

Case Report

Intracranial subdural haematoma – a rare complication following spinal anaesthesia

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We present a rare case with postspinal headache resulting in an intracranial subdural haematoma. After 5 days of persistent headache the condition was recognized and diagnosed on a computerized tomography-scan (CT) of the skull. The patient was operated with evacuation of the haematoma 2 weeks after the spinal anaesthesia and recovered completely.

Key words: Postspinal headache; spinal anesthesia; subdural hematoma.

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SUBDURAL intracranial haematoma after spinal anaesthesia is an extremely rare complication (1). The leakage of cerebrospinal fluid (CSF) following spinal anaesthesia is usual of minor degree and seldom gives rise to any symptoms. However, a more abundant leakage may cause a reduction in CSF volume, lowering at first the intraspinal pressure and finally, more dangerously, the intracranial pressure (2, 3).

The pressure gradient shift results in a caudally directed movement of the spinal cord and brain, which in turn stretches dural veins and progressive headache occurs. In severe cases the dural veins are stretched into tearing, resulting in a venous subdural bleeding and a subdural haematoma. This condition may lead to serious neurological sequelae or lethal outcome.

Although postspinal headache is usually harmless and transient, we stress the possibility of intracranial bleeding as a differential diagnosis.

Case report

A previously healthy 71-year-old man with no history of head trauma or medication underwent elective diagnostic cystoscopy. Regional blockade had not previously been performed.

The patient received Ringer acetate® 1000 ml prior to spinal anaesthesia using a 22-gauge Quincke-point spinal needle (Becton Dickinson, Yale, USA)

through the L₃₋₄ interspace in the sitting position. Hyperbaric lidocaine (Xylocain® Astra, Sweden), 1.7 ml (85 mg), was injected. A previous attempt in the L₂₋₃ interspace was abandoned because of minor bleeding through the needle. Within 1 min of injection, the patient was placed in the supine position. The height of the blockade was assessed by the ability to discriminate temperature sensation 20 min after the injection and gave a satisfactory blockade to T₈. The blood pressure was stable throughout the procedure, which lasted 30 min.

Postoperatively, the patient complained of right-sided fronto-temporal headache, symptoms interpreted as postspinal because the headache became more intense in the upright position.

In spite of continuous complaints, he was discharged from the hospital 2 days later.

Due to persistent right-sided, non-postural headache with nausea and vomiting, the patient was seen by a neurologist on the 5th day postoperatively. The neurological examination did not reveal any focal deficit, but the patient was admitted to a neurological ward for observation. A CT scan of the head the same day demonstrated an 11-mm-thick, right-sided subdural haematoma. In view of the absence of serious neurological symptoms, the haematoma was not drained at that time. However, a full clotting screen was obtained and found normal, and a carotid angiography was performed in order to exclude arteriovenous malformations. In the next few days

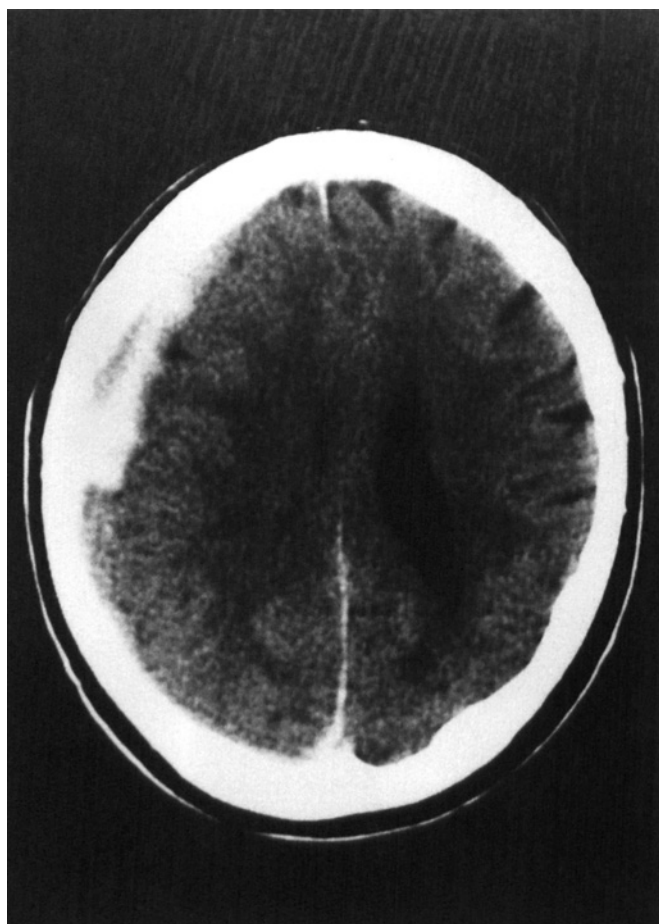


Fig. 1. Cranial CT of the skull showing right-sided subdural haematoma with compression of the right ventricle.

the headache increased and became worse on movement of the head. Vomiting also occurred frequently. Another CT scan of the skull was performed on the 13th day and this revealed an increase of the subdural haematoma by 3–4 mm, see Fig. 1.

The patient was operated 2 weeks after the spinal anaesthesia with evacuation of the haematoma. The patient recovered completely.

Discussion

Postspinal headache may develop after any procedure causing dural leakage, most commonly after spinal anaesthesia or diagnostic dural puncture.

Typical postspinal headache consists of occipital pain usually associated with neck stiffness and photophobia, also rare neurological sequelae, such as III, IV, VI and VIIIth cranial nerve palsies causing diplopia and bilateral deafness are reported (4, 5). The characteristic headache is postural, being relieved in the supine position. Treatment, although debatable,

consists of bed rest and abundant hydration (6). In severe cases with prolonged symptoms, an injection of 10–20 ml autologous blood in the epidural space near the previous puncture can be performed (7, 8). This blood patch is successful in 90–95% of cases (1). The complication rate is low (8–10), but transient neck stiffness, fever and radicular pain may develop (5, 11).

The initial headache in our patient was of a postural nature. The unilateral, fronto-temporal location, however, differs from classical postspinal headache, which might suggest that the intracranial bleeding started immediately after the operation and that the symptoms were misinterpreted as postspinal headache.

The cause of postspinal headache is thought to be leakage of CSF into the surrounding tissue, stretching the pain-sensitive blood vessels, including the dura mater, when the patient is mobilized (12). The pain may last for several months after the dural trauma.

Acute intracranial subdural haematoma is an extremely rare complication after spinal anaesthesia, but has previously been described (1, 12, 13). The incidence of this rare complication depends upon the patient's age and the extent of the dural damage (6). The mechanism of the intracranial bleeding consists of rupture of the ascending dural veins in the brain, due to the caudally directed force while mobilizing the patient.

CT scan of the skull usually gives the correct diagnosis. However, intracranial haematomas 7–21 days old may have the same radiological density as the brain and the radiologic diagnostic procedure should therefore be performed using contrast (12).

Atypical headache, inexplicable vomiting, unconsciousness and/or focal neurological symptoms after spinal anaesthesia must lead to a cranial CT scan. With early diagnosis and treatment the prognosis is usually good. The time span between the intracranial bleeding, the operation and the size of the haematoma, determine the prognosis.

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