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RESEARCH ARTICLE

MISDIAGNOSIS OF SPONTANEOUS SPINAL EPIDURAL HEMATOMA IN A PARTURIENT: A CASE REPORT

Malak El Marrakchi, Younes Bellihi, Yassine Arrad, Farouk Hajhouji, Mehdi Laghmari, Houssine Ghanane and Said Ait Ben Ali

MD, Department of Neurosurgery, Mohammed the VI[th] University Hospital Center of Marrakesh, Cadi Ayad University, Faculty of Medicine, Marrakesh, Morocco.

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Abstract

Background: Spontaneous spinal epidural hematomais a rare clinical entity. The symptoms can be similar to Guillain Barré Syndrome, especially if it occurs at the cervicothoracic junction. Its pathophysiology is still unknown and seems to be multifactorial, which makes it a challenging situation in terms of diagnosis and treatment, mainly during pregnancy.

Case report:a 22-year-old female at 31 weeks of pregnancy presented to the emergencies complaining of the sudden onset of a neurogenic syndrome with the history of influenza like symptoms six days before. Although cerebrospinal fluid analysis showed no abnormalities, the diagnosis of Guillain Barré Syndrome was suspected on the basis of a series of arguments.The next day, her case worsened as she started exhibiting tetraparesis with genital disorders. Emergency Magnetic Resonance Imaging showed a spinal epidural hematoma extending from C5 to C7. The patient underwent an emergency decompressive laminectomy with evacuation of the hematoma. No apparent vascular malformation was objectified. Despite rehabilitation, she still experienced motor sequelae.

Conclusion: Each case requires individual and repetitive evaluation with the establishment of a dated diagram in order to minimize the risk of delayed diagnosis and treatment in spontaneous spinal epidural hematoma, mainly during pregnancy.

Introduction:-

Spontaneous spinal epidural hematoma (SSEH) is a rare occurrence during pregnancy(1), yet challenging to diagnose and treat because of both maternal and fetal risks. It can be misdiagnosed as Guillain Barré Syndrome (GBS), especially when it's located in the cervicothoracic junction(2,3). Thus, it is recommended to reexamine the patient regularly and establish a dated diagram.

We describe the first case of a SSEH mimicking GBS in a parturient.

Case report:

A 22-year-old, Gravida 1, para1, patient at 31 weeks of pregnancy was admitted complaining of the sudden onset of bilateral and symmetrical ascending paresis on both superior and inferior extremities. Neurological examination

Corresponding Author:- Malak El Marrakchi
Address:- MD, Department of Neurosurgery, Mohammed the VI[th] University Hospital Center of Marrakesh, Cadi Ayad University, Faculty of Medicine, Marrakesh, Morocco.

objectified a peripheral neurogenic syndrome. Upper extremities motor strength was 3/5 proximally, and 2/5 distally, while lower extremities motor strength was 0/5. Osteotendinous reflexes were abolished and no sensory deficit or Babinski sign were noted. A history of cervical pain following the left of two buckets was reported as well as influenza-like symptoms, six days before her admission, during which she was afebrile. As her presentation and examination were consistent with Guillain Barré Syndrome, a lumbar puncture was performed. Cerebrospinal fluid (CSF),(3)analysiswas normal. Since it's the COVID pandemic, a Polymerase Chain Reaction (PCR) was also done, negative. The next day, she started experiencingpain in both upper and lower extremities in addition to vesico-rectal dysfunction. Total sensory loss below T6 was also objectified but no swallowing or respiratory disorders were assessed. An emergency spinal Magnetic Resonance Imaging (MRI) was done revealing a spinal epidural hematomaextending from C5 to C7. A decompressive laminectomy (DL) was done to evacuate the hematoma. Operative findings didn't reveal vascular malformations. Although post operative MRI was clean, she experienced sequelae of para paralysis. A post operative electromyogram was also performed showing no abnormalities.

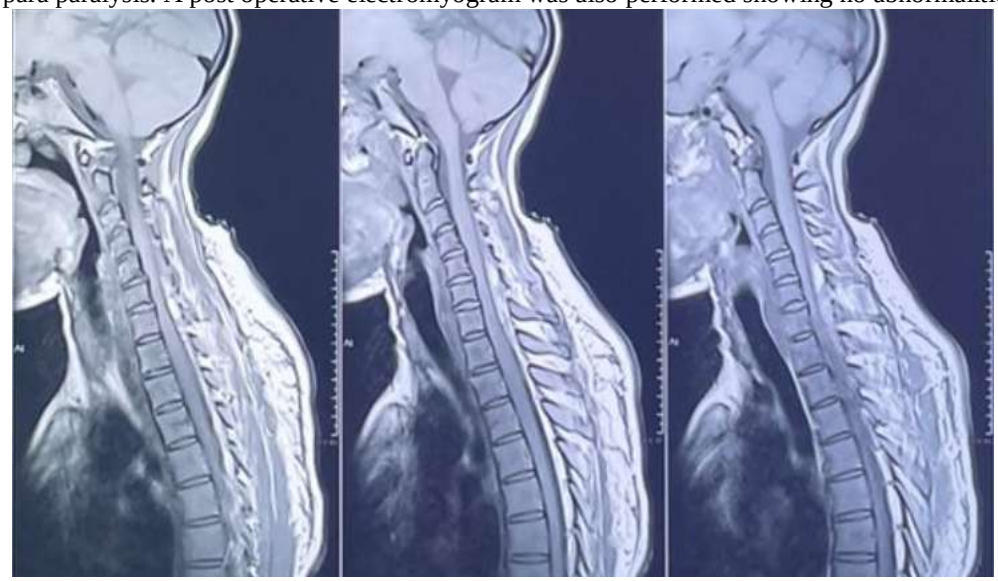

Figure 1:- axial section of magnetic resonance imaging showing a spinal epidural hematoma (SHE) extending from C5 to C7.

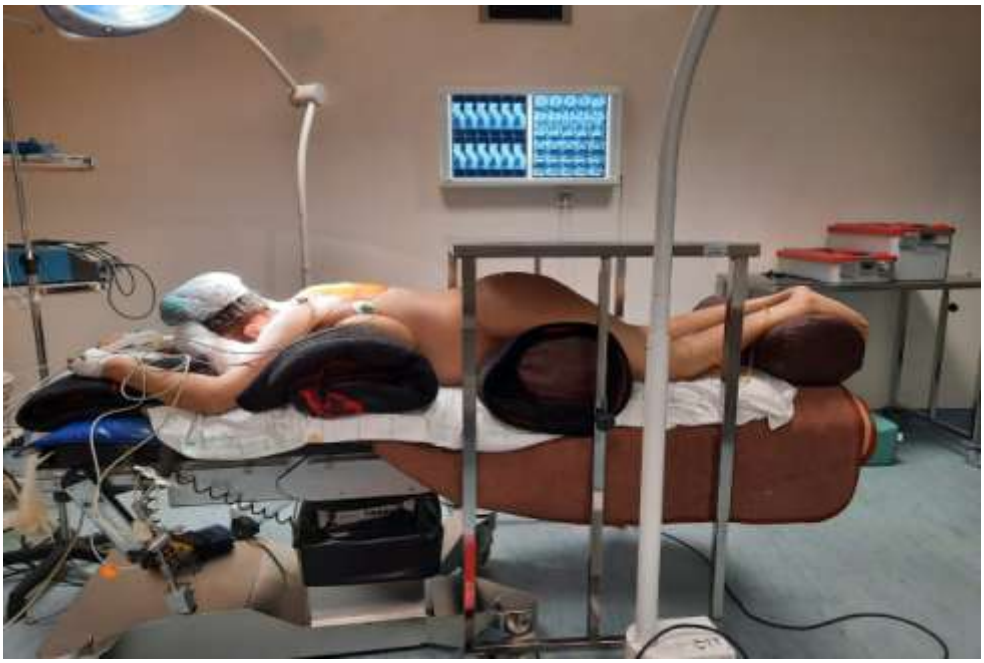

Figure 2:- patient placed in the prone position, monitored.

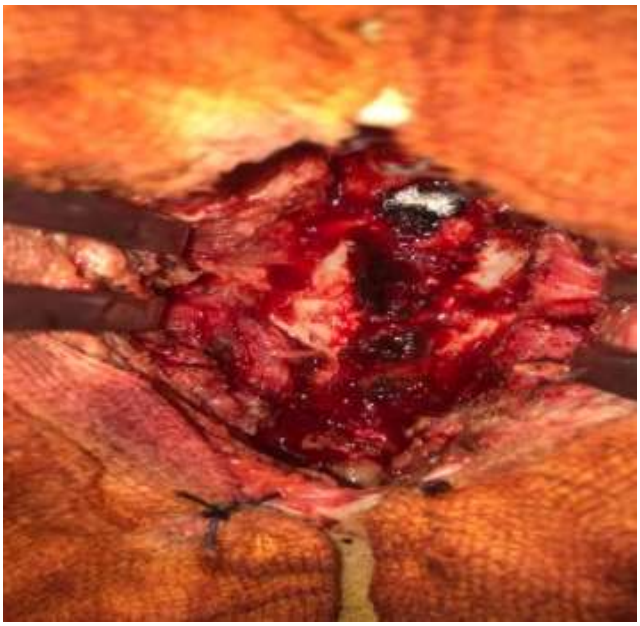

Figure 3:- Intraoperative imaging of the SHE.

Discussion:-

SSEH is a rare condition that may occur even in children and pregnant women(1). As clinical presentation depends on the involved vertebrae level, it may be difficult to diagnose and mimic other pathologies such as GBS(4).

Few cases were described in the literature. Cakir and al. described it in a 9-year-oldinfant with a thoracic spinal hematoma(4). Likewise, Lee and al. reported SSEH comorbid with GBS in a 32-month-old patient with progressive paraparesis. Unusually, the patient fully recovered, even after a delayed laminectomy(5). Considering this entity to be an extreme emergency, the DLmust be done as soon as possible. However, there is no explanation to the differences noted in patients' responses. In fact, preoperative interval for DL appears to be one of the most important prognosis factors. Nevertheless, some studies showed disappointing postoperative results, even if the surgery was done in the 24 hours(1).

Several theories explaining the possible pathophysiology of SSEH during pregnancywere advanced. While some suggest a venous origin of the hematoma, others hypothesize an arterial one. But none has gained uniform acceptance(1).

In fact, during pregnancy, epidural venous pressure increases with the direct compression of the vena cava as well as the elevation of the intraabdominal pressure. On the other hand, structural changes occur in vessels walls, making them fragile. Based on this data, and the fact that these veins have no valves, the sudden variation the pressure, even with minimal effort, is transmitted directly to epidural vessels, causing their rupture(1,6).

In contrary, Beaty and Watson suggest that the hematoma originates from the bleeding of aberrant arteries secondary to hemodynamic and structural changes(6). They claim that the prompt onset of neurological symptoms can't be explained by a venous bleeding.Nonetheless, the narrowness of the spinal canal alone seems to be a sufficient cause. In addition, one might question why the occurrence of vascular complications isn't more common in parturients if hemodynamic and structural changes during pregnancy are sufficient causes of arterial lesions.

In our case, and based on Crock and Yoshizawa's findings demonstrating that the epidural venous pressure is lower than the intrathecal one, other theoriesappear to be possible, which is the fact that pregnancy is a hypercoagulable state(7). Thus, the pathophysiology of SSEH during pregnancy is probably multifactorial.

Conclusion:-

Caution should be exercised regarding managing SSEH in pregnant patients. Each case requires individual and repetitive evaluation, with the risk of neurologic deterioration weighed against the non-negligible effects of either surgical treatment or anesthetic to the fetus. Thus, any decision should be taken upon multidisciplinary consultation meeting, in order to achieve the best risk benefit ratio.

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none.

Conflicts of interest:-
The authors declare no competing interest.

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