CHRONIC SUBDURAL HEMATOMA: A CASE REPORT AND REVIEW OF THE LITERATURE

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ABSTRACT

Chronic subdural hematoma is a common type of intracranial hemorrhage with higher incidence and unpredictable evolution among elderly people. We present the case of a 73 years old male patient, diagnosed in October 2013 with subacute bilateral subdural hematomas who was admitted in our clinic for worsening of motor function in his left limbs. The cerebral CT performed revealed a right massive chronic subdural hematoma which met the criteria for neurosurgical approach requiring a large craniotomy for complete removal. In this article we review the risk factors associated with an unpredictable evolution and postoperative subdural hematoma recurrence in the elderly.

Key words: chronic subdural hematoma, elderly, epilepsy, atrial fibrillation, antiplatelet/anticoagulant medication, large craniotomy, bleeding, subdural hematoma recurrence

INTRODUCTION

Chronic subdural hematoma is a common type of intracranial hemorrhage with insidious onset and a higher incidence among elderly people, the blood collection being located in between the dura mater and arachnoid. Their anatomopathological aspect usually consists of a fibrous capsule with an outer and an inner membrane which can develop into thick layers that septate and encapsulate the bloody fluid, usually requiring craniotomy for complete surgical removal.

Patients' symptomatology consists of headaches, focal neurological deficits, seizures and altered state of consciousness. (1) The diagnosis is based on CT or MRI scan findings, CT remaining the preferred method where subdural hematomas have an isodense/hypodense crescent-shaped aspect that can compress and deform the brain surface.

Anticoagulant medication, venous fragility, augmentation of the subdural space due to cerebral atrophy and an increased exposure to repeated traumatic injury resulting from falls are frequent risk factors in this age group. Chronic alcohol consumption and coagulopathies may also increase hemorrhage risk in this type of lesion. (2,3)

CASE REPORT

We report the case of a 73 years old male patient presenting with worsening of motor function in his left limbs, arm more than leg, which started 2 days before admission.

His medical history includes: generalized epilepsy with tonico-clonic seizures diagnosed very early in his life, permanent atrial fibrillation, cardio-embolic stroke in October 2013 with residual left hemiparesis and bilateral subdural hematomas

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without surgical indication since October 2013. Patient is also known to have chronic alcohol abuse. His treatment consisted of Phenobarbital 100 mg/ daily and Phenytoin 100 mg bid, with good control of the seizures; he had no antithrombotic medication prescribed for his cardiac arrhythmia.

The cerebral CT scan performed in October 2013 revealed an acute ischemic lesion in the right MCA territory and right cerebellar lacuna. Subacute bilateral fronto-parietal subdural hematomas were described with follow up indication. In December 2013 a second CT was performed revealing chronic bilateral fronto-temporo-parietal subdural hematomas with minnor compressive effect and no neurosurgical indication at that time.

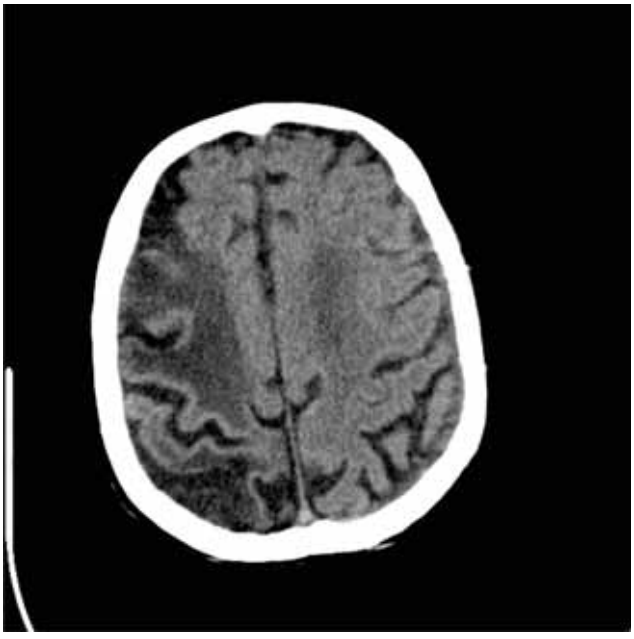

FIGURE 1. *October 2013: native cerebral computer tomography revealing large hypodense area in the right parietal lobe, which respects the MCA vascularisation boundaries, suggestive for a subacute ischemic stroke. There are 2 extra-axial crescent shaped hypo-dense lesions, one located in the right fronto-parietal area and the other one surrounding the fronto-temporo-parietal area on the left suggestive for a chronic subdural hematoma.*

On admission, patient had no recent history of head trauma. The neurological examination revealed mental slowness, left central facial paresis, left hemiparesis 3/5 brachial, and 4/5 crural BMRC, left brisk deep tendon reflexes, bilateral Babinski sign, disartria, with no somatosensory deficits or dysmetria. The GCS score was 14 (E4V4M6).

Blood chemistry, hematology and coagulation laboratory data were within normal range.

Head Computer Tomography scan revealed: Right fronto-temporo-parieto-occipital extra-axial hypodense crescent-shaped lesion measuring approximately 46 mm that deformed the surface of the brain by compressing the adjacent parenchyma,

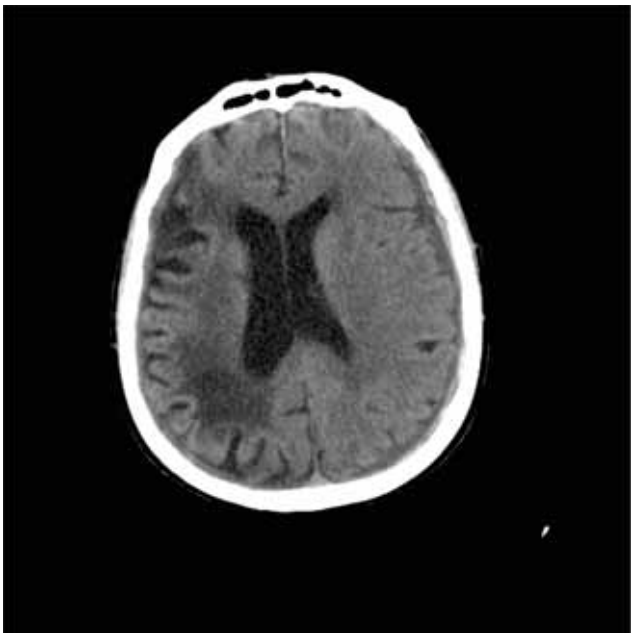

FIGURE 2. *December 2013: native cerebral compute tomography revealing an enlarged bilateral chronic subdural hematoma, that has slight compressive effect on the cerebral parenchima, located fronto-temporo-parietal. Post stroke sequelae in the right MCA vascularisation territory.*

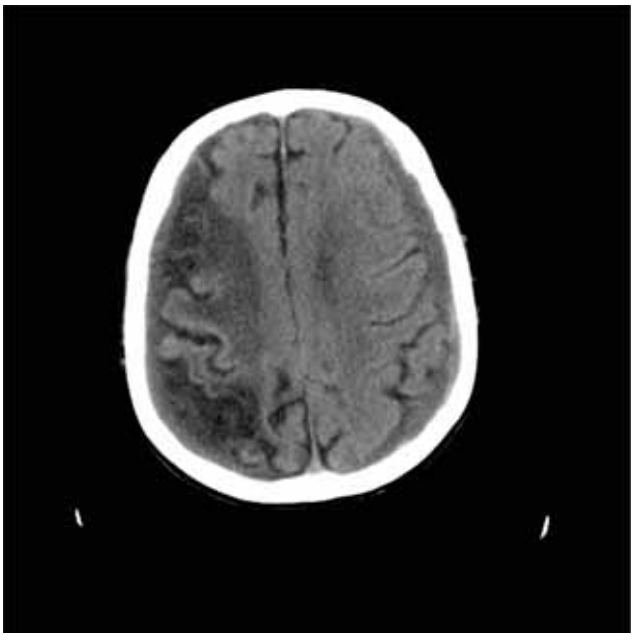

FIGURE 3. *Native cerebral computer tomography revealing an enlarged bilateral chronic subdural hematoma, that have slight compressive effect on the cerebral parenchima, located fronto-temporo-parietal. The hematomas seem to be divided in 2 layers by thin membranes and have different densities: the external one is isodense while the internal one being hypodense. This suggests different ages of the hematomas.*

right lateral and third ventricles. There was a left midline shift of about 11 mm. The lesion was divided by a hyperdense thin linear structure with the medial side being more hypodense. Small intralesional hyperdense areas suggestive for recent hemorrhage were described and right cerebellar lacuna.

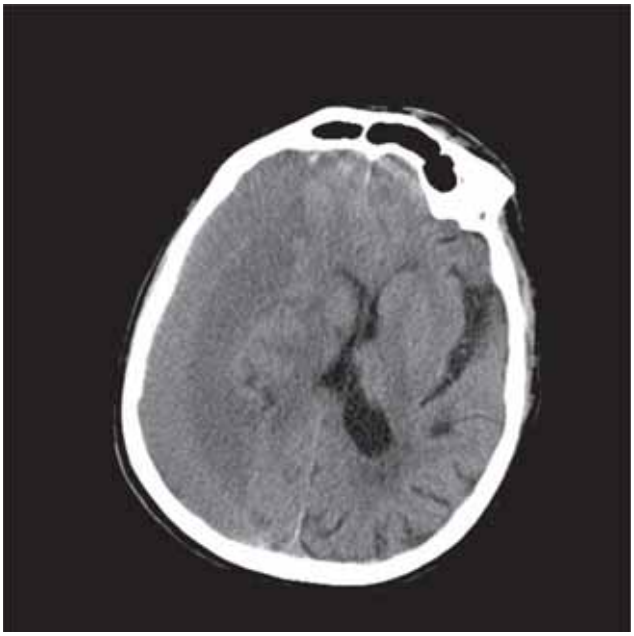

FIGURE 4. *Native cerebral computer tomography revealing massive multilayer subdural hematomas in the right fronto-temporo-parieto-occipital area, associating hyperdense areas of active bleeding. The subdural hematoma has a compressive effect on the right cerebral parenchima colabating the right lateral ventricle and determining the midline shift of approximatively 11 mm. The hematoma is septated by a thin inner membrane and has 2 different densities.*

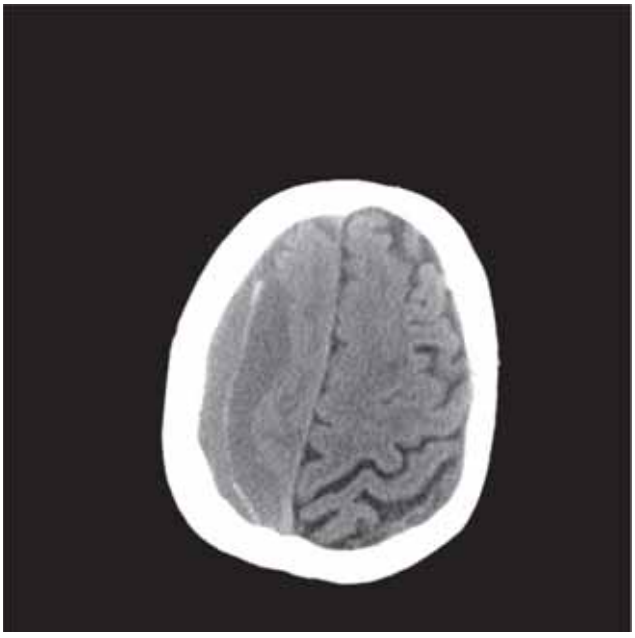

FIGURE 5. *Native cerebral computer tomography revealing massive multilayer subdural hematomas in the right fronto-temporo-parieto-occipital area. The lesion is divided in 2 different layers by a thin calcified inner membrane an appears to have two different densities. The one situated next to the parenchyma being more hypodense, showing different ages of the hematomas.*

Even though the patient was paucisymptomatic, the CT findings imposed urgent surgical approach so he was transferred to the neurosurgery clinic. A large craniotomy was performed and operative findings indicated multiple encapsulated hematomas, of different ages, with thickened outer and inner membranes and unclear vascular source (both arterial and venous). The entire lesion was successfully removed; postoperative period was uneventful, immediately after the surgery the patient scored 15 on GCS and neurological examination showed only mild brachial motor deficit.

DISCUSSIONS

The described case of chronic subdural hematoma occurred in an aged patient who associates chronic alcohol abuse and epilepsy as risk factors, but without seizure recurrence in the last year and no recent history of head trauma. Even though there was a long history of alcohol abuse and were expecting to see an altered liver function the patient's hematological and coagulation tests were within normal range.

After discovering the subdural hematomas in October 2013, several CT scans were performed revealing gradual enlargement of the bilateral fronto-parietal subdural lesions. The last CT scan performed in January revealed a massive hematoma in the right fronto-parieto-temporo-occipital hemisphere. At this stage, the lesion had more than 10 mm in diameter, and determined midline shift of more than 5 mm, this fitting the criteria for a neurosurgical approach. We couldn't explain why the left hematoma resorbed while the right one grew, even though the risk factors were the same throughout the whole period; it might be that the right lesion had a denser vascular source along with brain atrophy.

Most chronic subdural hematomas evolve to become encapsulated and are septated by inner neomembranes, experiencing gradual enlargement through repetitive episodes of bleeding from the outer layer. (3-5) In our patient the lesion had a peculiar evolution, developing multiple well individualised hematoma clusters, of different ages with corresponding mixed CT densities.

Even though the hematoma had significant sizes, compressing most of the right hemisphere, the clinical findings were actually poor, this being explained by the level of brain atrophy associated.

New small studies show that elderly patients who have indication for neurosurgical removal of the subdural hematoma have a lower postoperative morbidity and mortality rate, with good neurological outcome, but that it is important to take into consideration the associated risk factors and comorbidities. (1,6) In our case the outcome was favorable, with improvement of the motor function.

Past and ongoing studies are demonstrating the efficacy of using different drainage techniques, subdural or subperiosatal drainage implants in patients with multiple risk factors for recurring chronic subdural hematoma. (10)

The general reported recurrence rate after surgical intervention is about 5-30% and based on the ongoing studies several risk factors were identified: postoperative midline shifting (≥ 5 mm), diabetes mellitus, preoperative seizures, preoperative width of hematoma (≥ 20 mm), anticoagulant therapy, older age, thicker hematoma with and bilateral lesions. (7-9)

Our case presented 4 important risk factors so we recommended clinical examination and CT scans at 1 and 3 months after surgery, due to high recurrence rate within this period.

Taking into consideration the cardiac arrhythmia and history of cardioembolic stroke, (CHADS-2VASC Score of 3, ATRIA Bleeding Risk Score of 4) we initiated antiplatelet therapy (75 mg Aspirin/ daily) this decision being supported by several small studies that showed there is no increase in hemorrhage risk in this subgroup of patients.(9)

CONCLUSIONS

Chronic subdural hematomas are frequent amongst elderly patients and in this age group the evolution is unpredictable due to the increased risk of falls, venous fragility and augmentation of the subdural space secondary to brain atrophy.

They require periodic CT and clinical monitoring, older age being an independent risk factor for bleeding recurrence. Surgical approach is to be considered even in patients older than 70 years with clear neurological improvement.

In patients with associated cardio-vascular risks antiplatelet therapy is to be taken into consideration, while anticoagulants should be recommended with caution.

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