medicinska revija
medical review

UDK: 616.831-005.1

Golubović J. et al. ■ MD-Medical Data 2016;8(1): 055-057

Prikaz bolesnika/
Case reports

SPONTANEOUS ACUTE SUBDURAL HEMATOMA IN PREVIOUSLY HEALTHY YOUNG ADULT – *Case report*

SPONTANI AKUTNI SUBDURALNI HEMATOM KOD PRETHODNO ZDRAVE MLADE OSOBE – *Prikaz slučaja*

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Key words
Spontaneous subdural hematoma, Non-traumatic, Clinical neurology, Neurosurgery

Ključne reči
Spontani subduralni hematom, Netraumatsko, Klinička neurologija, Neurohirurgija

Abstract

We present a case of a previously healthy young adult who had acute spontaneous subdural hematoma. Headache and nausea were initially present and shortly followed by distortion of consciousness with a mydriasis of the left pupil and right sided hemiparesis in neurological status that shortly resulted in patient becoming comatose. CT scan was the main diagnostic device. Symptoms resolved with surgical craniotomy and evacuation. We explored the risk factors and the ways for the onset of spontaneous acute subdural hematoma. Having previously excluded underlying diseases we explored how the normally healthy activities can provoke the spontaneous formation of subdural hematoma.

INTRODUCTION

This case adds to previously described acute spontaneous subdural hematomas (ASSDH) (there are around 200 cases mentioned in the literature) and helps explore the underlying causes for the formation of ASSDH. This paper emphasizes the risk factors for the onset of the ASSDH as well as analyzing the underlying diseases which can contribute to the occurrence of this rare condition. At the moment of presenting this case report there are 23 previously in literature reported spontaneous subdural hematoma in young adults who are under 40 years of age.

Case report

A previously well 23-year-old male complained of sudden onset of headache with nausea, accompanied by right sided limb numbness and weakness which was followed by distortion of consciousness and mydriasis of the left pupil. Shortly after the admission to the ER and the onset of the abovementioned symptoms, the patient's neurological status worsened so the patient became comatose (Flexion to pain, no verbal or visual response-GCS 6)

He had no history of other illnesses, no data about significant illnesses in the family, he did consume tobacco products, but no history of consuming alcohol or drugs. There was no data on being extremely active, taking steroids, or doing anything that would be different from individual's normal daily behavior. Before the sudden onset of the symptoms the patient was having a rest at the local beach with his family.

There were no physical signs of trauma and anamnestic data excluded the possibility of traumatic brain injury.

Diagnosis and hospitalization

Head CT scan showed hyper dense subdural collection (Figure 1).

Initial hematological, biochemical and clotting investigations were within normal limits.

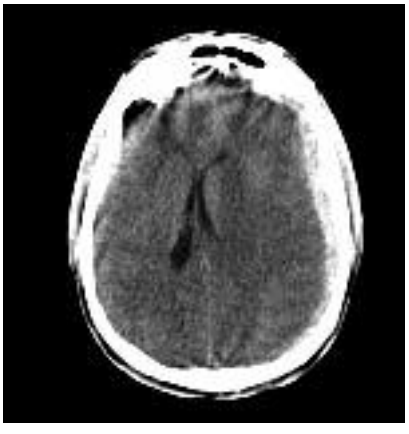

Figure 1

CT head scan showing a left side subdural hematoma with mass effect. Maximally 12 mm in depth, with 8.5 mm deviation of midline structures to the right side. Ipsilateral cortical sulci effaced.

With no history of trauma, CT angiography was performed to exclude arteriovenous malformations or aneurysms which can be underlying causes of the ASSDH. Angiography was negative.

Treatment

Left sided trauma flap craniotomy was performed for hematoma evacuation, with no evident bleeding vessels. Postoperatively the patient was fully awake, GCS 15, with right sided hemiparesis in resolution, and with the left pupil returning to the normal width. The patient recovered successfully and is currently taking full part in previous normal daily activities. Control head CT scan was performed which showed complete resolution of the ASSDH (Figure 2). During the hospitalization digital subtraction angiography was performed and it was unremarkable. Coagulation and aggregation studies were performed and none of them were clinically significant.

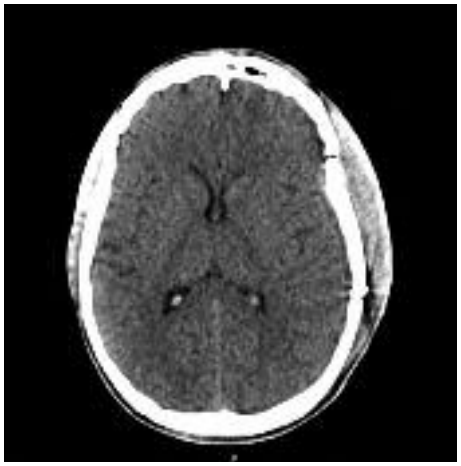

Figure 2

Control postoperative head CT scan which showed resolution of the previously mentioned ASSDH.

DISCUSSION

Only 23 cases of ASSDH have been described in the literature so far [1,2,3]. In one review of 193 patients with non-traumatic SDH, risk factors included hypertension, vascular malformations, neoplasia such as hematological malignancies causing thrombocytopaenia, solid dural tumors, dural metastases, infection, hypervitaminosis, cocaine use, arachnoid cyst, Moyamoya disease, osteogenesis imperfect and heavy weightlifting. Of the identifiable causes of ASSDH, only 10% were deemed idiopathic even though the authors did not specify a causal relationship. Overall, the majority of ASSDH are arterial (61.5%), then idiopathic (10.8%), coagulopathic (10.1%), neoplastic (5.4%), and cases of spontaneous intracranial hypotension (SIH) (5.4%) [4]. CT and MRI head scans can help diagnose many of the previously mentioned pathologies. None of these were present in this patient or identified after imaging. Intraoperatively, dural biopsies and subdural fluid can be performed to clarify the cause [2,5].

In TBI rotational movement of the brain in the scull can cause bridging veins elongation and rupture which is followed by the SDH. What is more, when the brain hits the interior of the scull, contusion can also be accompanied by the cortical artery rupture which will eventually lead to SDH [3,6].

Possible causes for the ASSDH in young adults are analyzed below.

With no trauma present, high intravenous pressure is one of the leading causes for the ASSDH. Most cases occurred during the forcible exhaustion against a closed glottis, which is known as a Valsalva maneuver, for example during coughing or defecation, but also while blowing into high resistance instruments, such as a trumpet, or even during weightlifting [1, 2,8]. Anabolic steroids supposedly cause vascular remodeling, so the pathological de novo vessels are more prone to spontaneous bleedings [1,5,8]. Intracranial hypotension can also be induced by the systemic hypotension for example from the loss of circulating blood volume, in cases like dehydration [4,7,9]. Other reasons for intracranial hypotension can also be shunt over drainage, spontaneous dural tear and cerebrospinal fluid (CSF) leak which can cause spontaneous SDH. On the other side a permanent dural CSF leak would then be expected to result in recurrent hematomas even after evacuation [5, 8, 10].

Another risk factor for subdural bleeding are coagulopathies. Impaired platelet aggregation caused by non-steroidal anti-inflammatory drugs (NSAIDs) is a significant risk factor for non-traumatic SDH as well as for TBI induced SDH [5,10].

None of the above mentioned were in connection to our patient.

CONCLUSION

- In order to minimize the risk of the occurrence of the ASSDH thorough anamnesis and medical history check should be performed.
- Preoperative CT, CTA, DSA and MRI/MRA diagnostics followed by blood lab sampling and coagulation studies can help identify risk factors for spontaneous SDH in the future.
- Apart from malformations and blood line diseases, ASSDH can occur to forced exhalation maneuvers during instrument playing and weight lifting, can be caused by anabolic steroids and NSAID use, dehydratation and intracranial hypotension.
- What is regarded as a healthy activity can cause dangerous medical conditions.

Sažetak

Predstavljamo slučaj prethodno zdrave mlade osobe koja je razvila spontani akutni subduralni hematom. Inicijalni simptomi su bili glavobolja i mučnina nakon kojih se pojavila levostrana hemipareza, nakon čega je pacijent postao komatozan uz dilataciju leve zenice. Kompjuterska tomografija je bila glavni dijagnostički uređaj. Nakon kraniotomije i evakucaije hematoma simptomi su regredirali. Istražili smo riziko faktore i potencijalne načine nastajanja spontanog akutnog subduralnog hematoma. Nakon isključivanja potencijalnih bolesti koje mogu da dovedu do ovog stanja istražili smo kako uobičajno zdrave aktivnosti mogu izazvati spontano formiranje akutnog subduralnog hematoma.

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■The paper was received on 09.03.2016. /Accepted on 11.03.2016.