



REVIEW ARTICLE

CASE OF SPINA BIFIDA OCCULTA POSTED FOR EMERGENCY ABOVE-KNEE AMPUTATION- CAN SPINAL ANAESTHESIA BE GIVEN?

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ABSTRACT

Neural tube defects are one of the common congenital birth defects and are a relative contraindication for spinal anaesthesia. Spinal anaesthesia for neural tube defects like spinal bifida occulta needs careful neurological evaluation. Neuraxial anaesthesia can be considered if the benefit outweighs the risk. Here, we are presenting a case of a spina bifida patient with a difficult airway and lower respiratory tract infection posted for above-knee amputation managed with spinal anaesthesia as an anaesthetic technique.

Keywords:

Spina Bifida, Anaesthesia Technique,
Spinal Anaesthesia, Emergency Surgery.

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INTRODUCTION

Neural tube defects are the commonest congenital malformation of the brain and spinal cord. With the supplementation of folic acid, the incidence of neural tube defects is reduced. The prevalence of spina bifida occulta is 20 % in the general population, and the commonest site is the L5-S1 levelⁱ. Most of the time, this may be an incidental finding during a radiological examination. Neuraxial anaesthesia is relatively contraindicated in neural tube defects such as spina bifidaⁱⁱ. It can be considered if the benefit outweighs the risk. Here, we are presenting a case of a spina bifida patient with a difficult airway and lower respiratory tract infection who was given spinal anaesthesia for above-knee amputation.

Case History: A 65 -year-old unmarried nulliparous female with a known case of diabetes mellitus with an infected diabetic foot was posted for above-knee amputation. Diabetes was detected 5 years back and was poorly controlled because of non-compliant drug intake. The patient was posted for emergency above-knee amputation. Her history and physical examination showed a pulse rate of 108 bpm, Blood pressure of 116/70 mmHg, tachypnoea and bilateral coarse crepitations

in the middle and lower lung fields. Chest x-ray showed bilateral lower lobe consolidation suggestive of associated lower respiratory tract infection. The patient was obese (weight: 90 kg, height: 156 cm, BMI: 36.58 Kg/m²), had a short neck, a heavy jaw and a Mallampati score of 3. No previous surgical history. The patient had an inadequate fasting Period. Examination of the spine was performed in the preoperative room and revealed tuft of hair in the lumbosacral area (figure:1). After shaving the area, there was a skin tag (figure:2) in the on L4-S1 space in the midline. These were suggestive of spinal bifida occulta. The patient did not have any neurological symptoms or complaints of bowel or bladder problems. Her haemoglobin was 8.2 g/dL, and the rest of the investigations were normal. Preoperative blood sugars were 240mg/dl, and she was started on insulin infusion 2IU/hour preoperatively and titrated according to blood sugar. Diabetic ketoacidosis was ruled out. High-risk consent was taken. By considering the risk of a difficult airway and lower respiratory tract infection, we planned to give spinal anaesthesia. Because of obesity, the spinous processes were not palpable. Spinal anaesthesia was given in the L3-L4 intervertebral space, one space above the skin tag in sitting position with a 1.8 cc of injection heavy bupivacaine. T10 sensory level was achieved

after 8 minutes of Spinal anaesthesia. The patient was vitally stable during the procedure. The procedure lasted for 45 minutes. There was 300 ml of blood loss during the procedure, and 1 pint packed red cell was transfused in the post-operative period. The patient had no neurological symptoms in the post-operative period. Post-operative X-ray lumbosacral spine has shown crowding of vertebrae.



Figure 1. Patch of hair in the lumbosacral area and skin tag in the L5- S1 region

DISCUSSION

Incomplete closure of the spinal column during embryonic development can lead to spina bifida. There are 4 types of spina bifida: Spina bifida occulta, Meningocele, Myelocoele, and Meningomyelocoeleⁱⁱⁱ. In spina bifida occulta, the outer part of the vertebral column (posterior part) is not entirely closed, and there may be less space for spinal cord herniation. The defect is covered by skin, and there can be patches of hair, skin tags or dimple at the level of the defect^{iv}. Symptomatic spina bifida occulta may present with an overlying hair patch, dermal sinuses or cysts, diastematomyelia, a low-lying conus or an intra or extra spinal lipoma. Even though the incidence of tethered cord is rare in spina bifida occulta, the tethered cord and the absence of ligamentum flavum can cause traumatic needle injury to the spinal cord during neuraxial techniques. Low lying conus and intra or extra spinal lipoma are also concerns in spina bifida patients. Spinal cord damage can occur in space-occupying lesions in the spinal canal following spinal anaesthesia. There can be diverse manifestations ranging from no symptoms to back pain, musculoskeletal and bladder involvement.

There are case reports of epidural anaesthesia and combined spinal epidural anaesthesia administered for non-operated and operated cases of spina bifida for different surgical procedures. If the patient underwent corrective surgery for NTD, the neuraxial technique may be difficult to perform because of the altered anatomy and unpredictability of the block.

Neuraxial techniques should be done above the level of lesions in patients with spina bifida^v. Reports of Neurological deficit after neuraxial anaesthesia in patients with neural tube defects are rare^{vi}. Baseline careful neurological assessment and radiological examination should be done to rule out motor and sensory deficit in these patients. Magnetic resonance imaging is to be done for detailed anatomical evaluation, which may be difficult in emergency surgeries.

CONCLUSION

Neuraxial anaesthesia can be successfully done without any neurological complication in spina bifida occulta patients after outweighing the risk-benefit ratio.

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