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Case Report
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Post-Anesthesia Spinal Epidural Hematoma Leading to Cord Compression

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Abstract

An interesting rare case of post-anesthesia spinal epidural hematoma leading to cord compression in an 18-year-old girl having pelvic and bi-lobar hepatic metastatic masses which required operative intervention by laminectomy decompression has been reported. Patient had laparotomy for a pelvic mass with hepatic metastasis for staged debulking and the complication developed on 4th post-operative day during mobilization and the anesthesiology, pain control, neurology and surgical teams identified it, confirmed with magnetic resonance imaging scan and treated by immediate decompressive laminectomy with partial recovery.

Keywords: Anesthesia; Desmoplastic Small Round Cell Tumor; Epidural; Spinal Epidural Hematoma; Hemorrhage; Laparotomy; Laminectomy; Neurological Deficits; Pain Control Procedure; Postoperative Complications; Postoperative Hypertension; Spine; Surgical Evacuation; Primitive Neuroectodermal Tumor; Symptomatic Epidural Hematoma

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Introduction

A post-anesthesia spinal epidural hematoma (PSEH) that compresses the spinal cord is a rare but serious limb threatening complication that requires immediate surgical intervention [1].

We wish to report a teenage girl who underwent laparotomy under spinal epidural anaesthesia for a pelvic mass with liver metastases in both lobes and suffered PSEH requiring surgical intervention of laminectomies which improved symptoms but patient suffered residual paraparesis requiring prolonged rehabilitation and tragic lifelong special needs.

Case Report

An 18-year-old girl had lower abdominal pain and distention and attended her college primary clinic where it was considered to be non-specific abdominal pain with constipation and -prescribed analgesics, antispasmodics and laxatives. However, the symptoms started worsening and after one month presented to emergency department of local hospital with increasing abdominal distention like a pregnant lady and found to have large pelvic mass and irregular hepatomegaly.

Abdominal and pelvis CT scan showed multiple large bilobar hypoattenuating liver masses 9.0 x 7.1cm left lateral sector and 8.1 x 7.9 cm in segment VIB. Portal and hepatic veins were extrinsically compressed but remained patent. Isolated biliary dilatation in segment 3 due to extrinsic mass effect was noted. The upper abdominal lymphadenopathy measuring 3.6 x 2.4 cm displacing celiac, left gastric and hepatic arteries, 3.2 x 2.6 cm with mass effect on the pancreatic head and main portal vein, and 2.7 x 1.9 cm right pelvic node abutted the obturator internus muscle. Large bilateral predominantly cystic/necrotic masses filling the pelvis measuring 12.5 x 10.5 x 13.2 cm on the left and 5.3 x 4.9 x 5.4 cm on the right. Bladder, uterus, rectosigmoid and iliac vessels appeared separate from the masses and were extrinsically compressed. Trace perihepatic and pelvic ascites was observed. A large pelvic mass without any signs of bowel obstruction but with numerous hepatic lesions concluded with uncertain nature.

The patient was seen in local gynecology clinic. CT scan of chest did not show any supra-diaphragmatic disease. The differential diagnosis of the aggressive tumours such as primitive

neuroectodermal tumor (PNET) and desmoplastic small round cell tumor (DSRCT) were suspected. The patient was referred to us for further management and a multidisciplinary team discussion took place. A decision was to do interventional imaging computed tomography (IRCT) guided hepatic biopsy followed by chemotherapy and staged pelvic and hepatic debulking.

IRCT guided hepatic biopsy initially in the provisional report suggested spindle cell sarcoma likely angiomatoid fibrous histiocytoma but after completion of Archer Fusion Plex, EWS-WT1 fusion identified. Final pathology report confirmed metastatic desmoplastic small round cell tumor metastasis to liver. Patient was started on cycle1 and 2 followed by staging revaluation which showed improvement in tumor burden with decreased maximum standardized uptake value (SUVmax) avidity. The further 3 cycles were continued during which the patient underwent PortaCath placement and was admitted once for febrile neutropenia and strep viridans bacteremia.

Following 5 cycles of chemotherapy, patient underwent exploratory laparotomy, radical excision of pelvic mass greater than 5cm, omentectomy, retroperitoneal lymph node dissection and right partial oophorectomy uneventful debulking of all the intraabdominal lesions without the debulking of planned resection of the hepatic lesions.

In the post-operative period-sensory symptoms, pain when spinal epidural used every time, mainly abdominal girdle type distribution tingling and numbness, precipitated by movement and position continued. On 4th post-operative day, early morning patient walked to bathroom to pass urine when patient instantly experienced sudden onset lower limb paresis. An immediate magnetic resonance imaging (MRI) of spine found to have an acute epidural hematoma.

She was emergently taken to the operation theatre for a T6-T9 laminectomy with evacuation of a hematoma. Post operatively bowel, bladder and lower extremities weakness and numbness with paraparesis continued for which the patient is undergoing rehabilitation and support. Patient is awaiting planned resection of hepatic lesions but in view of the complication and aggressive nature of disease has been given option to rethink about it.

Discussion

A post-operative spinal epidural hematoma (PSEH) is indeed a rare but serious limb and bowel-bladder threatening complication that can occur after spinal or epidural anesthesia. It's usually caused by a ruptured vein in the spine, and can occur at the needle insertion site or higher up.

Spinal epidural hematoma is a benign space-occupying lesion with diverse etiology The risk factors for a spinal hematoma include: young or advanced age, female sex, spinal congenital abnormalities, coagulopathy, vascular malformation, anticoagulant therapy, trauma, operation, tumor, technical errors, traumatic lumbar spinal tap, spinal epidural, hypertension, diabetes mellitus, pregnancy [2-4]. Some cases have been reported as spinal epidural hematoma without obvious cause as spontaneous epidural hematoma [5].

Symptoms of a spinal hematoma include pain, weakness in lower limbs, numbness, tingling, difficulty walking, loss of control of the bladder, bowel or both, paresis or paralysis of lower limbs. If left untreated, a PSEH can lead to permanent neurological sequelae or paralysis. It is important to seek immediate neurosurgical evaluation if any of these symptoms develop after anesthesia or operation. An MRI is the preferred diagnostic tool for a spinal hematoma because it is both sensitive and specific. Early detection and prompt treatment are critical to a full recovery Post anaesthesia SEH is different from post orthopedic PSEH, another complication of spinal surgery. Both conditions are post-operative, has slightly different as risk factors, can present in the same way but their subsequent management and underlying conditions including outcomes are different.

DSRCT is a rare tumor that usually affects children and young adults, and is often found in the abdominal serosa, while PNET is a primary central nervous system tumor that starts in the brain or spinal cord. PNET and DSRCT are both part of the "small round blue cell tumors" family, along with Wilms' tumor and Ewing's sarcoma. Both PNET and DSRCT have EWS gene translocations, but DSRCT has a different translocation than PNET on cytogenetics and have different CD99 expression patterns on immunohistochemistry [6].

Conclusion

A post-anesthesia spinal epidural hematoma (PSEH that compresses the spinal cord is a rare in healthy patients without coagulopathy but serious complication that requires immediate recognition and surgical intervention. Symptoms include sensory disruption, bowel and bladder incontinence, motor weakness, or complete paralysis of the affected limb/s. A detailed postoperative examination should be performed as soon as the patient is awake and cooperative. MRI or CT myelography can also be used to rapidly evaluate suspected PSEH. Standard therapy for symptomatic patient is decompressive laminectomy, although spontaneous recoveries in asymptomatic patients have been reported. The best results are achieved by early surgical intervention performed within 6 hours of symptom onset. Neurological improvement is expected in 87% of patients, and complete recovery in 43%. Factors that influence recovery include the duration and severity of neurological deficit, and whether the spinal cord injury is complete or incomplete.

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