Intracranial Subdural Hematoma Post-Spinal Anesthesia: Report of Two Cases and Review of 33 Cases in the Literature

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Summary: Amorim JA, Remígio DSCA, Damázio Filho O, Barros MAG, Carvalho VN, Valença MM – Intracranial Subdural Hematoma Post-Spinal Anesthesia: Report of Two Cases and Review of 33 Cases in the Literature.

Background and objectives: Intracranial subdural hematoma is a rare complication of spinal anesthesia. We report two cases of women who developed chronic subdural hematoma post-spinal anesthesia diagnosed after prolonged clinical evolution of post-dural puncture headache (PDPH) and we analyze other 33 cases found on literature review.

Case reports: In 35 patients (ages 20-88 years, 19 males), 14 were older than 60 years (40%), of which 12 (86%) were males. The relationship is inverted in the group of younger patients (< 60 years), in which we observed twice as many women (14:7). Two peaks of higher incidence were observed: 30-39 years (31%) and 60-69 years (29%). The length of time from the beginning of symptoms until diagnosis ranged from 4 hours to 29 weeks. Headache was the main complaint in 26/35 (74.3%) patients; changes in the level of consciousness in 14/35 (40.0%); vomiting in 11/35 (31,4%); hemiplegia or hemiparesis in 8/35 (22.9%); diplopia or VI nerve paresis in 5/35 (14.3%); and language disorders in 4/35 (11.4%). Contributing factors included: pregnancy, multiple punctures, use of anticoagulants, intracranial vascular abnormalities, and brain atrophy. In 15 cases, a contributing factor was not mentioned. Four out of 35 patients (11.4%) remained with neurologic sequelae, and 4/35 (11.4%) died.

Conclusions: The presence of any of the signs or symptoms mentioned above should alert for the possibility of an intracranial subdural hematoma as a complication of puncture of the dura mater, especially in those patients with PDPH for more than one week, at which time investigation by neuroimaging is necessary.

Keywords: ANESTHETIC TECHNIQUES, Regional, spinal anesthesia; COMPLICATIONS: post-dural puncture headache, subdural hematoma.

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INTRODUCTION

Spinal anesthesia is routinely used in anesthesia. The incidence of rare, but severe, complications is approximately 0.05% [1,2]. After puncture of the dura mater, intentional or accidental, the risk of developing an intracranial subdural hematoma exists, a rare and potentially fatal complication that might be due to intracranial hypotension syndrome [3]. In this study, two cases of post-spinal anesthesia chronic subdural hematoma diagnosed after prolonged clinical evolution of post-dural puncture headache (PHPH) are reported. We undertook a review of the literature, finding 33 other cases of patients with intracranial subdural hematoma complicating spinal anesthesia.

CASE REPORTS AND REVIEW OF THE LITERATURE

Case 1

This is 39 years old female, ASA I, with history of cesarean section under general anesthesia, due to failure of neuroaxis block, 10 years before the current admission. She denied history of headache, trauma, neurological disease, and coagulopathy. Routine preoperative exams were within normal limits. She underwent spinal anesthesia in the sitting position in the L_3-L_4 space with a 27G Quincke needle and 15 mg of hyperbaric bupivacaine for surgical hysteroscopy. Since a complete failure of the sensorial and motor blockade was observed, a second puncture was performed with similar needle and anesthetic solution that was successful. Eighteen hours later, she developed severe postural headache in the frontotemporal region, without associated neurological signs and symptoms. Post-dural puncture headache was diagnosed and it was decided to treatment her conservatively with analgesics, intravenous hydration, and bed rest. After 24 hours, she was discharged from the hospital with partial relief of symptoms. Twenty days after the puncture, the patient remained with moderate

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daily headache, but without the postural component. During this period, she went to her surgeon who advised her to continue taking the analgesics and to go to a pain specialist if her pain did not improve. After 42 days, the headache became unbearable, and it was accompanied by nausea and vomiting. She went to the emergency room and an MRI of the head showed the presence of an intracranial subdural hematoma in the left side with a shift of the intracranial midline structures (Figure 1). Subsequently, the patient underwent trepanning with removal of the hematoma. Her symptoms resolved and the patient did not develop any sequelae.

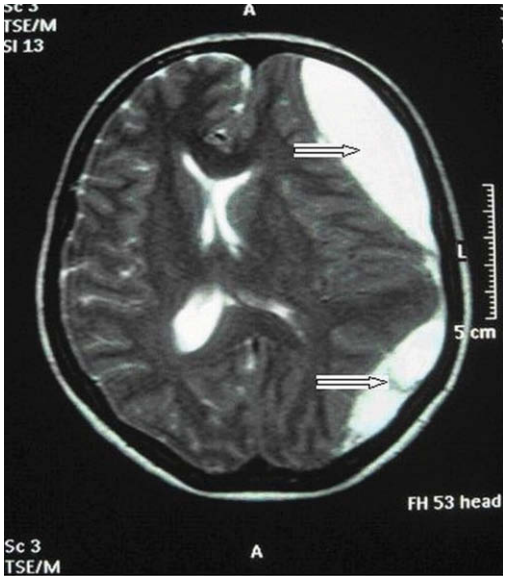

Figure 1 – MRI of the Head 42 Days After Spinal Anesthesia Showing a Chronic Subdural Hematoma on the Left with a Shift of Structures in the Midline.

Case 2

This is a 32 years old female, ASA I, pregnant II/para I, who underwent spinal anesthesia in the sitting position for cesarean section. After the fourth attempt, the L3-L4 space was punctured with a 27G Quincke needle and 13 mg of hyperbaric bupivacaine associated with morphine was successfully injected. She had a history of a surgical delivery under neuroaxis block without intercurrences. Her current pregnancy was normal and she did not have a history of headache, trauma, neurological disease, or coagulopathy. Complete blood count and coagulogram were within normal limits. Twelve hours after the anesthesia, the patient developed severe postural headache bilaterally in the frontal region. Post-dural puncture headache was diagnosed and it was decided to treat her clinically. She was discharged from the hospital with partial relief of her symptoms. Postural headache persisted for 27 days when it changed from postural to non-postural headache. During this period, the patient went to the emergency room twice, being treated with analgesics. After 40 days, the headache became unbearable. An MRI of the head showed an image suggestive of chronic subdural hematoma in the frontoparietal region, bilaterally (Figure 2) that exerted mild compression on the cerebral hemispheres. She was treated with bed rest and analgesics and follow-up appointments with a neurologist. Two control MRIs were performed and, after 50 days, complete resorption of the hematomas (Figure 3) and improvement of her symptoms was observed.

The subject was reviewed by searching the electronic data bases of PUBMED, LILACS, and SCIELO. We used a combination of the following words in our search: “intracranial subdural hematoma” and “subarachnoid OR spinal anesthesia”. We selected articles published until January 2010 in Portuguese, English, and Spanish, and we found 33 cases of patients with intracranial subdural hematoma after dura mater/arachnoid puncture for spinal anesthesia. Table I shows the

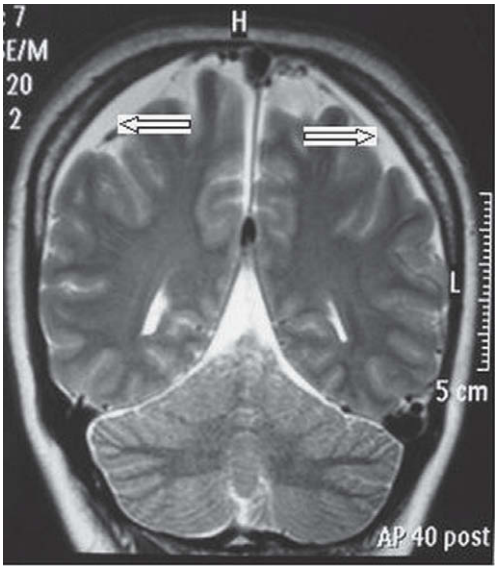

Figure 2 – MRI of the Head 40 Days After Spinal Anesthesia Showing an Image Suggestive of a Chronic Subdural Hematoma in the Frontoparietal Region Bilaterally.

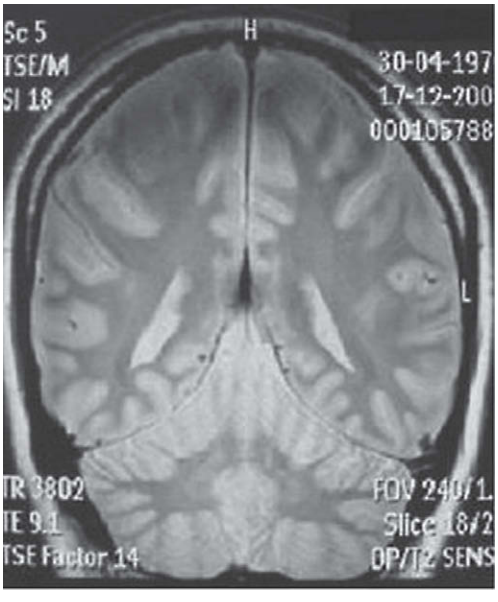

Figure 3 – MRI of the Head Showing Reabsorption of the Hematomas 52 Days After the Diagnosis.