Case report

CHRONIC SUBDURAL HEMATOMA IN THE POSTERIOR FOSSA

Abstract

Chronic subdural hematoma (CSH) in the posterior fossa is exceedingly uncommon among adults. Computed tomography (CT) scanning is generally dependable and sufficiently sensitive in the diagnosis of supratentorial subdural hematomas, while magnetic resonance imaging (MRI) has demonstrated its superiority in identifying subdural collections in atypical locations, especially within the posterior cranial fossa, with more detailed analysis. The choice of surgical approach remains a subject of debate. Here, we present a single case of CSH in the posterior fossa that was managed through a suboccipital craniectomy. In this case, a 70-year-old man developed symptoms including headaches, nausea, cerebellar syndrome, and unsteady walking. Radiological assessments revealed the presence of a right-sided CSH within the posterior fossa, along with hydrocephalus. Due to a rapid deterioration in the patient's level of consciousness, urgent intervention was warranted. A small suboccipital craniectomy on the right side was performed to access the hematoma. Subsequent postoperative computed tomography demonstrated successful resolution of both the CSH and hydrocephalus.

Key Words: intracranial hematoma; posterior fossa;subdural hematoma

Introduction

Chronic subdural hematoma (CSH) in the posterior fossa of the adult population is exceedingly rare, with only a limited number of cases having been previously documented [1]. Computed tomography is typically dependable and adequately sensitive for diagnosing supratentorial subdural hematomas, whereas MRI has demonstrated its superiority in identifying subdural collections in uncommon locations, particularly showcasing its detailed analysis capability within the posterior cranial fossa. In contrast to supratentorial CSH cases, the most effective treatment approach for posterior fossa CSH remains unclear. When coupled with hydrocephalus, CSH within the posterior fossa necessitates urgent medical attention. Nonetheless, the optimal therapeutic strategy for managing posterior fossa CSH remains a subject of controversy. Herein, we present a case involving a right-sided CSH within the posterior fossa accompanied by hydrocephalus. Successful resolution was achieved through a minor right suboccipital craniectomy performed under general anesthesia.

Case Report

A 70-year-old male patient was admitted to a different medical facility due to headaches that were not responding to treatment. During the clinical examination, a right-sided kinetic cerebellar

syndrome was observed. Hemostasis assessment yielded normal results. A CT scan revealed a small chronic subdural hematoma located in the posterior fossa. Initially, the patient received conservative treatment.However, two weeks later, the patient's condition worsened, with increased headaches, nausea, altered consciousness (Glasgow Coma Scale: 14), and difficulties in walking. A follow-up CT scan and MRI indicated an enlargement of the hematoma along with active hydrocephalus (Fig. 1 and 2). Results of the MRI angiography were normal. The patient was rushed to the operation room due to the quick loss of consciousness. After opening the dura mater during a suboccipital right craniectomy, a typical chronic subdural hematoma was drained. Old liquefied blood rushed out when the dura was opened, indicating posterior fossa hypertension; no drain has been installed because it is believed that the parenchyma has expanded again (Fig.3). In the postoperative period, the patient improved quickly and was discharged without neurological deficits. The postoperative CT scan was unremarkable.

Discussion

HSC is one of the most common diseases in neurosurgical practice, and the incidence is reported as 1 to 2 cases per 100,000 population per year [1,2]. It's common for supratentorial CSH to manifest several months subsequent to a mild head injury. In contrast, CSH in the posterior fossa is extremely rare in the adult population. Up to the present moment, only 15 cases have been documented (Table 1). Among these instances, 3 patients (18%) had a documented history of head trauma, whereas 11 patients (71%) presented with underlying bleeding disorders or were undergoing anticoagulant / antiplatelet therapy.

Subdural infratentorial hematomas typically arise from traumatic injuries to the posterior fossa, often involving damage to the bridging veins. Some researchers attribute these occurrences to the rupture of an aneurysm or an arteriovenous malformation within the posterior fossa [1], while others link them to a syndrome of intracranial hypotension [3]. It is widely acknowledged that the primary risk factor for subdural hemorrhage is anticoagulant therapy or clotting irregularities [4]. In the present case, the bleeding should have been caused by an injury to the bridging veins in the posterior fossa, secondary to mild head trauma not noticed by the patient.

Typically, computed tomography (CT) scans are reliable and sufficiently sensitive for diagnosing subdural hematomas in the upper part of the brain (supratentorial region), whereas magnetic resonance imaging (MRI) has demonstrated its superiority in identifying subdural accumulations in uncommon locations, especially excelling in the comprehensive analysis of the posterior cranial fossa. Conventionally, MRI can provide insights into the age of the bleeding based on signal characteristics observed in both T1 and T2 sequences: presenting as isoT1/hypoT2 signals during the acute phase, transitioning to hyperT1/hypoT2 and then hyperT2 signals during the subacute phase, and finally manifesting as hypoT1/hyperT2 signals during the later stage.

As a common practice in neurosurgery, bur hole surgery or twist drill craniostomy is often conducted on the convexity of the skull under local anesthesia and mild sedation to address symptomatic supra-Tentorial CSH [5,6]. Conversely, for posterior fossa CSH, multiple therapeutic options need to be taken into account. Various surgical approaches have been reported for managing HSC in the posterior fossa. Among the 13 documented cases presenting with symptoms, 11 underwent surgical interventions, including lateral suboccipital craniotomy, minor craniectomy, and burr hole trepanation, carried out either under general anesthesia or local anesthesia. When dealing with critically ill or elderly patients, the incidence of complications is reduced during local anesthesia-based procedures.

Conversely, the utilization of general anesthesia becomes imperative for ensuring safe surgical intervention for unilateral and bilateral HSCs in posterior fossa [7].
Seven cases, including our own, of hydrocephalus brought on by HSC of the posterior fossa have been documented. In two of them, ventricular drainage was developed. The non-communicating hydrocephalus was eliminated in the remaining patients when the hematoma was evacuated. Prompt surgery should be taken into consideration because concomitant hydrocephalus can significantly degrade neurologic state.

conclusion

Subdural hematoma of the posterior cranial fossa can be a potentially fatal injury. However, if the lesion diagnosed early and treated properly, the prognosis is not always bad**[8,9]**.

Ethical Approval:

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

Consent

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

REFERENCES

1. Stendel R , Schulte T , Pietilä TA , Suess O, Brock M. Spontaneous bilateral chronic subdural haematoma of the posterior fossa. Case report and review of the literature. ActaNeurochir (Wien). 2002 May;144(5):497–500.
2. Gudeman SK, Kishore PR, Miller JD, Girevendulis AK, Lipper MH, Becker DP: The Genesis And Significance Of Delayed Traumatic Intracerebral Hematoma. Neurosurgery. 1979 Sep;5(3):309-13
3. Costa LB Jr , de Andrade A , Valadão GF . Chronic subdural hematoma of the posterior fossa associated with cerebellar hemorrhage: report of rare disease with MRI findings. ArqNeuropsiquiatr. 2004 Mar;62(1):170– 2.
4. Lagares A , Domínguez J , Lobato RD , González P . Bilateral posterior fossa subdural haematomas secondary to anticoagulant therapy. ActaNeurochir (Wien). 1998;140(10):1097–8.
5. CmelM ,Grubb RL Jr : treatement of chronic subdural hematomaby twist drill craniostomy with continuous catheter drainage . J neurosurgy1986 , 65 : 183-187.
6. ErnestusRI ,Beldzinski P ,Lanfermann H , Klug N : Chronic subdural hematoma :surgical treatment and outcome in 104 patients . surg neurol 1997 ; 48 : 220-225.
7. Kurisu K, Kawabori M, Niiya Y, Ohta Y, Mabuchi S, Houkin K. Bilateral chronic subdural hematomas of the posterior fossae. Neurol Med Chir (Tokyo). 2012;52(11):822–5.
8. Pollo C, Meuli R, Porchet F. Spontaneous bilateral subdural haematomas in the posterior cranial fossa revealed by MRI. Neuroradiology. 2003 Aug;45(8):550–2.

9. Berhouma M, Houissa S, Jemel H, Khaldi M. Spontaneous chronic subdural hematoma of the posterior fossa. J Neuroradiol. 2007 Jul;34(3):213–5.

Table 1: Literature review of chronic subdural hematoma in the posterior fossa

No.	Author	Year	Age	Sex	Side	Symptoms	Preceding trauma	Coagulation disorder	Hydrocephalus	Treatment	Outcome
1	Kanter	1984	59	F	L	Coma	No	Yes	Yes	Surgicalevacuation	MD
2	Izumihara	1993	70	M	L	Gaitdisturbance	No	No	No	Conservative	GR
3	Izumihara	1993	72	F	Bil	No	Yes	Yes	No	Conservative	GR
4	Ashkenazi	1994	65	F	L	Nystagmus	UK	Yes	No	Craniotomie	GR
5	Lagares	1998	65	F	BIL	No	No	Yes	Yes EVD	Conservative	GR
6	Kachkov	1999	41	F	R	Ataxia	UK	No	No	Surgicalevacuation	GR
7	Stendel	2002	70	F	BLT	Vertigo	No	Yes	No	Trépanations	GR
8	Pollo	2003	52	F	BLT	Coma	No	Yes	Yes EVD	Trépanations	GR
9	Costa	2004	64	F	R	Vertigo	No	No	Yes	Craniectomy	GR
10	Berhouma	2007	38	F	R	Vertigo	No	Yes	No	Craniectomy	GR
11	Kurisu	2012	86	F	BLT	Tetraparesis	Yes	No	No	Trepanations	GR
12	Takami	2013	83	F	BLT	Headache	No	Yes	Yes	Conservative	GR
13	Takemoto	2016	69	F	BLT	Ataxia	No	Yes	No	Craniectomy	MD

14	Ryuzaburo	2017	86	F	BLT	Headache	No	Yes		Cranientomy	GR
15	Takuro	2018	74	M	BLT	Somnolence	Yes	Yes	Yes	Trepanation	GR
16	Our case	2020	67	M	R	Ataxia, vertigo	No	No	Yes	craniectomy	GR

L=left; R=right; Bil.= bilateral; GR = good recovery; MR= moderate recovery; EVD= external ventricular drainage; UK: unknown.

Fig.1:Ct-scan showing chronic subdural hematoma of the right posterior cerebral fossa

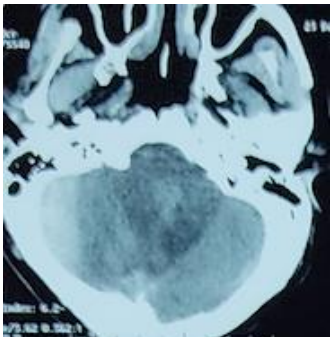

Fig .2 = Preoperative head IMR: (A) Axial T1 weighted MRI; (B) axial T2weighted MRI, showing the chronic subdural hematoma of the right cerebral fossa. (C) Flair weighted MRI showinganactive hydrocephalus

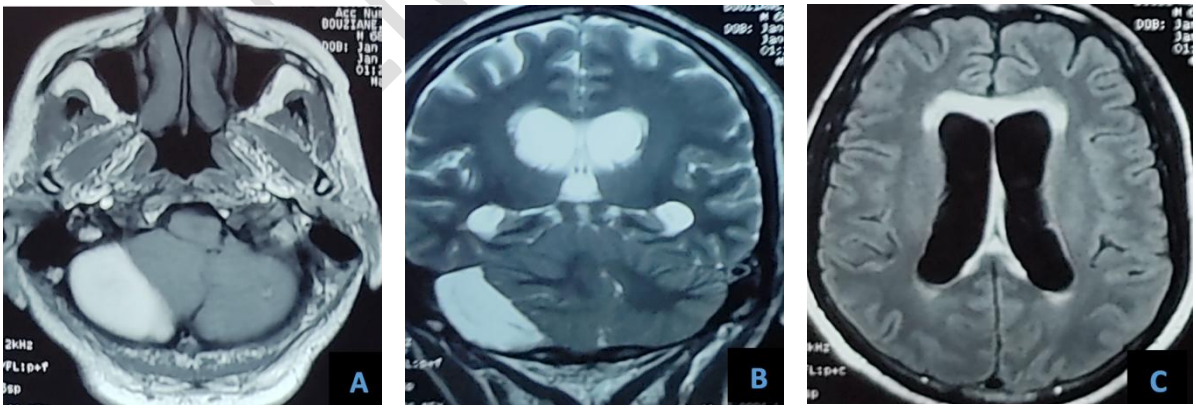

Fig .3=Intraoperative image showing chronic subdural hematoma