

Statins: An Alternative To Surgical Treatment Of Chronic Subdural Haematoma In The Poly Pathological Elderly?

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Summary

Chronic subdural haematoma is a frequent pathology of the elderly especially in comorbid terrain. The treatment is almost always surgical. Sometimes this surgery is not possible and a medical treatment based on corticosteroids is most often required. We report the cases of two patients followed for chronic subdural haematoma with several comorbidities and ineligible for surgery. A statin-based treatment was initiated. The aim is to consolidate the hypothesis of medical management of chronic subdural haematoma. The first case was about an 87-year-old patient followed in cardiology for cardiac arrhythmia with a Pacemaker insertion in 2021 on Aspirin 100mg and oral anti-diabetic and insulin therapy for 15 years. Clinically, he presented with intense headaches without neurological deficit. The brain scan performed revealed a chronic left hemispheric subdural hematoma with mass effect. Treatment with atorvastatin at a dose of 20mg/day for three months was initiated. The evolution was marked by the disappearance of headaches after two weeks. After three months of treatment, the haematoma disappeared completely. The second patient was an 83-year-old man also followed in cardiology for heart failure and in gastroenterology for a gastric tumour undergoing chemotherapy who had been suffering for three weeks from intense headaches with left hemiparesis. Brain CT scan: right hemispheric subdural hematoma with mass effect. Treatment with atorvastatin 20mg was started for three months with radiological controls at one month and three months with a favourable evolution.

Keywords: Statins, alternative, chronic subdural haematoma, elderly subject.

INTRODUCTION

Chronic subdural haematoma (CSHD) is a common pathology in neurosurgery. It occurs in extreme ages by the detachment of the epidural veins resulting in a collection of blood in the subdural space. This bleeding collection can be built up over several weeks and sometimes goes unnoticed [1]. There are many risk factors for this condition and they are dominated by anticoagulants and minor head trauma.

Other risk factors such as diabetes and certain heart diseases are also known [1]. Chronic subdural haematomas associated with neoplasia are rare [1]. Clinical signs are variable and misleading [1]. Diagnosis is often delayed and less easy in the elderly [1]. A computed tomography (CT) scan, especially, and/or cerebral MRI are used to diagnose chronic subdural haematoma. [1]. Surgical treatment by evacuation of the

haematoma is the aim of management. In certain situations, medical treatment is used: the absence of neurological deficits, the small volume of the haematoma on imaging, the refusal of surgery and associated pathologies (elderly subjects with several comorbidities often contraindicating surgery...) [1]. Treatment with corticosteroids at a dose of 0.5mg/kg/day is often used. The existence of a localized inflammatory reaction following CSDH as a result of a disruption of dural border cells. This localized inflammatory reaction may promote

angiogenesis and hyperpermeability, leading to the propagation of ongoing bleeding. The use of corticosteroids and statins for the medical management of CSDH has been thought to address and limit local inflammation and angiogenesis [2]. The multiplicity of complications due to corticosteroids in elderly patients with comorbidities has led us to use atorvastatin 20mg/day for its better tolerance.

We report here two cases of chronic subdural haematoma in elderly subjects ineligible for surgery because of their underlying pathologies treated with statins.

CLINICAL OBSERVATION

This study concerned 2 patients followed up in the Neurosurgery Department of Idrissa Pouye General Hospital, Cheikh Anta Diop University, for management of chronic subdural hematoma by medical treatment, during a follow-up of at least three months. All the patients approved their participation in this study.

Clinical case 1

An 87-year-old patient followed in cardiology for cardiac arrhythmia with placement of a Pacemaker since 3 ago, on Aspirin 100mg and on oral anti-diabetic and insulin therapy

for 15 years. Clinically he presented with intense headaches without neurological deficit. The brain scan performed revealed a chronic left hemispheric subdural hematoma with mass effect (Fig. 1A). Hemoglobin at 7.3g/dl and platelets at 53000/mm. Atorvastatin at a dose of 20mg/day for a period of three months was initiated. The evolution was marked by the disappearance of headaches after two weeks. Control imaging at one month after treatment (Fig. 1B). Showed a clear decrease in the volume of the haematoma with disappearance of the mass effect and that of 3 months showed a complete disappearance of the haematoma (Fig. 1C)

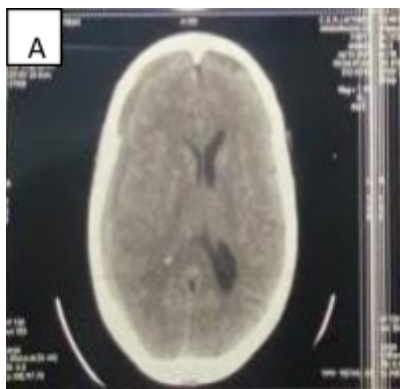


Fig 1A: Cerebral CT scan without contrast injection showing a right hemispheric chronic subdural hematoma

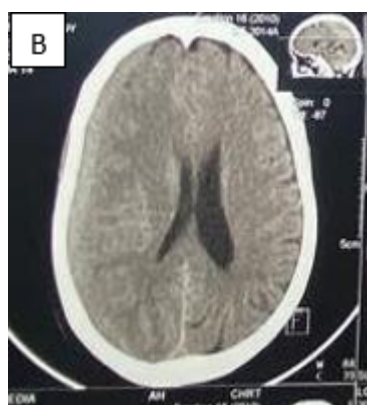


Fig 1B: Cerebral CT scan without injection of contrast medium showing with partial resorption of the haematoma at one month of corticosteroid therapy

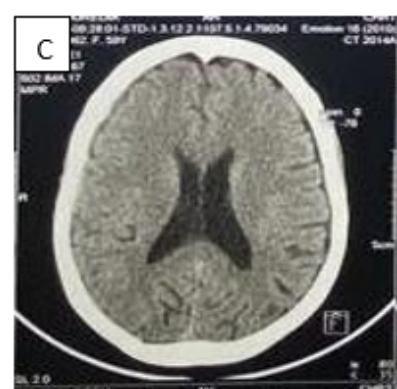


Fig 1C: Cerebral CT scan without contrast injection at 3 months of corticosteroid therapy complete resorption of the hematoma.

Clinical case 2

The second patient is an 83-year-old man also followed in cardiology for heart failure and in gastroenterology for a gastric tumour under chemotherapy who has been presenting for three weeks with intense headaches with a hemiparesis at 4. A brain CT scan showed a right hemispheric subdural hematoma with a mass effect and

atorvastatin at a dose of 20mg/day for a period of three months was started. The evolution was marked by the disappearance of headaches after two weeks. Control imaging at one month after treatment (Fig. 1B). Showed a clear decrease in the volume of the haematoma with the disappearance of the mass effect and that of 3 months showed a complete disappearance of the haematoma (Fig. 1D)

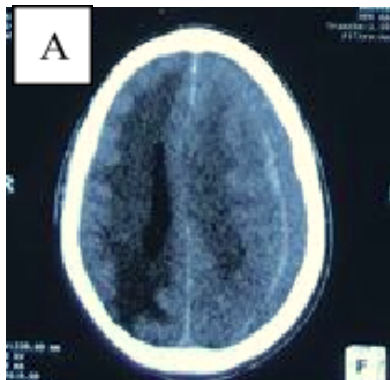


Fig 2A: Cerebral CT scan without contrast injection showing a left hemispheric chronic subdural hematoma.

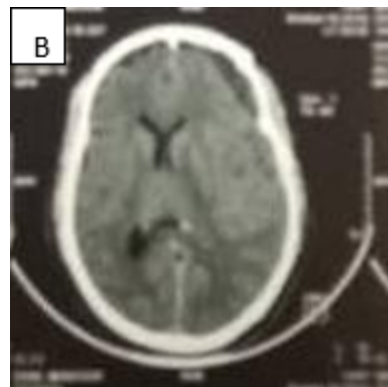


Fig 2B: Cerebral CT scan without injection of contrast medium showing with partial resorption of the haematoma at one month of corticosteroid therapy



Fig 2C: Cerebral CT scan without contrast injection at 3 months of corticosteroid therapy a complete resorption of the hematoma.

DISCUSSION

Chronic subdural haematoma (CSDH) is a common pathology in neurosurgery. It occurs in extreme ages by the detachment of the epidural veins resulting in a collection of blood in the subdural space [1]. Its treatment is most often surgical even if cases of recovery have been reported after medical treatment [2]. CSDH has a 3:1 male-to-female predilection, occurring at the mean age of 77 years. The overall incidence of CSDH in the general US population is approximately 5 per 100,000, and the rate substantially increases to 58 per 100,000 in patients over 70 years of age. Importantly, with the number of individuals over the age of 65 expected to double by the year 2050, the overall incidence of cSDH is also likely to rise [3]. Pathophysiology of CSDH consists of repeated micro bleedings of bridging veins after traumatic injury, mainly in atrophic elderly brains. In the young, such bleeding is more frequently associated with

higher-energy trauma or coagulopathies. Initial bleeding leads to inflammation and subsequent formation of a capsule with vascular neoangiogenesis, which may then bleed, increasing the size of the hematoma. Several steps in the inflammatory cascade contribute to initial and advanced phases of CSDH formation [4]. In our context the aetiology was related to the use of antiplatelet drugs, associated in one case with comorbidities such as diabetes and heart disease and in the other case associated with heart failure. The clinic in our context was dominated by headaches and an installation of a hemiparesis in one case. According to the literature, the younger the patient, the more noisy and rapid the symptoms, which can be explained by age-related cerebral atrophy, which leads to the formation of large or bilateral haematomas in the elderly, which are long well tolerated. The clinical presentation,

when it is typical, leads without difficulty to a cerebral scanner which will give the diagnosis. The typical clinical form begins after a variable interval; classically, one finds: a hemiparesis (60%), often revealed by a tendency to fall; moderate signs of intracranial hypertension (50%); a confusional syndrome and behavioural disorders (25%); disorders of consciousness (20%); comitiveness (7%). Unfortunately, the diagnosis can be misleading, due to the numerous clinical forms that can be encountered: forms with psychiatric manifestations, which are very difficult to reveal in the elderly; forms simulating transient ischemic attacks; forms with extrapyramidal symptoms [5].

As an emergency condition, brain imaging is dominated by the performance of a CT scan of the brain, which was performed in both our patients. Even the literature reports that, CT scan is a cost-effective and rapid imaging modality to diagnose cSDH, but may be less sensitive than magnetic resonance imaging (MRI) in determining the size and internal anatomy of a cSDH. In a study conducted in 34 cSDH patients who underwent burr hole craniotomy and cSDH irrigation, 60% had membrane encapsulation of the cSDH, which were all captured on MRI, whereas only 27% of the membranes were visible on CT scan. CT scans are well suited for identifying the hematoma site, thickness, midline displacement, and presence of subdural clots; however, none of these radiographic factors significantly affect postoperative recurrence rates of cSDH [6]. The CT scan also retains its place in the follow-up and evolution of subdural haematoma.

For many years, the management of subdural haematomas has remained surgery using a drill hole. This technique involves the use of a handheld drill to create a small (few mm) opening in the cranium and can be performed with the administration of local anesthesia at the bedside. TC avoids the use of general anaesthesia which is desirable in elderly patients with several

medical comorbidities and provides a relatively slow decompression that may decrease the incidence of complications such as intraparenchymal hemorrhage [7, 2, 5]

The existence of contraindications to surgery, gives way to an alternative which is medical treatment. Glucocorticoids have been used to treat chronic subdural hematoma [7]. Systematic reviews have concluded that glucocorticoids may be safe and effective when used in addition to surgery, with the aim of reducing the risk of recurrence, or as stand-alone therapy, with the aim of avoiding surgery. The treatment regimen consisted of a total 124 mg of dexamethasone administered as a tapering course over 14 days. The dosage and treatment duration in this trial were selected on the basis of previous studies [8] and are similar to the dosage and treatment duration used in other ongoing trials of glucocorticoids, although longer treatment durations of 3 and 8 weeks are also being evaluated. The median time to recurrence of chronic subdural hematoma after surgical evacuation has been 12 to 15 days in several studies, and this was the rationale for designing the trial with a 2-week treatment period with dexamethasone [8]. More adverse events, such as hyperglycemia, new-onset diabetes, new-onset psychosis, and infections, were reported in the dexamethasone group than in the placebo group in our trial. It is possible that a shorter course with a smaller dose could reduce these risks [8].

This has led in recent years to the use of statins. The use of statins for medical management of cSDH has been thought to address and limit local inflammation and angiogenesis. Initial reports of successful conservative medical management strategies have led to increasing evidence in both retrospective and prospective series that steroids may have a role in certain cases of cSDH, particularly when surgery is not an option, whose therapeutic effects have been evaluated as being the same as those of

corticosteroids and have almost no side effects. In our context, the use of a statin at a dose of 20mg/day for a period of three months led to spectacular results, with total resorption of the haematoma in 3 months.

CONCLUSION

Chronic subdural haematoma in the elderly is a frequent pathology in neurosurgical settings. Therapeutic management varies according to the team. It is mainly surgical. The effectiveness of corticoids as an alternative to surgical treatment is no longer in question, but they are the source of many

Thus, although preliminary in our study, we recommend in all cases of chronic subdural haematoma not surgically treatable with contraindication to the use of corticosteroids, the administration of low dose statins.

complications. Statins are therefore proposed, as they seem to be better tolerated in patients with comorbidities. However, large cohort and multicentre studies are needed to assess the place of statins in the management of chronic subdural haematoma.

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