

Foot Drop following Neuraxial Anaesthesia: A Case Report

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Neurological complications during neuraxial anaesthesia are rare but if they occur, the consequences are disastrous. In most cases, it is difficult to identify the exact aetiology. For a good recovery, early diagnosis and intervention should be ensured. We report a case of foot drop following possible needle trauma in a patient who underwent total abdominal hysterectomy under combined spinal-epidural technique.

Key words: anaesthesia, complication, regional, foot drop, hysterectomy

Introduction

Neurologic complications following regional anaesthesia are rare with an incidence of 1 in 10,000 cases.^{1,2} If a patient complains of severe pain or paraesthesia while performing regional anaesthesia, neurological deficits in the postoperative period should be anticipated. The neurological damage could be attributed to direct trauma, epidural haematoma or chemical irritation. We report a case of foot drop following possible needle trauma in a patient who underwent total abdominal hysterectomy under combined spinal-epidural technique.

Case report

A 67-year-old lady, with an ovarian mass was posted for total abdominal hysterectomy with bilateral salphingo-oophorectomy. She had been disoriented for the previous 3-4 days. Routine pre-op investigations revealed a sodium of 118 mEq/L and correction with 3% sodium chloride was started. On the day of surgery she was asymptomatic with a repeat sodium of 126mEq/L. After attaching monitors, she was sedated with intravenous midazolam 2 mg. Under strict asepsis and local anaesthetic infiltration, a combined spinal-epidural was

placed in the left lateral position. Epidural at T11-12 and subarachnoid block was given in L3-L4 space with 3ml of 0.5% heavy bupivacaine and 10µg fentanyl. The patient was asymptomatic and deeply sedated during the procedure. She was later placed supine when she complained of some discomfort and breathlessness. She was reassured and 20µg of intravenous fentanyl was given after which she seemed to be comfortable. After one hour, epidural infusion of 0.5% bupivacaine was started at 5ml/hr. Surgery lasted for 2 hours. Post operatively epidural infusion was stopped and patient was shifted to the recovery room. In the recovery, she complained of paraesthesia and weakness of the left leg. She had intense shooting pain in her left lower limb below her knees even at rest and also complained of increased bladder frequency and incomplete evacuation. A neurology consultation was sought. Physical examination showed that there was motor deficit in the left knee and ankle (4/5 and 3/5 respectively) with no sensory deficit. Left knee jerk was absent and ankle jerk was brisk. An MRI spine was taken which showed swollen conus with abnormal bright signals probably due to oedema. She was started on methylprednisolone 1 gm IV once daily for 5 days and gabapentin 100mg 8th hourly to combat the pain. Physiotherapy was also initiated. On the second postoperative day, she was able to walk but with a high stepping gait of the left leg. The intravenous steroid was tapered to oral prednisolone. The patient gradually improved and was discharged on postoperative day 11. She continued physiotherapy at home and reported to us at 4 weeks and then at 6 months. She had partial recovery with mild weakness on dorsiflexion of the left foot. All

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<https://0000-0003-1303-5619>

Received: 03/08/2020

Accepted: 23/09/2020

DOI: <http://doi.org/10.4038/slja.v29i1.8652>



other movements were normal and there was no sensory loss.

Discussion

Neurological complications following regional anaesthesia are rare. Needle trauma and local anaesthetic toxicity following spinal anaesthetic are reported.^{3,4} In a majority of patients it is difficult to pin point the exact aetiology. Cauda equina syndrome, spinal cord compression by epidural haematoma, epidural abscess and transient neurological symptoms are other causes of neurological damage.⁵⁻⁷

The orientation of the needle during epidural and spinal needle placement is an important factor in determining the extent of nerve injury. Transverse needle insertion is associated with greater nerve injury than horizontal insertion and is better avoided.² Paraesthesia while performing neuraxial anaesthesia may be due to direct trauma to nerve roots or spinal cord. As there are no nerve roots posteriorly in the epidural space, cord penetration should be suspected if the patient complains of paraesthesia.³ Severe burning pain in the lower back and extremities along with bladder and bowel dysfunction are associated with direct trauma to the spinal cord. To limit the neurological damage, lower lumbar epidurals should be preferred over upper lumbar and thoracic epidurals. High thoracic epidurals should be performed only by an experienced anaesthetist.

Damage to the common peroneal nerve, sciatic nerve, L5 radiculopathy or lumbosacral plexus can also present as foot drop. If magnetic resonance imaging (MRI) is normal, nerve conduction and electromyogram (EMG) is required to localize the site of the lesion.^{5,8} In our case, EMG was not done as MRI showed conus lesions. The epidural or spinal needle may accidentally touch the nerve roots or injure the spinal cord. Our patient was very frail and the distance from the skin to the spinal cord was only 3.76cm. [Fig1] Hence trauma could be produced by even the 24G needle used to administer local anaesthetics (usually 4cm long). Neurological complications from direct injury to the spinal cord by the 24G needle could be avoided by not infiltrating local anaesthetic beyond the subcutaneous tissue and by stopping injection of the drug and withdrawing the needle if the patient complains of paraesthesia during the procedure. Intensity of paraesthesia may serve as

a guide for severity of nerve injury.⁸ Our patient did not complain of pain during the procedure as midazolam along with fentanyl in a frail patient could have resulted in deep sedation.

Conclusion

No anaesthetic technique is entirely free of risk or injury. Hence during the neuraxial technique, the spinal and epidural needles must be inserted gently and withdrawn if the patient complains of paraesthesia. In case of any neurological complaints, urgent neurology consultation with imaging and treatment with steroids and physiotherapy is crucial to improve long term outcomes.

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