Subarachnoid haemorrhage following spinal anaesthesia in an obstetric patient

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We describe an obstetric patient who presented for removal of a retained placenta. After insertion of the spinal anaesthetic, she developed a severe headache, and a subarachnoid haemorrhage was diagnosed. We discuss the differential diagnosis of the headache, the occurrence of intracranial haemorrhages after dural puncture and the future management of this patient.

Keywords: anaesthetic techniques, subarachnoid; anaesthesia, obstetric; complications, haemorrhage

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Severe headache in combination with pregnancy and dural puncture has a broad spectrum of differential diagnoses, including postdural puncture headache, pre-eclampsia, migraine, drug-induced headache and intracranial pathologies. The latter include haemorrhages, venous sinus thrombosis and postpartum cerebral angiopathy. Although rare, subarachnoid haemorrhage (SAH) was the second commonest cause of indirect maternal death in the most recent triennial report (1994–1996) on maternal deaths from the UK’s Department of Health.1 This diagnosis should be considered when assessing obstetric patients with atypical headaches after dural puncture.

Case report

A 29-yr-old, multiparous woman (gravid 4 para 3) presented for removal of a retained placenta. Her previous obstetric history consisted of three spontaneous vaginal deliveries, including one with a retained placenta that was removed uneventfully under spinal anaesthesia 4 years ago. Except for a history of smoking (25 cigarettes per day) and mild asthma, there was no notable medical history, and the patient was normotensive throughout this pregnancy. As there were signs of fetal distress, she required an assisted instrumental delivery. A healthy, normal-sized baby (Apgar score 7 at 1 min and 9 at 5 min) was delivered after 5 h 20 min of labour (second stage 15 min). Medication given during labour included ranitidine 150 mg orally, patient-controlled Entonox, and Syntometrine 1 mg i.m. on delivery of the baby.

One hour after delivery she was moved to theatre for removal of a retained placenta. The anaesthetic registrar performed a spinal anaesthetic with the patient in the right lateral position, at the level of the L3/4 interspace using a 24G Sprotte needle under standard aseptic conditions. At the first attempt, clear cerebrospinal fluid (CSF) was obtained, and this was followed by slow injection of 2.5 ml heavy bupivacaine. At 5 min a sensory block to T6 was achieved and the operation proceeded. Systolic blood pressure ranged between 130 and 90 mm Hg and the intraoperative heart rate was stable at 65–85 beats min⁻¹. Boluses of ephedrine were given as required in 3 mg increments to a total of 15 mg.

Five minutes into the operation, the patient complained of a sudden onset of severe, pounding, occipital headache radiating to the frontal region. Neurological examination revealed photophobia, no meningism, no additional motor or sensory deficits and a Glasgow coma score of 15. Systolic blood pressure recorded at the onset of the headache was 150 mm Hg, with a heart rate of 80 beats min⁻¹. No ECG changes were noted. Further medication given intraoperatively included Augmentin 1.2 g i.v. and an infusion of Syntocinon (30 IU in 500 ml of normal saline over 2 h). The placenta was removed manually and the patient was transferred back to the labour room for observation. She still complained of severe headache and felt nauseated with one episode of vomiting. There was no postural element to the headache. Cyclizine 50 mg i.v. and codeine phosphate 60 mg orally were given. One hour later the headache was still incapacitating. Investigations at this time included a normal coagulation screen (prothrombin time 11.1 s, control 13.2 and activated partial thromboplastin time 31.6 s, control 32.7) and full blood count (haemoglobin 12.3 g dl⁻¹, platelets 292 ×10⁹ litre⁻¹). The on-call medical team was consulted and a cranial computer tomogram performed, which showed a small amount of blood in the left sylvian...
fissure and the convexity sulci. The diagnosis of an SAH (grade 1 on the Hunt and Hess scale) was made and the patient was transferred to a neurosurgical unit on the same day. A four-vessel angiogram demonstrated tortuous vasculature on the left, but no apparent lesion. A repeat angiogram 6 weeks later was normal. The patient has made an uneventful recovery.

Discussion

Spontaneous SAH is a rare event, ruptured intracranial aneurysms being the main cause (51–80%), followed by hypertensive disease (10–15%) and arteriovenous malformations (AVM) (5–10%). Rarer causes include meningeal hypertension (10–15%) and arteriovenous malformations being the main cause (51–80%), followed by

Possible cardiovascular changes, as discussed earlier, may have contributed to this. On the other hand, the combination of labour, spinal anaesthetic and SAH might have been purely incidental, considering that many spontaneous SAHs occur without obvious trigger event. In one series of 500 patients, 34% of SAHs developed during non-strenuous activities and 12% during sleep. Such a coincidence is, however extremely unlikely as the overall incidence of SAHs is so low.

The computer tomogram in our patient showed a small SAH. The four-vessel angiogram was negative on the same day and 6 weeks later. According to Latchaw and
in 10% of SAHs found on CT scan no lesion can be identified on the angiogram. This usually implies a better prognosis, with a rebleeding rate of 4%.

How should this patient be managed if she presents with another pregnancy? According to Dias and Sekhar, maternal and fetal outcomes are similar in parturients with either untreated aneurysms or AVMs, regardless of whether a Caesarian section or a vaginal delivery is performed. Manoeuvres such as shortening the second stage, epidural analgesia and, if necessary, low forceps delivery might decrease the risk of recurrent bleeding during vaginal delivery. If this patient requires anaesthetic intervention in the future, we will probably avoid spinal anaesthesia, although case numbers are too small to provide sufficient evidence favouring a general anaesthetic. If an epidural catheter is considered, it should be inserted by an experienced operator to minimize the risk of a dural tap, which could be disastrous. She should be assessed antenatally by a consultant obstetric anaesthetist to formulate a management plan for labour.

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