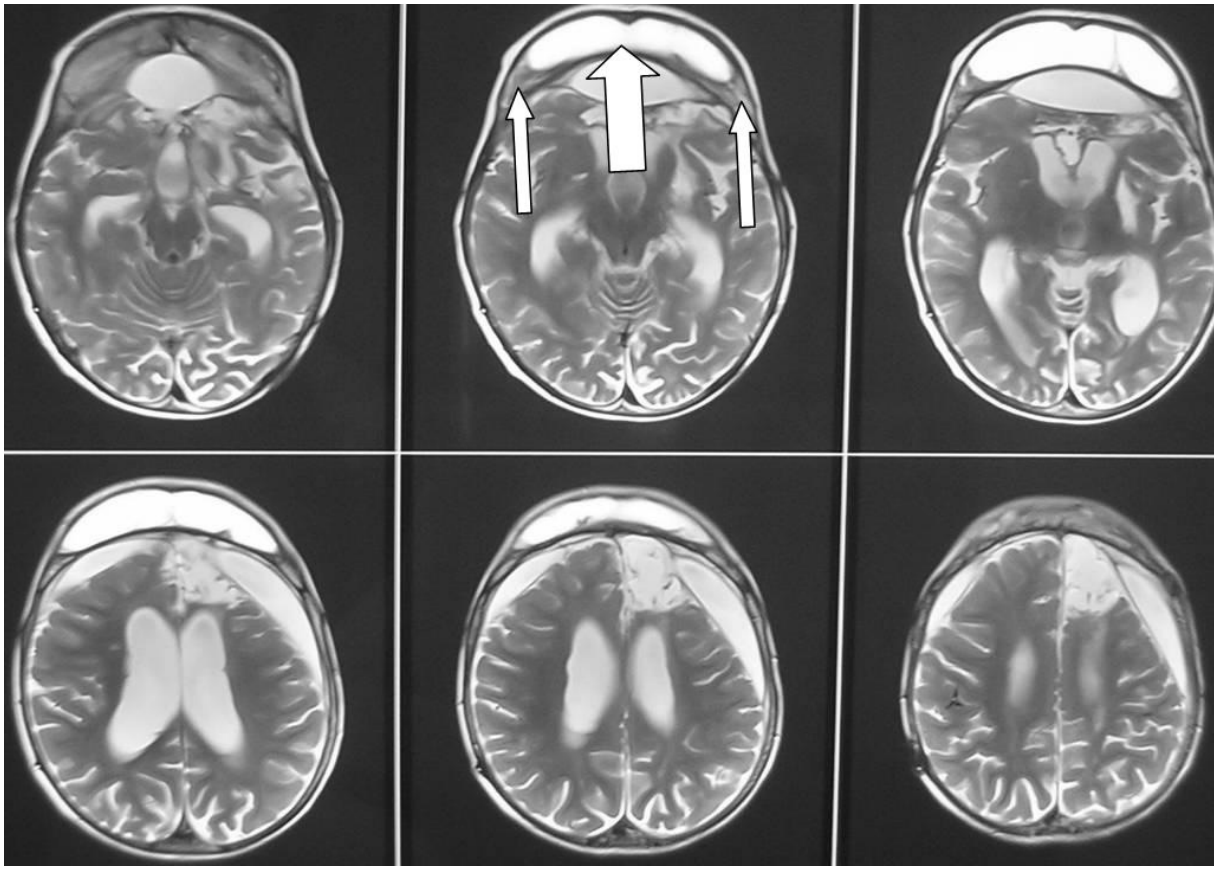


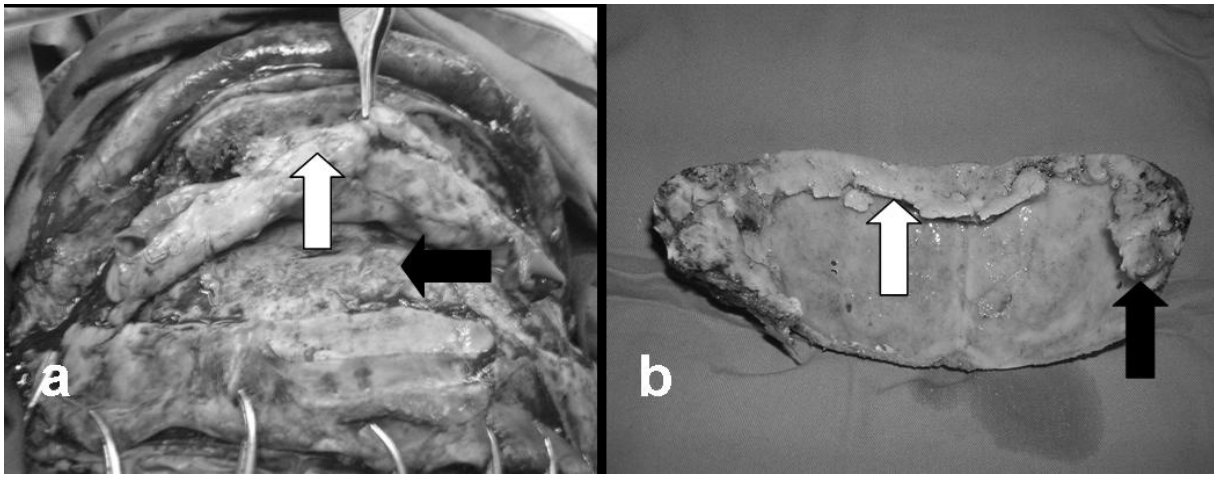
weakness and seizure. Neurological examination revealed bilateral papillary atrophy, right hemiparesis, emotional lability, positive Babinski sign on the right side and macrocephaly (>99 %). She was mentally retarded. As much as she cooperated, her vision was found to be intact. In radiological investigations bifrontal and left temporal huge cystic tumor mass (with calcification on the cyst wall) was observed (Figure 1a, b). She was operated via bifrontal craniotomy and gross total removal of the craniopharyngioma was achieved.

Dura was closed with a periosteal graft in a watertight fashion. It was stitched tightly to the craniotomy borders and the flap. However approximately 1.5 cm of epidural space was left exposed because of the insufficient amount of dura to cover the defect. It was expected that the space would be filled by brain tissue after tumoral decompression. Two weeks later, a cranial tomography revealed that the subdural hygroma had filled the empty space and was compressing the brain. A subduroperitoneal shunt was inserted and the patient was discharged without any clinical, endocrinological and opthalmological adverse events.

Ten months after the primary operation, follow-up MRI showed chronic epidural hematoma and recurrence of (approximately 1.5 cm in radius) tumor (Figure 2). The hematoma destabilized the craniotomy flap and another operation was planned to evacuate the hematoma, drain the cystic part of the tumor, and replace the bone flap. At operation the epidural hematoma was found to be encapsulated and there was a firm and thick ossification that was detected especially on the dural side of the capsule (Figure 3a, b). Ossification was observed to start from the bone-dura edge.

The hematoma and the ossification were excised along with the capsule, the dura was opened and the cystic portion of the tumor was aspirated. The dura was closed with a galeal duraplasty and tightly stitched to the flap and the craniotomy border.





It was decided to wait until the patient reached the age of five for radiation therapy.

DISCUSSION

Chronic epidural hematomas are post traumatic or post operative entities and rarely become calcified or ossified [1-6]. Post traumatic or post operative venous bleeding from the dural side or bone is the major cause of chronic epidural hematomas [1-3]. Dural separation from the bone and decreased intracranial or local pressure after

a traumatic event, facilitate the accumulation of blood.

Regressive and active processes are both major causes of ossification/calsification in these cases [2,3]. Regressive changes are the result of circulatory insufficiency leading to cell necrosis, hyalinization of connective tissue, vascular trombosis and deposition of calcium [2,3]. Active events are due to injury of bone or dura which cause inflammatory reactions, repair and remodelling of tissue with ossification or calsification. Whatever is the cause, the ongoing ossification is almost always more prominent on the dural side that is the primary source of bleeding, inflammatory cells and blood burn products [2, 3].

In the presented case, existence of preoperative macrocephaly, inadequate enlargement capacity of the brain, insufficiently performed dural closure and a developed subdural hygroma kept the epidural space open, and led to a chronic accumulation of blood and an ossification of hematoma.

Ossified chronic epidural hematomas have surgical indications similar to other space occupying lesions of the cranial cavity. Except very small, non-compressing lesions, the ossified capsule and chronic hematoma should be excised to avoid future complications such as seizures, neurological deficits and headaches.

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