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Case Report

Substantial risk of cerebellomedullary cistern hemorrhage with traditional acupuncture: a case report and review of literature

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Acupuncture is generally regarded as a safe procedure but is not without risk; serious and even life-threatening incidents have been repeatedly reported in both Chinese and English literature. The authors report a rare case of hemorrhage in the cisterna magna following acupuncture. A 60-year-old woman developed an acute frontal headache, dizziness, neck pain, neck stiffness, and paresthesia or tingling discomfort in the arms and legs immediately after an acupuncture treatment that had been performed to treat the patient's chronic posterior nuchal pain. Computerized tomography (CT) scans showed a 1.8 x 0.9 cm-sized hematoma with subarachnoid hemorrhage within the cisterna magna located posteriorly and towards the right side of the medulla oblongata. The blood refluxed diffusely to the cerebellomedullary cistern and the fourth ventricle, causing an obstructive hydrocephalus. It is probable that the acupuncture needle had been inserted too deeply into the cisterna magna and provoked a small hemorrhage in the cistern. She gradually recovered from this iatrogenic event after treatment and was discharged 20 days later.

Keywords: Cisterna magna hemorrhage, intra-cerebral hematoma, acupuncture, subarachnoid hemorrhage, complications

1. Introduction

For thousands of years in China, acupuncture (needling) has been widely accepted and applied in patients due to its exceptional therapeutic effects. As early as 1980, WHO unveiled 43 types of disease that could be treated with acupuncture. This number had increased to 107 by 2002[1] from which we can conclude that acupuncture had, by then, been recognized by an increasing number of countries across the European and American continents. More research in this field is being undertaken. In countries where acupuncture is widely used, it is inevitable to encounter some side effects in acupuncture therapies, just as there are, inevitably, some therapeutic side effects in western medicine. We are reporting a case of hemorrhage in the cerebellomedullary cistern as a rare complication after acupuncture and we have reviewed the pertinent medical literatures.

2. Case report

This 60-year-old woman was referred to our emergency department complaining of severe posterior nuchal pain, dizziness, headache with vomiting and paresthesia or tingling discomfort in

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the arms and legs, which developed immediately after an acupuncture treatment with needling in an area named "Fengfu (GV16 acupoint)", for her chronic posterior neck pain 3 days ago. On physical examination, she showed normal vital signs, but tenderness at the suboccipital area was noted. Neurologic examination showed her to be alert and fully oriented. Bilateral pupil size was 3 mm with prompt light reflex. Muscle strength of upper limbs was grade 4 (4/5) in the muscle power assessment scale (MRC, Medical Research Council), and was grade 2 (2/5) in lower limbs. Sensory examination was normal. Laboratory examination revealed no evidence of coagulopathy. Brain CT scans showed a 1.8 x 0.9 cm-sized hematoma (arrow) within the cisterna magna located posteriorly and towards the right side of the medulla oblongata (Figure 1 A), and subarachnoid hemorrhage (SAH, arrowhead) within the cerebellomedullary cistern ((Figure 1 B). The blood refluxed diffusely to the fourth ventricle (Figure 1 C). CT angiography (CTA) was also performed and showed no evidence of aneurysmal rupture, but dilatation of bilateral temporal horns of the lateral ventricles causing an obstructive hydrocephalus was noted (Figure 1 D). An external ventricular drain (EVD) was placed. Her symptoms and signs gradually improved in the following days. Repeated CT scan 7 days after the surgery showed complete resolution of the clots and no evidence of hydrocephalus, and the EVD was removed the next day. She recovered uneventfully without obvious sequelae and was discharged 20 days after admission.

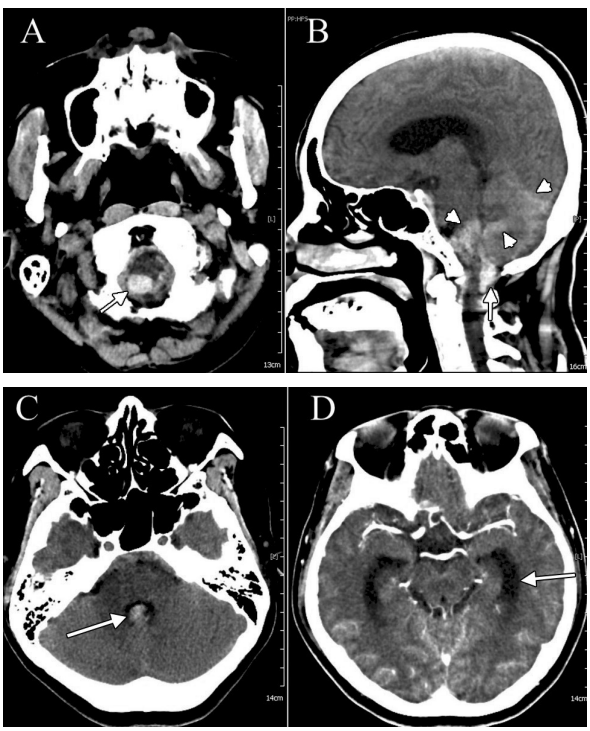


Fig 1. Non-enhanced CT scan shows a 1.8 x 0.9 cm-sized hematoma (arrow) within the cisterna magna located posteriorly and towards the right side of the medulla oblongata (A), and subarachnoid hemorrhage (arrowhead) within the cerebellomedullary cistern (B). The blood refluxed diffusely to the fourth ventricle (arrow) (C). CTA shows no evidence of aneurysmal rupture or other vascular abnormalities, but dilatation of bilateral temporal horns (arrow) of the lateral ventricles causing an obstructive hydrocephalus was noted (D)

3. Discussion

Acupuncture, an ancient therapeutic procedure practiced in China for thousands of years, has been extensively used for a variety of ailments, especially chronic pain syndromes including arthritis and arthralgia, chronic bronchitis and asthma, tension and stress. It is one of the most popular complimentary therapies these days not only in Asia, but also in Europe (mostly in Germany) and the USA. In 1997 the National Institutes of Health (NIH) acknowledged acupuncture as an effective therapy for a wide range of health conditions. Since then, there have been over 8,700 licensed acupuncturists practicing in the USA performing more than 10 million treatments every year.[2] It is generally regarded as a safe procedure but is not without risk; serious and even life-threatening incidents have been repeatedly reported in both Chinese and English medical publications.[3] Cases of intracerebral hemorrhage due to acupuncture are rare with few reported. In a systemic review by Xu et al., among 294 cases with serious complications due to acupuncture, there were three cases of intracranial hemorrhage.[4] In patients who developed complications of intracranial hemorrhage, symptoms and signs such as headache, nausea and vomiting developed rapidly after acupuncture from several hours up to 3 days. Since 1965, serious or even life-threatening incidents caused by acupuncture have been reported in the scientific literature.[5]

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Cases of intracranial hemorrhage associated with acupuncture were found to have various complications such as SAH, subdural hematoma, epidural hematoma, cerebellar hemorrhage and intraventricular hemorrhage (IVH). Heo et al. reported findings of hemorrhage in the cerebellum after the patient had received acupuncture in the posterior neck.[6] In the cases from Tsukazaki et al. and Choo et al., both patients had subarachnoid hemorrhage and IVH respectively after needling in an area named "Fengfu (GV16 acupoint)", which approximates the foramen magnum and lies below the external occipital protuberance.[7-8] The acupuncture needle was undoubtedly inserted too deeply and slid over the suboccipital bone to enter the cisterna magna and provoked a small hemorrhage in the cistern. This could have been fatal if massive arterial bleeding had occurred. There were 37 cases of central nervous system (CNS) injuries associated with acupuncture from 1980 to 2013 in China, including spinal cord injury and cervical spinal epidural hematoma, SAH, subdural hematoma, medulla oblongata hemorrhage, and cisterna magna hemorrhage. Among these 37 cases, 26 recovered while 11 had mortalities.[3]

In our case, the patient came to our service 3 days after receiving acupuncture with needling in an area named "Fengfu (GV16 acupoint)", due to progressive posterior nuchal pain, dizziness, headache with vomiting and paresthesia in the limbs. CT scan confirmed a hemorrhage in the cisterna magna. It was not her first time having acupuncture; she had received needling several times in the same area. At the time of the last visit, the patient reported that she received acupuncture a little deeper than previously, with a longer needle. The exact length of the needle was justified by the physician's personal experience and the patient's physique. The acupuncture needle was undoubtedly inserted too deeply to enter the cisterna magna and provoked a hemorrhage in the cistern. This could be fatal if massive arterial bleeding was to occur.

4. Conclusion

Acupuncture therapists should be familiar with the human anatomy and aware of the fact that acupuncture could result in intracranial hemorrhage and CNS injuries.

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Conflicts of Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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