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Case report

Rapid resolution of a spontaneous large chronic subdural haematoma in the posterior fossa under conservative treatment with platelet administration to aplastic anaemia

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1. Introduction

Chronic subdural haematoma in the posterior fossa is uncommon. Only 10 adult cases, diagnosed by computed tomography (CT) or magnetic resonance imaging examinations, have been reported in the literature. We have recently seen a new case in which the pathophysiology was complicated by anticoagulant therapy and thrombocytopenia due to aplastic anaemia. Conservative treatment targeting the above background factors was effective and the haematoma resolved in a short period.

2. Case report

An 83-year-old woman was admitted to our hospital because of heaviness of the head and inconsistency in her communication. The relevant past medical history included hypertension, atrial fibrillation, and aplastic anaemia. She had been taking an oral anticoagulant (dabigatran 150 mg daily), cyclosporine, and antihypertensive drugs. She was receiving platelet and red blood cell infusion periodically at another medical facility. On admission, the patient was almost fully conscious and complained of a slight headache. The neurological examination revealed mild dysdiadochokinesia on both sides. She scored 4/42 on the National Institute of Health Stroke Scale. Investigations showed a haemoglobin level of 7.3 g/dl and leucocyte count of 3400/μl. The platelets count was 10,000/μl, the international normalized ratio for prothrombin time was 1.28, and activated partial thromboplastin time was 38.4 s (normal 24.0–39.0 s).

CT scans showed bilateral thick haematoma in the posterior fossa, which compressed the cerebellum and the brainstem, leading to obstructive hydrocephalus (Fig. 1A and B). The haematoma showed a niveau formation. A CT angiogram revealed no vascular disease, no aneurysm or any arteriovenous malformation.

Since the patient's consciousness level was almost normal with only slight cerebellar ataxia bilaterally, and considering the influence of her anticoagulant therapy and thrombocytopenia, we deferred surgery and managed the treatment conservatively.

Severe thrombocytopenia is refractory to platelet administration so platelets were administered almost every day. Dabigatran was discontinued at admission.

Her symptoms gradually ameliorated within a week of her admission. Serial CT scans demonstrated shrinkage of the haematoma and improvement of the hydrocephalus (Fig. 1C and D). At the outpatient clinical follow-up, about 2 weeks after admission, CT scans showed almost total resolution of the haematoma (Fig. 1E and F). She was fully conscious with no neurological deficit.

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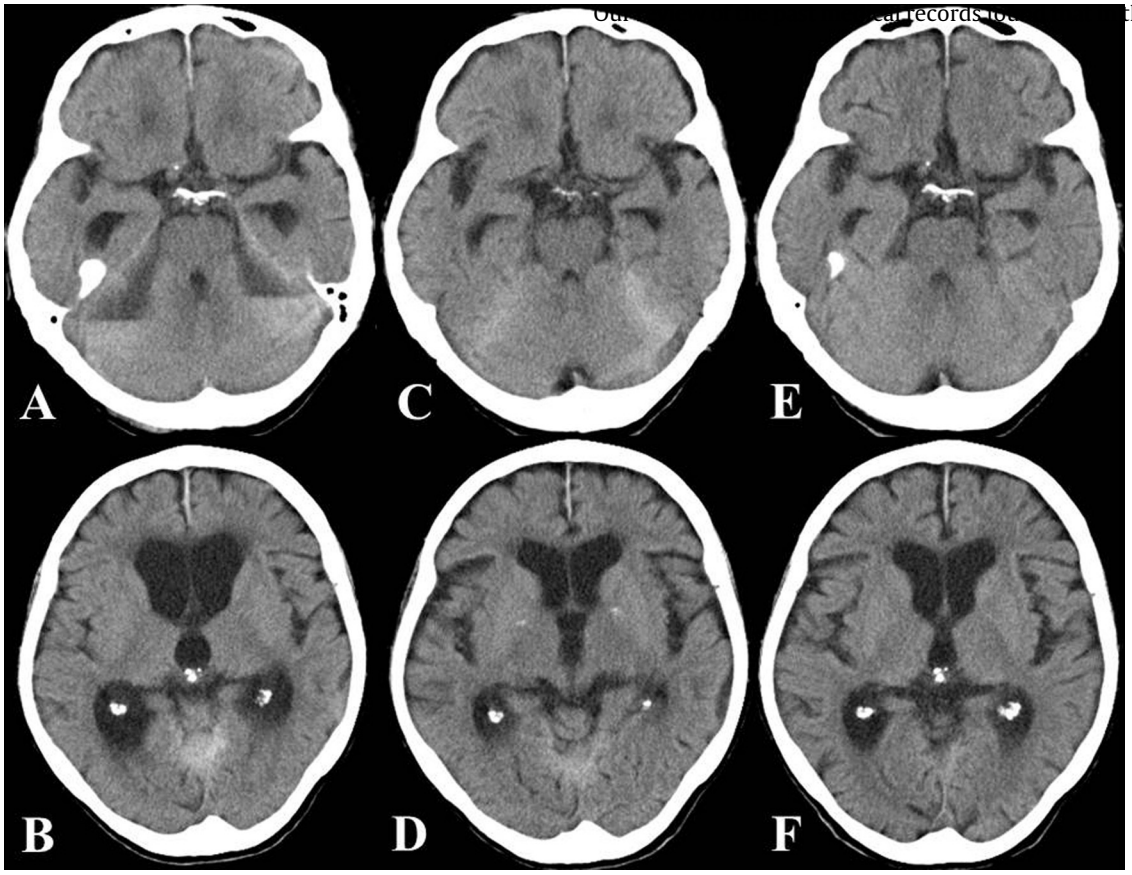

Fig. 1. Serial computed tomography scans obtained are shown. (A and B) At admission. (C and D) On the 8th day of admission. (E and F) 15th day after admission, at the outpatient clinical follow-up. Conservative treatment with administration of platelets and discontinuation of dabigatran diminished the subdural haematoma in the posterior cranial fossa in the 2 week period.

3. Discussion

Chronic subdural haematoma in the posterior fossa is a rare occurrence. The 10 published case reports have been reported in the literature (Table 1).

Of the 11 cases including the current case, six patients took anticoagulants, two patients took antiplatelet drugs and three patients suffered from thrombocytopenia. All patients except three had been taking anticoagulants or antiplatelet drugs, or suffered from thrombocytopenia or coagulation disturbance. Dabigatran is a direct thrombin inhibitor for stroke prevention agent in atrial fibrillation patients [1]. Although it is associated with lower risk of intracranial haemorrhage compared with warfarin, the dabigatran use could have been significantly involved in the pathophysiology of this case, since anticoagulation is known to have an important role in the pathogenesis of chronic subdural haematoma [2]. Refractory thrombocytopenia induced by aplastic anaemia and an antimitotic drug are also considered to have played a major pathogenic role.

Although patients with supratentorial chronic subdural haematoma usually have had at least a mild head injury ahead of pathogenesis, only two out of the 11 cases had experienced head trauma. Our patient could not remember any recent head trauma, although the haemorrhage could have been triggered by a trivial trauma unnoticed by the patient.

In many cases treatment involved surgical drainage, that resulted in rapid resolution of the haematoma and clinical improvement within a few days, with no major operative complications. On the other hand, conservative treatment made it more difficult to predict whether or when the haematomas would be resolved. when conservative strategy was applied, the haematoma resolved spontaneously within a period of 2 weeks to 2 months and all outcomes showed good neurological recovery. Rapid resolution of haematoma in our case, together with the other three cases, suggests that conservative treatment may be an effective therapeutic alternative in some cases. Particularly in those accompanied by anticoagulants or thrombocytopenia, platelet infusion and discontinuation of anticoagulants are considered to be effective at least for a short period. There has been a report that supports a medical treatment for supratentorial chronic subdural haematoma in cases with thrombocytopenia due to idiopathic thrombocytopenic purpura [3]. Surgery under the influence of anticoagulant therapy and thrombocytopenia carries certain perioperative risks. Furthermore, surgery for chronic subdural haematoma in the posterior fossa is not as feasible as for supratentorial chronic subdural haematoma.

In terms of the mechanisms underlying spontaneous resolution of subdural haematoma, platelet administration might have caused a favorable effect. Past studies suggest that the endothelial gap junctions of macro-capillaries in the outer membrane of the haematoma play an important role in the leakage of blood, and these gap junctions are bridged by platelets [4]. Reinforcement of the endothelial permeability by platelet infusion together with the recovery of the fibrinogen activity by discontinuation of anticoagulant administration are considered to have contributed to haematoma resolution.

Surgical drainage for bilateral chronic subdural haematoma in the posterior fossa was performed in three cases, and in all cases drainage was conducted through bilateral burr holes. In our case, since the haematoma on both sides appeared similar with the

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