Remote cerebellar haematoma after lumbar disc surgery
Case report

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Remote cerebellar haematoma (RCH) from the operative site is one of the most serious, although extremely rare, complications of spinal surgery.
Dural opening is common to every reported case of a spinal procedure complicated by cerebellar hemorrhage, supporting the hypothesis that CSF loss is central to the pathogenesis of this condition. We report our experience with the case of cerebellar haematoma after lumbar disc surgery and the literature is reviewed

KEY WORDS: Cerebrospinal fluid, Cerebellum, Complications, Disc, Intracranial haematoma, Spine.

Introduction

Haemorrhage after cranial or spinal surgery can occur in the intracerebral, cerebellar, epidural, or subdural compartments. Remote cerebellar haematoma after spinal surgery is extremely rare, but is a very serious clinical problem due to the location of the bleeding. Some authors suggest that RCH or hemorrhagic infarction occurs due to venous infarction, but the pathophysiology and etiology of this condition are unknown[1,2]. It has been proposed that cerebellar sag resulting from intraoperative or postoperative cerebrospinal fluid (CSF) drainage might stretch and occludes the bridging cerebellar veins that course cephalad, leading to hemorrhagic venous infarction[3].

Case report

A 53-year-old man presented a left L5 radicular pain with motor deficit of tibialis anterior (4/5) resisting to medical management. IRM and CT investigations revealed a soft herniated disc at L4–L5.He had no history of arterial hypertension, trauma, hypercoagulable state, or recent infection. He was operated in prone position and unfortunately performing microdiscectomy the dura mater was damaged, and was sutured in watertight fashion with 4–0 Vicryl sutures (Ethicon, Inc., Somerville, NJ). Neither intraoperative nor postoperative blood pressures were noted to be elevated. When the patient awoke from anaesthesia, he was neurologically intact. At 2 h after surgery he complained of headache, and over the next 3 h he exhibited progressive dysarthria, vertigo and vomiting. Emergent cranial computed tomographic (CT) scan was made revealing a cerebellar haemorrhage in the vermis (Fig. 1). Laboratory studies, including platelet count, prothrombin time, and partial thromboplastin time, were within normal ranges and cerebral angiography was normal. The patient was managed conservatively with antiedema treatment (4 mg intravenous dexamethasone every 4 h), analgesics, and bed rest. Repeat CT at 48 h showed no enlargement of the haemorrhage sites and no hydrocephalus. Patient was discharged in 19th day after spinal surgery in good conditions and neurological control after 6 months was normal.

Discussion

Recent reports indicate that cerebellar haemorrhage after spinal surgery is infrequent, but it is an important and preventable problem. The occurrence of remote cerebellar haemorrhage (RCH) is most frequently associated with frontotemporalcraniotomy with the patient in the

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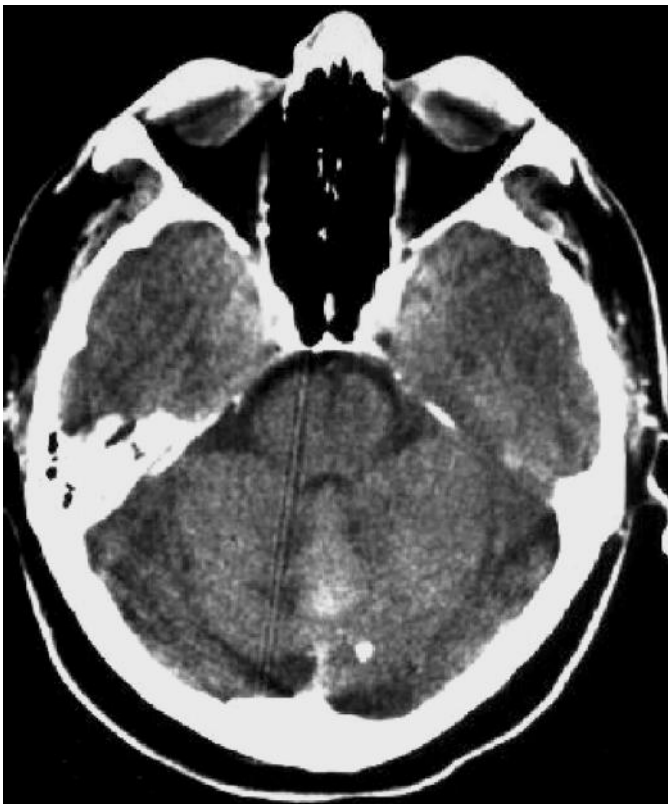

Fig. 1: Axial CT scan shows a cerebellar hemorrhage in the vermis.

supine position [4,5]. Several others factors including arterial hypertension, anticoagulation therapy, coagulopathy, aneurysm, and arteriovenous malformations, have also been identified as possible predisposing factors for RCH [6]. Although the underlying pathophysiologyof RCH has not been definitively elucidated, recent reports suggest that the condition is venous in origin [7]. Cerebellar "sag" as a result of intraoperative cerebrospinal fluid (CSF) aspiration has been proposed to cause stretching and occlusion of bridging cerebella veins coursing in the cephalic direction, leading to hemorrhagic venous infarction [8]. Because RCH can occur after procedures with the patient in the supine, sitting, and prone positions, patient positioning seems unlikely to play a causative role in its occurrence. Small cerebellar haematomas can be managed medically and followed with serial imaging; however, large haematomas that cause significant mass effect in the posterior fossa may require surgical decompression We conclude that it is important to consider the possibility of RCH in any patient who exhibits unexplained neurological deterioration after the dura mater has been opened during spinal surgery.

Riassunto

L'ematoma cerebellare distante dal focolaio operatorio é un evento estremaente raro e fra le più temibili compicazioni della chirurgia spinale. La lacerazione durale é la condizione più di frequente riportata nell'emorragia cerebellare che complica una procedura chirugica spinale avvalorando pertanto l'ipotesi del ruolo centrale della fuoriuscita di liquido cefalorachidiano nella sua patogenesi. Descriviamo il caso di un paziente sottoposto ad intervento per ernia discale lombare complicatosi con una ematoma in fossa cranica posteriore rivisitando i dati presenti nella letteratura.

References

1) Friedman JA, Ecker RD, Piepgras DG, Duke DA: *Cerebellar hemorrhageafter spinal surgery: report of two cases and literature review.* Neurosurgery, 2002; 50:1361-364.

2) Thomas G, Jayaram H, Cudlip S, Powell M: *Supratentorial and infratentorial intraparenchymal hemorrhage secondary to intracranial CSF hypotension following spinal surgery.* Spine, 2002; 27:410-12.

3) Morandi X, Riffaud L, Carsin-Nicol B, Guegan Y: *Intracerebral hemorrhage complicating cervical "hourglass"schwannoma removal.* J Neurosurg, 2001; 94:150-53.

4) Brisman MH, Bederson JB, Sen CN, Germano IM, Moore F, Post KD: *Intracerebral hemorrhage occurring remote from the craniotomy site.* Neurosurgery, 1996; 39:1114-122.

5) Gobel F, Heidecke V, Hube R, Reichel H, Held A, Hein W: *Cerebellar hemorrhage as an early complication of spinal operations: Case reports and review of the literature.* Z Orthop Ihre Grenzgeb, 1999; 137:371-75.

6) Toczek MT, Morrell MJ, Silverberg GA, Lowe GM: *Cerebellar hemorrhage complicating temporal lobectomy.* J Neurosurg, 1996; 85:718-722.

7) Cloft HJ, Matsumoto JA, Lanzino G, Cail WS: *Posterior fossa hemorrhage after supratentorial surgery.* AJNR Am J Neuroradiol, 1997; 18:1573-580.

8) Marquardt G, Setzer M, Schick U, Seifert V: *Cerebellar hemorrhage after supratentorial craniotomy.* Surg Neurol, 2002; 57:241-52.