

Spontaneous Thoracic Epidural Haematoma during Pregnancy: Another Case!

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Introduction

The spontaneous epidural haematoma is a very rare situation in obstetrical patients: only some cases occurred during pregnancy are reported each year in the literature [1-3]. It's spontaneous when there is no traumatism, no arteriovenous malformation, no blood disorders, and no lumbar nor epidural puncture [1,4].

We present the case of spontaneous thoracic epidural haematoma in a woman who had neurologic symptoms six years ago, but now at 35th week of gestation symptoms and complications were strong. We'll discuss therefore the obstetrical and anesthetic managements of this complication.

Case Report

It's about a 26 years-old nulliparous patient, presenting at the 35th week of amenorrhoea. She has been married for approximately 18 months. Her pregnancy is well followed and no problem is reported until there.

Her history is very interesting: she brings back the concept of paraplegia installed at it exactly six years ago with a sensitive block, she was confined to bed without specialized consultation nor imaging carried out, with a progressive recovery over two weeks, beginning on the low level of distal parts. The patient did not report the concept of traumatism nor medicamentous such as aspirin or anticoagulants drugs.

She accused back pain on Thursday at 8:00 pm, she took herself paracetamol but pain became increasingly intense on Friday.

On Saturday, at 7:00 am, she was presented without neurological deficit, at the nearest hospital to her, for an intense pain with scapular irradiation. The physician prescribed analgesics to her then told her to return home (we had no data about the neurological examination) but the patient did not observe any improvement.

On Saturday, at 4:00 am, she was unable to mobilize her legs, she then decided to consult in our unit (maternity of Ibn Rochd University hospital of Casablanca). On admission, at 9:00 am, she was afebrile, her blood pressure was 125/74 mm Hg, her heart rate 82 beats per minute, her respiratory rate 17 breathes per minute and her oxygen saturation was 99% in room air. She did not have proteinuria with urinary reactive strip. The neurological examination found a conscious patient with areflexic paraplegia, the upper sensitive level was T6-T7 (xyphoid appendix) on the right side and T4 (breast) at the left one. She had also urinary sphincter disorders.

Obstetrical examination found a fetal heart rate at 145 beats per minute, a closed and posterior uterine cervix and a cephalic presentation without uterine contractions. Obstetrical Doppler did not show fetal detriment. The patient received 12 mg of betamethazone for accelerating fetal lung maturation.

Resonance Magnetic Imaging (RMI) was performed on Monday 9:00 am and showed (Figures 1 and 2) the spinal cord compression by the haematoma; she did not have any vascular malformation, nor

tumor. She was transferred at 02:00 pm into neurosurgical operating room: arterial line monitoring of blood pressure was performed with routine monitoring for an elective caesarean section under general anesthesia (electrocardiogram, pulse oximetry and end tidal carbon dioxide measurement).

She weighted 65 kg and measured 168 cm (body mass index: 23.03), her ASA scoring was 1 and her Mallampati's classification I.

Biological data showed platelets at $300 \times 10^9/L$, INR: 1.1, and aPPT at 30 sec (normal: 30 sec \pm 5 sec), serum transaminases and renal function were normal.

The patient underwent caesarean section under general anesthesia



Figure 1: Cervical and thoracic MRI in T1 (sagittal) showing an epidural haematoma compressing the spinal cord from the 2nd to the 4th thoracic vertebrae.

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Received March 28, 2012; Accepted May 14, 2012; Published May 16, 2012

Citation: Miguil M, Mounir A, El Benny M, Moussaid I, Salmi S (2012) Spontaneous Thoracic Epidural Haematoma during Pregnancy: Another Case! J Anesth Clin Res 3:208. doi:10.4172/2155-6148.1000208

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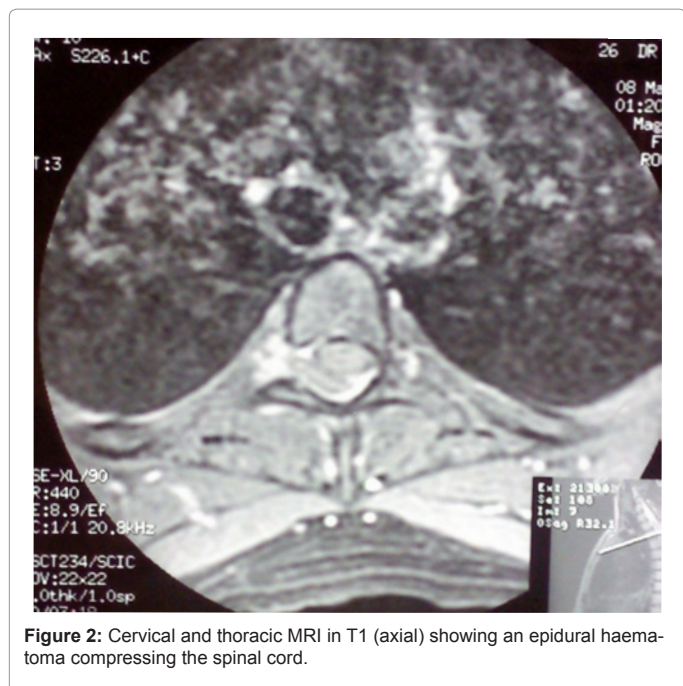


Figure 2: Cervical and thoracic MRI in T1 (axial) showing an epidural haematoma compressing the spinal cord.

(32 hours after onset of paraplegia) followed immediately by laminectomy.

After oral administration of cimetide (anti H₂ + soduim citrate) 400 mg, infusion of 0.9% saline (10 ml/kg), she was preoxygenated for 8 minutes. General anesthesia was started with thiopentone (6 mg/kg) and rocuronium (0.8 mg/kg); cricoid pressure was applied by the assistant, a resident maintained the head in neutral position with traction. Tracheal intubation was easily performed with a 6.5 mm armoured tube. At cesarean section, a male newborn was delivered weighing 1770 g with Apgar score 7, 8 and 10 at first, 5th and 10th minute respectively.

After delivery, fentanyl (300 µg), diluted oxytocin (05 units) and cefazolin (2g) were administered iv to the patient.

During laminectomy, in the prone position, we discovered an important haematoma with continuous bleeding, surgical haemostasis was difficult, the patient required three red blood cell transfusion.

The histo-pathological examination showed hemorrhagic fibrinous material, without description of vascular malformation nor tumor.

After recovery from general anesthesia, patient was conscious and her neurological status was similar to preoperative period. She didn't require analgesics because of persistent sensitive block; daily rehabilitation did not improve the neurological function.

Further RMI, realized five days after surgery, showed edema and ischemia of the thoracic spinal cord; she was discharged home after 18 days.

We saw the patient eleven weeks after leaving hospital, she was always paraplegic and her sensitive level was T4 on the left and T6 on the right side. She always keep sphincters disorders. One year after, patient was in the same status and lost her husband!

Discussion

Spontaneous peri-medullary compression is an extremely rare

complication in pregnancy. Many situations could contribute to this haematoma such as arterial hypertension, vasculitis, ankylosing spondylitis, physical strain, coagulation disorders [1], angioliopoma [5], preeclampsia and hellp syndrome [6,7] and the use of low molecular weight heparin [8]. It occurs early in pregnancy [9], during second and third trimester and in the post partum stage as well [10-12].

It is the second case of spontaneous epidural haematoma in our obstetrical unit over twenty years, the first one [10] being published in 2004. It seems that this recent case is among 20 to 30 others reported in the english literature.

It is postulated that high venous pressure associated with pregnancy must be a contributing factor [11,12], also, pregnancy-induced structural changes of the vascular walls and hemodynamic changes may play a role in the pathogenesis of spontaneous spinal epidural hematoma.

The particular characteristics in this patient are:

- Firstly; the history of marked paraplegia six years ago but not diagnosed (no RMI) and recovered well after two weeks. Probably, the epidural haematoma was spontaneously resorbed. In the literature, this favourable evolution is very rare but not impossible [13].

- Secondly; the high delay between symptoms and decompression; in those neurological complications, the delay between the presentation and decompression is the main determining factor of the neurological prognosis. Many factors contributed to this delay in our case such as the history of the same symptoms with total recovery; the non-recognition of this complication by physicians and the delay between symptoms and the realization of RMI, that was not available in the emergency unit. In rural areas, the same evolution could be observed: no physician, no radiological imaging and probably no prehospital care. In Morocco, we have 33 millions of people and 50% of them lives in rural areas. However, authors observed complete neurological function recovery 60 hours between symptoms and decompression [12]. our patient had less delay but bad outcome!

- Thirdly; anesthetic particularities: In the literature, epidural haematoma occurs in second half of pregnancy and cesarean section being realized in the first, but if patient consulted early in pregnancy, the priority would have being laminectomy immediatly in order to evacuate the haematoma. Neurosurgeon could perform lumbar disc surgery in left lateral position during pregnancy to avoid inferior cava venous compression. At all stages of pregnancy, both anesthetic and obstetric considerations must be envisaged to avoid aortocaval compression, the intubation failure and the gastric contents aspirations.

In children, when neurological signs are not severe and not progressive, and in cases of hematopathy as hemophilia, some authors [14] recommend to postpone the surgery because haematoma could be absorbed spontaneously.

General anesthesia must maintain haemodynamic stability to avoid the deterioration of the spinal cord perfusion. A high blood pressure is also maintained in preeclamptic patients [6,7], use of vasoactive drugs is possible. Tracheal intubation is a very important and a difficult moment because of the adrenergic effects and spinal movements, then we avoid hyperextension of the neck.

Spinal or epidural anesthesia are not a good choice in this case, because of medullar damages (medicolegal problems) and bleeding tendencies. In any case: laminectomy needs general anesthesia.

In obstetric patients, the holes between vertebrae could be closed and blood give medullary compression because of epidural venous hyperpression.

In these neurological complications, the RMI is the preferred investigation since it can confirm the diagnosis of epidural haematoma, its size, its localisation and its extension [4,12,13]. It's also the first examination to realize during the postoperative period to envisage ulterior prognosis: persistent bleeding, spinal characteristics and sequellae.

Lack of recovery in this patient after decompression may have poor outcome, patient would need high income level health care to prevent urinary tract infections, bedsores and deep vein thrombosis. It's thus important for clinicians to recognize the symptoms and signs of medullary compression to ovoid the therapeutic delay of which can result, like the case of our patient, a severe neurological deficit.

Conclusion

Although the epidural haematoma is rare during pregnancy, physicians must recognize the symptoms of spinal compression and remember that severe pain in the spinal areas must be evaluated with an urgent RMI. Precise diagnosis without delay are essential to avoid neurological sequellae. Laminectomy is the most urgent posture to carry out as soon as possible.

The anesthetist must be careful in order not to aggravate the neurological status of the patient and to contribute to the birth of a newborn under the best conditions.

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