

# Unusual Subdural Hematoma After SPA Use

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We report a case of right tentorium subdural hematoma (SDH) in a 72-year-old man a few days after he visited a sanitas per aqua (SPA) facility. He had directed high-pressure water onto his head and neck. The patient was admitted to the emergency room during his 3<sup>rd</sup> day of severe throbbing and generalized headache. Cerebral computed tomography revealed a high-density SDH over the right tentorium. This is the first reported case of SPA-related SDH. Neurologists might consider the possibility that SPA use may be a factor in SDH or unexplained neurologic events in otherwise healthy persons. [*J Chin Med Assoc* 2007;70(10):451–452]

**Key Words:** SPA, subdural hematoma, tentorium

## Introduction

The most common cause of subdural hematoma (SDH) is head trauma. While a few less common causes may involve coagulopathies, ruptured intracranial aneurysms and tumors, most head trauma is caused by motor vehicle accidents, falls and assault.<sup>1</sup> Sanitas per aqua (SPA) treatment has been in use since the Roman times as a safe approach to pain management, without the life-threatening adverse effects of analgesics.<sup>2</sup> The term SPA is an acronym of the Latin phrase *sanitas per aqua*, which means *health through water*. SPA treatments typically include hydrotherapy, balneotherapy and touch techniques. Herein, we present a case of SDH that was associated with the use of a high-pressure SPA water column.

## Case Report

A 72-year-old man appeared in the emergency room 10 days after visiting a SPA facility to relieve musculoskeletal discomfort caused by no apparent trauma. He was generally healthy and had no history of head trauma. He had stood under a water column, where he had focused high-pressure water flow to his neck and occipital regions. One week after his visit to the SPA, he began to experience throbbing and generalized headache with nausea. Initially, he visited a local

clinic, where pain control medicine was prescribed. The pain, however, remained so severe that it interfered with his sleep. The headache was precipitated by straining, coughing, or lying in supine position. Neurologic examination at the emergency room was unremarkable. Brain computed tomography (CT), however, showed the presence of a high-density SDH over the posterior region of the right temporal lobe, extending to the right tentorium and posterior falx (Figure 1). Laboratory workup including complete blood count, chemistry panel, prothrombin time, and activated partial thromboplastin time were all normal. The patient was admitted for further evaluation and management. An osmotic agent was administered and the headache gradually resolved. Ten days after hospitalization, a repeat brain CT showed that the hematoma had resolved (Figure 2). We concluded that the unusual SDH was related to SPA use.

## Discussion

A number of treatment modalities may be offered in SPA therapy, including hydrotherapy and balneotherapy. SPA visits have been reported to reduce pain and improve function, enhance physical and mental quality of life, as well as reduce anxiety and depression.<sup>3,4</sup> Reports of adverse effects of SPA therapy are rare and the mechanisms poorly understood. According to

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**Figure 1.** Brain computed tomography on admission shows a high-density subdural hematoma over the posterior region of the right temporal lobe (arrow), extending to the right tentorium and posterior falx.



**Figure 2.** Follow-up brain computed tomography 10 days later shows resolution of the hematoma.

1 report,<sup>5</sup> SPA-related accidents are probably under-reported and likely include mostly drownings, near-drownings, and local hematomas. The case of hematoma reported in that paper involved an 8-year-old girl whose left gluteal region was sucked into a water drainage opening. A MEDLINE search using the following

key words for the years 1966 to 2006 was performed: SPA and hematoma, SPA and SDH, SPA and hemorrhage, and SPA and head injury. No case report of SPA-related SDH was found. The case we present here, therefore, appears to be the first reported case of SPA-related SDH.

SDH can be traumatic or spontaneous. Insignificant trauma can cause SDH, especially in the elderly. Spontaneous SDH is caused by rupture of a cortical vessel, and does not include cases where subdural bleeding is due to cerebral aneurysm, arteriovenous malformation, tumor, metastasis or blood dyscrasias.<sup>6</sup> McDermott et al have suggested that bleeding may originate from small branches of the middle cerebral artery around the peri-Sylvian region.<sup>7</sup> Spontaneous SDH has been considered a variant of spontaneous cerebral hemorrhage because of the high average age and hypertension of these patients.<sup>8</sup>

A history of preceding SPA raised the possibility of mechanical trauma to the head and neck region in our patient. Therefore, health professionals should be alert to the potential risks of SPA use and its unusual complications.

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