

Subdural haematoma after spinal anaesthesia – do we always need brain computed tomography in post-dural puncture headache? Letter to the Editor

Krwiak podtwardówkowy po znieczuleniu przewodowym – czy zawsze potrzebujemy tomografii komputerowej mózgowia w popunkcyjnym bólu głowy? List do Wydawcy

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Dear Editor-in-Chief,

We would like to indicate a disorder that is very rare, may easily be misdiagnosed, and at the same time provokes diagnostic doubts. We will try to answer the question of whether all patients with post-dural puncture headache have to undergo a brain computed tomography (CT) scan.

As the diagnostic spinal tap is typically used by neurologists and infectious diseases practitioners, spinal anaesthesia is commonly performed in obstetrics, surgery and orthopaedics. There are side-effects that may appear after these interventions, such as post-dural puncture headache, which occurs in approximately 0.4–6% of procedures [1].

We present a 34-year-old woman that underwent subarachnoid anaesthesia during caesarean section (CC) in 39 Hbd due to the premature rupture of amniotic membranes. There was an administration of bupivacain 4 mL (Marcaine® Spinal 0.5% Heavy, solution, 5 mg/mL) using a 26-gauge needle after 2 unsuccessful attempts. The day after CC sudden headache and sensation of neck stiffness appeared as the only symptoms. On neurological examination no abnormalities were

found. Brain CT was performed, which revealed a subdural haematoma above the left hemisphere (frontal, temporal and parietal lobe) up to 5 mm wide (Figure 1) and up to 9 mm wide along the falx cerebri (Figure 2). In addition the brain CT post-infusion venous scans and CT-angiography were performed without any other abnormalities.

The patient was treated symptomatically without any interventional procedures with resulting with decrease of the headache's severity. 10 days after CC a second brain CT scan was performed with partial resolution of the visualized haematoma – the width was 3 mm and 6 mm, respectively (Figures 3 and 4). During the whole period of hospitalization no abnormalities were found on neurological examination. Our patient was sent home 11 days after CC without any complaints.

Additional laboratory test results (e.g. coagulation, platelet count) as well as the previous medical history did not reveal any significant pathology that could have provoked the intracranial bleed.

Intracranial subdural haematoma has been a well known disorder since 1658, and depending on the duration is classified as either acute, subacute or chronic. The main cause is head

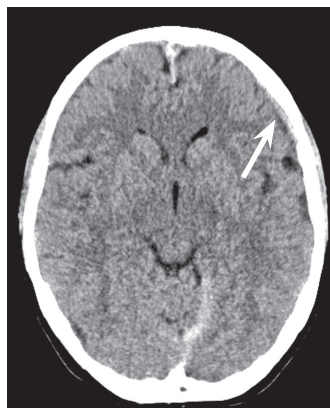


FIGURE 1. Brain computed tomography – subdural haematoma above the left hemisphere

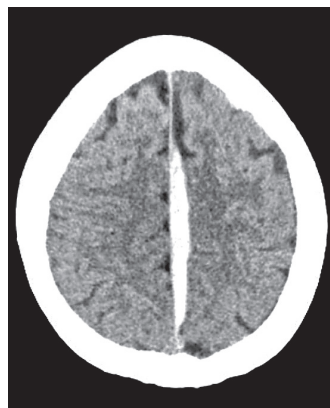


FIGURE 2. Brain computed tomography – subdural haematoma along the falx cerebri



FIGURE 3. Brain computed tomography – regression of lobar subdural haematoma

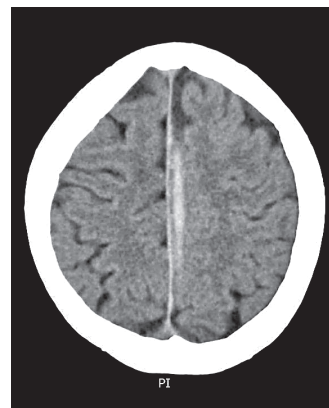


FIGURE 4. Brain computed tomography – regression of falx cerebri subdural haematoma

trauma in from 50 to 100% of cases, but less common causes include: coagulation disorders, neurosurgical procedures, dehydration, cancers, and vascular malformations. Haematoma is also known to be a very rare complication of spinal tap or anaesthesia. The main diagnostic procedure besides history and examination is brain CT, but chronic subdural haematomas that may be isodense and difficult to detect require the magnetic resonance imaging examination [2]. Subdural haematoma usually needs a neurosurgical operation, but in some cases conservative treatment is sufficient [3]. This disease may lead to life-threatening and serious sequelae with persistent psychomotor disability. On the other hand, similarly to our patient, there are also cases presenting mainly with subjective symptoms such as headache or tinnitus, without typical neurological findings such as focal neurological symptoms (hemiparesis, aphasia) or consciousness disturbances [4]. In these cases misdiagnosis would not lead to any further negative health complications because conservative treatment alone is sufficient. Of note is the situation presented by other authors when initially mild symptoms such as headache and vomiting were subsequently followed by clinical worsening with speech impairment and limb paresis after 17 days that had to be surgically operated on [5].

Taking into consideration the number of spinal taps and anaesthesia, and the significant percentage of complications presenting as post-dural puncture headache, the question should be raised of whether all patients with the latter should undergo brain CT. The post-dural puncture headache, in opposition to subdural haematoma, is a mild, typically self-limiting disorder. When other possible complications that may also occur after the dural puncture are taken together, such as cerebral venous thrombosis, we suggest considering performing the brain CT more frequently than nowadays in everyday practice [6]. Special attention should be paid to patients after spinal taps suffering from headache or demonstrating deterioration after the lucid interval, which may be indicative of subdural haematoma.

There is insufficient data regarding the potential risk factors of the development of subdural haematoma after the dural puncture. According to the observational studies, we suggest that difficult access with preceding unsuccessful attempts of puncture is the potential risk factor of haematoma occurrence [7, 8]. This topic should be analysed in further studies.

Yours sincerely,

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REFERENCES

1. Skręt-Magierło J, Barnaś E, Sęk-Kłębukowska B, Nicpoń J, Kloc G. Intracranial hematoma as the cause of headache after subarachnoid anesthesia for cesarean section – a case report. *Ginekol Pol* 2014;85:58-61.
2. Krupa M. Chronic subdural hematoma: A review of the literature. Part 1. *Ann Acad Med Stetin* 2009;55(2):47-52.
3. Krupa M. Chronic subdural hematoma: A review of the literature. Part 2. *Ann Acad Med Stetin* 2009;55(3):13-9.
4. Doğanay F, Pirbudak L, Gül R, Alptekin M, Kaplan N. Postspinal subacute subdural hematoma: case report. *Agri* 2013;25(3):129-32. doi: 10.5505/agri.2013.76598.
5. Bisinotto FM, Dezena RA, Fabri DC, Abud TM, Canno LH. Intracranial subdural hematoma: a rare complication following spinal anesthesia: case report. *Rev Bras Anesthesiol* 2012;62(1):88-95. doi: 10.1016/S0034-7094(12)70107-1.
6. Sherfudeen KM, Ramasamy G, Kaliannan SK, Dammalapati PK. Differentiating the headache of cerebral venous thrombosis from post-dural puncture: A headache for anaesthesiologists. *Indian J Anaesth* 2016;60(5):352-4. doi: 10.4103/0019-5049.181609.
7. Bishop TM, Elsayed KS, Kane KE. Subdural hematoma as a consequence of epidural anesthesia. *Case Rep Emerg Med* 2015;2015:597942. doi: 10.1155/2015/597942.
8. Kale A, Emmez H, Pişkin Ö, Durdağ E. Postdural puncture subdural hematoma or postdural puncture headache?: two cases report. *Korean J Anesthesiol* 2015;68(5):509-12. doi: 10.4097/kjae.2015.68.5.509.

