

Case Report

Remote cerebellar hemorrhage after craniotomy for sphenoid meningioma: Case report and review of literature



Chi Wang^a, Yew-Weng Fong^a, Chih-Ju Chang^{a,b,c,*}

^a Department of Neurosurgery, Cathay General Hospital, Taipei City, Taiwan

^b Department of Medicine, School of Medicine, Fu Jen Catholic University, New Taipei City, Taiwan

^c Department of Mechanical Engineering, National Central University, Taoyuan County, Taiwan

ARTICLE INFO

Keywords:

Postoperative complication
Cerebellar hemorrhage
Diagnostic image

ABSTRACT

Sudden decompression in a patient with chronically raised intracranial pressure (ICP) can very rarely lead to hemorrhage that occurs away from the treated site, that is, so-called remote site hemorrhage (RSH). In the field of neurosurgery, RSH constitutes a major complication resulting in poor clinical outcomes. It has been reported to occur after microsurgeries for supratentorial lesions and after spinal surgeries, probably as a result of excessive cerebrospinal fluid aspiration during said surgeries.

Here, we present the case of a patient who underwent surgery for a left sphenoid ridge meningioma and subsequently developed RSH. We present a series of postoperative brain computed tomography scans and a discussion of the pathophysiology of RSH, along with a review of the related literature.

1. Introduction

A remote site hemorrhage (RSH) consists of an intracranial hemorrhage that occurs in a location remote from the primary operation site. Such a hemorrhage can occur in the supratentorial region (ST), infratentorial region (IT), or even in both regions simultaneously. It is a rare complication, although its occurrence after brain surgeries has been increasingly recognized. Moreover, even spinal surgeries have been reported to cause RSH [1]. Garget al. have estimated the incidence of RSH without preexisting risk factors to be about 0.6–1.4% [2]. The incidence of infratentorial RSH is lower than that of supratentorial RSH, accounting for only about 27% of cases of RSH. On the other hand, infratentorial RSH more frequently requires operative intervention and has a higher mortality rate. Specifically, 50% of infratentorial RSH patients undergo secondary operative intervention, and 44% of them die after surgery. In short, RSH frequently constitutes a fatal complication in neurosurgery, especially when it occurs on the infratentorial side.

The pathophysiology of RSH remains controversial. Risk factors that cause a greater tendency toward excessive bleeding, including coagulopathy, anti-platelet therapy, and alcohol consumption, have been reported to be related to RSH [3]. The leading hypothesis regarding the direct underlying pathophysiology of RSH, meanwhile, is cerebrospinal fluid (CSF) hypovolemia caused by CSF drainage, which is usually seen during decompression. The cerebellar sag that results from CSF

hypovolemia then causes either tearing or occlusion of the bridging vein, which leads in turn to transient venous hemorrhagic infarction [4]. The so-called “Zebra sign” pattern, which is characterized by streaks in the cerebellum indicating the spreading of blood in the cerebellar sulcus and which can typically be seen in computed tomography (CT) images, usually occurs in cases of remote cerebellar hemorrhage [5].

According to a review of the related literature, the outcomes of RSH are commonly very poor, with the condition being fatal in 18% of cases and causing moderate to severe disability in another 18% of cases [4].

2. Case presentation

In this report, we present the case of a 75-year-old male with type II diabetes mellitus and hypertension who was admitted due to intermittent amnesia, blurred vision, dizziness, and unsteady gait for the preceding several months. The patient's visual field was checked, and the results were normal. Transcranial sonography showed mild atherosclerosis of the bilateral common carotid artery, external carotid artery, and internal carotid artery (ICA). No preexisting coagulopathy was noted. Preoperative angiography was performed and showed no vascular abnormality or sinus thrombosis. A brain MRI scan was performed and showed a 5.8 cm meningioma with perifocal edema arising from the left medial sphenoid ridge, adjacent to the left ICA and cavernous sinus (Fig. 1). We accessed this lesion via pterional craniotomy. The

* Corresponding author.

E-mail address: miklechang5639@gmail.com (C.-J. Chang).

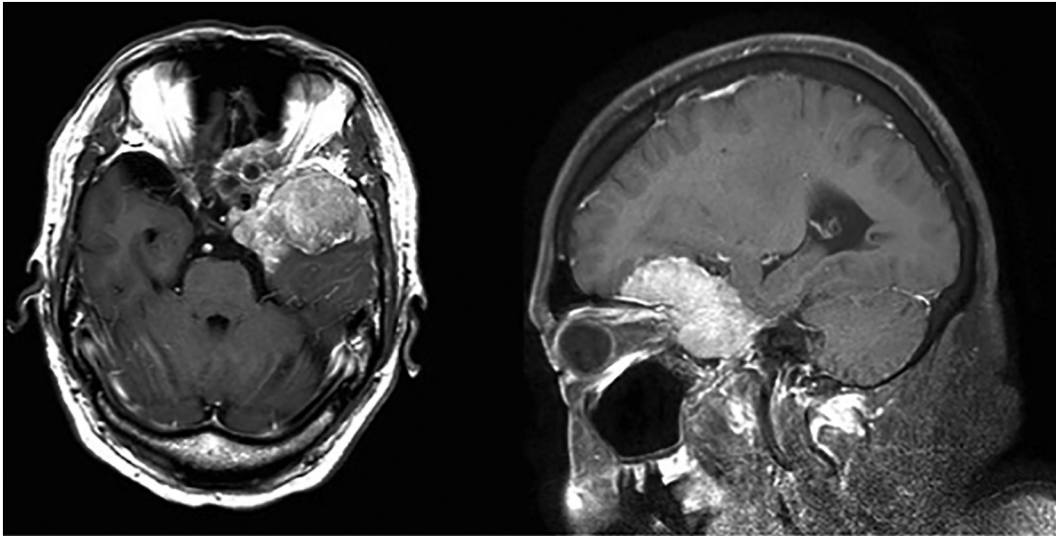


Fig. 1. A 5.8 cm meningioma, which was abutting the left ICA and cavernous sinus, in the left lower temporal brain. Left, axial view; right, sagittal view.

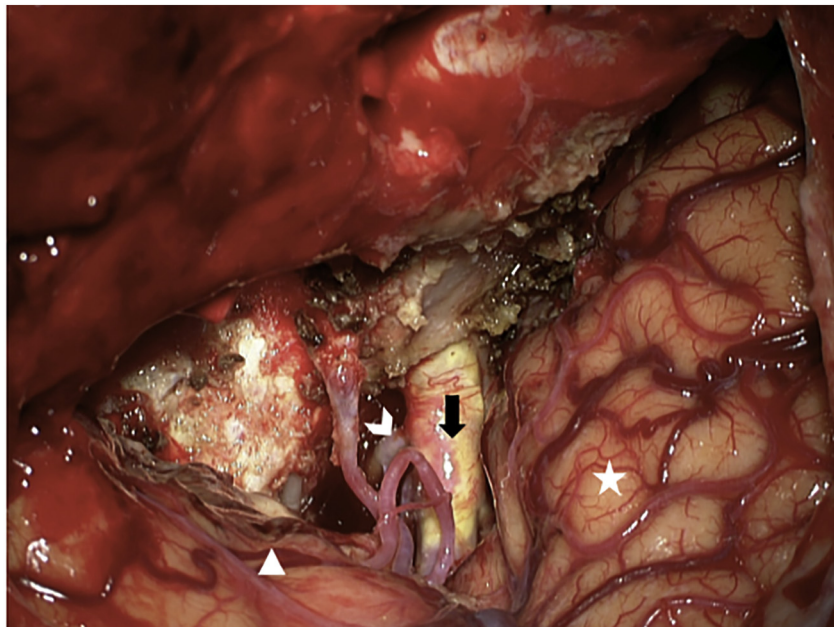


Fig. 2. An intraoperative image revealing the smooth operation course without any hemorrhage or brain swelling. Star: frontal lobe; triangle: temporal lobe; black arrow: internal carotid artery; white arrow: posterior communicating artery.

tumor had a well-defined margin and was located next to the left sphenoid wing encasing the ICA and middle cerebral artery (MCA). The tumor was grossly, totally removed without external ventricular drain (EVD) placement, and the MCA, ICA, posterior communicating artery (P-comm); the cranial nerves I, II, IV, and V; and the contralateral CN I were all preserved (Fig. 2). The course of the operation was smooth, and no hemorrhage or brain swelling were noted during closing of the dura layer and wound. However, a left fixed dilated pupil and seizure occurred during the patient's recovery from anesthesia. An emergency brain CT scan was thus performed; the scan was negative for operative site hemorrhage but revealed some hyperdense lesions in the posterior fossa. We considered this to be a result of residual blood flow from the operative site to the posterior fossa, and concluded that the left fixed dilated pupil may have been due to oculomotor palsy after bipolar coagulation. As such, we decided to keep the patient under observation in the intensive care unit. During this observation period, progression of the hemorrhage was noted in a follow-up brain CT scan. Furthermore, a

definite Zebra sign pattern indicating bilateral cerebellar hemorrhage was visible in a brain CT scan taken on the third day after the operation. In addition, obstructive hydrocephalus developed due to compression of the fourth ventricle (Fig. 3). The patient's coagulation profile was checked and was found to remain normal. However, his conscious status was found to be exacerbated, with a Glasgow Coma Scale rating ranging from E2M5Ve to E1M3Ve. Therefore, an emergency hematoma evacuation via bilateral suboccipital craniectomy with EVD insertion was performed. At the time of discharge, the patient's recovery was going well. The patient was fully conscious and had full muscle power, with the exception of ongoing mild gait ataxia and diplopia.

3. Discussion

RSH is defined as hemorrhage that occurs at a site some distance from the primary operation site. Furthermore, while the incidence of IT RSH is lower than that of ST RSH, the mortality rate of IT RSH has been

Download English Version:

<https://daneshyari.com/en/article/8684871>

Download Persian Version:

<https://daneshyari.com/article/8684871>

[Daneshyari.com](https://daneshyari.com)