# Spontaneous Chronic Subdural Hematoma in a 22-Year-Old Healthy Woman

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#### Key words

- Chronic subdural hematoma
- Dancer
- Female
- Headache
- Neck pain
- Young

## **Abbreviations and Acronyms**

**CSDH**: Chronic subdural hematoma **CT**: Computed tomography

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#### **INTRODUCTION**

Chronic subdural hematomas (CSDHs) tend to occur in older individuals, and men are affected more commonly than women (2, 9). Despite the propensity to favor the elderly, there have been cases of CSDHs in young active patients with varying levels of head trauma (7, 8, 21, 24). After reviewing the literature, we found only one reported case of spontaneous nature in a young otherwise healthy 29-year-old woman (1). The identification of this diagnosis in young patients is important, as the subtle presentation could be missed if not considered. In this case report, we discuss the clinical finding of a spontaneous CSDH in a 22-year-old female dancer complaining of chronic headaches in the absence of underlying direct trauma or vascular abnormality as well as reviewing the literature for similar occurrences.

Subdural hematomas, a collection of blood typically from the tearing of bridging veins, develop when the arachnoid and

- BACKGROUND: Chronic subdural hematoma is a common presentation to the neurosurgical practice that tends to occur among the elderly.
- METHODS: We identify a rare occurrence of a chronic subdural hematoma in a young and otherwise healthy female patient who denied a traumatic brain injury.
- RESULTS: Upon reviewing the literature, we found only one reported case of a spontaneous nature in a young patient. The subtle presentation of headaches and absence of neurological deficit could be mistaken as migraine and result in a delay in obtaining imaging and necessary treatment. In this report, we present a 22-year-old patient who complained of persistent headaches and was neurologically intact on examination. Cranial computed tomography revealed the presence of a right-sided chronic subdural hematoma; this was followed by magnetic resonance imaging plus angiogram, which ruled out the presence of a vascular abnormality. A burr-hole craniostomy procedure was used that resulted in resolution of symptoms.
- CONCLUSION: Without a heightened clinical suspicion, a similar presentation could be missed, resulting in delayed management.

dura mater become separated in response to disruptive forces (12). They are classified as acute, subacute, and chronic (18). Chronic lesions rarely develop from acute instances and differ by the presence of a neomembrane in addition to the liquefied hematoma (17). They typically present more than 2 weeks after an insult to the head (3, 6, 7). The fragile vessels in this membrane are prone to breakage and rebleeding over a long period of time (17). In a retrospective study of 1007 cases, the common clinical presentation was found to be headache in patients younger than 70 years of age and behavioral disturbances in those older (II). Fernandes et al. also describe altered levels of consciousness, focal motor deficits, papilledema, and unequal pupils (7). Diagnosis is best supported with a computed tomography (CT) or magnetic resonance imaging of the head (20). Resolution can be spontaneous where absorption of the hematoma is greater than rebleeding or in cases of membrane maturation (17). Craniotomy, twist-drill craniostomy, and burr-hole craniostomy are three surgical options for CSDH management. A recent review by Lega et al.

comparing between the three surgical modalities showed that burr-hole craniostomy is the most efficient choice for CSDH surgical management (19).

## **MATERIALS AND METHODS**

We identify a rare occurrence of a CSDH in a young otherwise healthy female patient who denies a traumatic brain injury.

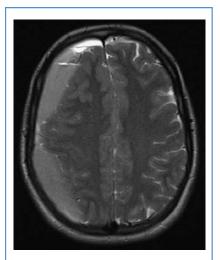
## **RESULTS**

A 22-year-old right-handed female patient with an unremarkable medical history presented with severe headaches. The headaches started bilaterally at the temples area, radiating to the forehead and associated with nausea. Aggravating factors included turning the head suddenly. She was denying any history of traumatic brain injury. Socially she does not smoke nor consume alcohol. There was no history of diplopia, weakness, numbness, or seizures. The patient was an active member of a university dance team and participated in tumbling and acrobatics; she reported an increase in "head whipping" maneuvers

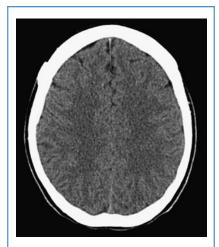
within the last 4 years because of changes in the style of popular dance.

Hemodynamically she was stable with no fevers. She had normal tone, power, reflexes, and sensation of the four limbs. No dysmetria was seen on examination. Neuropsychiatric evaluation revealed intact memory, language, and attention. Funduscopic assessment showed no papilledema. Both pupils were reactive to light, with full range of eye movement. No facial weakness or cranial nerve palsies were detected on examination. Musculoskeletal findings included tight and tender suboccipital and trapezius muscles and tender facet joints of the upper cervical and thoracic spine. The rest of the neurologic examination was within normal.

Cranial CT revealed a right-sided CSDH with mass effect on the frontal lobe. Subsequently, a magnetic resonance imaging (Figure 1) was arranged plus angiogram, which ruled out an underlying vascular abnormality. Two-burr-hole craniostomy was performed over the CSDH that resulted in resolution of symptoms. CT scan showed good evacuation of the hematoma at a follow-up exam 1 month later (Figure 2). On physical examination, no neurologic deficits were found and the scalp incision was noted to have healed well. The patient was discharged with instructions to avoid all aggravating activities for the next 3 months and to



**Figure 1.** Magnetic resonance imaging/ angiography taken prior to surgery confirming the diagnosis of chronic subdural hematoma and ruled out the presence of vascular abnormality.



**Figure 2.** Computed tomography imaging 1 month after surgery shows full resolution of condition.

gradually return to normal physical activity thereafter.

## **DISCUSSION**

A number of case reports have detailed the occurrence of CSDH in young, otherwise healthy individuals. Of these reports, the most obvious causes include mild to moderate head trauma during various activities: basketball (16), soccer (5), and snowboarding (24). The more subtle cases, however, are those attributed to an activity involving rotational head and neck accelerations such as those experienced by the patient in this case. In the literature, similar occurrences have been reported in young individuals riding a rollercoaster (7, 10, 15, 23, 25), head-shaking at rock concerts (4, 14, 22), breakdancing (21), or bungee cord jumping (8). These are situations of indirect head trauma and might not be determined from history questions, especially if the patient is only asked whether or not they have hit their head recently. Although not a factor in this case, but worthy of mentioning when discussing young adult patients, is the effect dehydration (caused by exercise or alcohol) could also have in the generation of this injury. In their case of CSDH in a bungee cord jumper, Fitzgerald et al. discusses the potential that slight brain shrinkage secondary to dehydration (in this situation caused by the lingering effect of alcohol intoxication) could increase the space between the brain and calvarium and thus

the sheer force experienced by the subdural vessels (8). In the literature, one spontaneous case of CSDH has been identified in a 29-year-old woman with no history of direct or indirect trauma (1).

The subtle signs that lead to the initial referral for special imaging in this case include the following: a novel headache type, a reproduction of symptoms with specific head accelerations (specifically quick head rotation side to side), and a sense on the patients' part that something was wrong. Indeed, numerous reports in the literature recommend that the diagnosis of CSDH should be ruled out with an evaluation including CT and/or magnetic resonance imaging in active individuals presenting with headache and a history of head injury (even mild) or exposure to acceleration forces (7, 16, 24). In this case, special imaging was scheduled within a week of the patient presenting; unfortunately, the wait-time for this test was lengthy. Informing the patient to access emergency care, in retrospect, was appropriate and in this circumstance resulted in earlier identification of the condition.

### CONCLUSION

In this case the physical examination findings of myofascial pain and joint irritations could have been the result of typical mechanical stressors of prolonged posture and physical activity present in the life of any dancer or university student. The fluctuation in headache symptoms likely followed the chronic healing/re-injury pattern of the lesion but it could have easily been mistakenly attributed to increased stress and activity at school. Indeed, without heightened clinical suspicion, this presentation could be taken as an uncomplicated case of musculoskeletal pain and appropriate imaging and treatment would be delayed. Most clinicians recall the potential of CSDH in "an elderly patient complaining of progressive headache especially with the presence of cognitive impairments" (13); however, we should also be aware of its potential to present in young, active patients complaining of headaches.

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