

# Emergency Cesarean Section under Spinal Anesthesia in an Operated Patient of Meningocele during Her Infancy: A Case Report

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## Abstract

Neuraxial techniques of anesthesia and analgesia are the current choice in obstetrics for efficacy and general low risk of major complications. Concern exists about neuraxial anesthesia in patients with occult neural tube defects, regarding both labor analgesia and anesthesia for cesarean section. Here, we discuss the case of a pregnant woman attending at our institution with operated case of asymptomatic Meningocele who landed up for emergency cesarean section. She underwent emergency operative delivery with spinal anesthesia with no complications.

**Keywords:** Full stomach, hypothyroidism, meningocele, prematurity 28th week, severe fetal growth restriction, severe pregnancy-induced hypertension, spinal anesthesia.

## Introduction

Meningocele is a congenital defect in the vertebral arches with cystic herniation of the meninges, with no neural tissue abnormality but neurological deficit may be present. There is abnormal development of lower sacral or coccygeal segments during neurulation. The skin is intact over the defect (Fig. 1). It is a secondary neural tube defect [1]. Various other anomalies are associated, for example, clubfoot, hydrocephalus, neurogenic bladder, facial defects, and congenital heart disease. The patient can have paraplegia, seizures, cranial nerve dysfunction, and bony and joint deformities [2]. The patients are operated during the infantile period. In utero, surgery is also available at many centers [3].

## Case Report

A 31-year-old female patient the second gravida with one abortion presented at 28 weeks period of gestation with severe preeclampsia, severe fetal growth restriction with reversal of diastolic flow on

ultrasonography Doppler and was also a known hypothyroid. She was managed conservatively with beta-blockers and injection magnesium sulfate to control blood pressures (BP), but her BP was constantly high; hence, decision to terminate pregnancy was taken. She was also on tablet eltroxin 25 µg for hypothyroidism. An emergency cesarean section was done for maternal indication. Preoperatively, on pre-anesthesia checkup, history of meningocele repair was revealed. It was done in infantile period and no documents were available. A longitudinal scar was present at lower back with dimpling and puckering (Fig. 2). No other abnormality was detected in spine or any neurological deficit. Clubfoot was an associated abnormality. On examination, her modified Mallampati score was III, with adequate mouth opening. All other systemic examinations were normal and were taken for surgery with due risk of anesthesia under ASA grade III. Her NPO status was not complete so decision for neuraxial

anesthesia was taken. The patient was taken in the operation theater and all para monitors were attached and baseline values were recorded. Spinal anesthesia was given at the level of L2-L3 using 27G Whitacre spinal needle, 2.2 cc of injection bupivacaine 0.5% (heavy) was injected after free flow of cerebrospinal fluid (Fig. 3). Adequate motor and sensory level was achieved till T4 with modified Bromage scale score of 3. The hemodynamics were managed with crystalloids perioperatively, and the vitals were maintained throughout the procedure. Lower segment cesarean section was done and a male baby of 770 g was delivered. The baby had an Apgar score of 7, 8 at 1st and 5th min and was shifted to neonatal intensive care unit (NICU) for further management. The patient stood the procedure well with no intra- or post-operative complications or any neurological complications. Bilateral TAP block (20 ml of 0.25% bupivacaine on each side) was given for post-operative somatic pain control. She was given injection paracetamol 1 g I.V. infusion for visceral pain control. During the complete post-operative period, the patient remained asymptomatic; her BP remained in physiological limits. The baby was admitted in NICU and was maintained on non-invasive ventilation with 2 hourly oral feeds, IV fluids, and antibiotics. No congenital abnormalities were detected in

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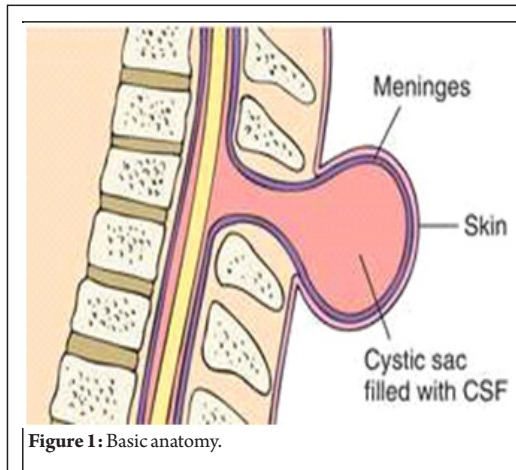


Figure 1: Basic anatomy.



Figure 2: The healed scar of surgery.



Figure 3: Spinal needle inserted at L2-L3.

the baby, and he started gaining weight in response to the treatment. The mother was discharged from the hospital in a healed and healthy state.

### Discussion

The patient was a known hypothyroid on medication and had incomplete NPO status making regional anesthesia the preferred choice of anesthesia. Neuraxial anesthesia for patients with spine abnormalities (e.g., scoliosis, spinal stenosis, disk disease, radiculopathy, prior spine surgery, and spina bifida) is challenging or impossible. It is also associated with increased risk of neurologic complications. The distribution of drugs is also affected by anatomic distortion or postsurgical changes and can result in inadequate anesthesia or analgesia. There is increased risk of such instances with an epidural technique, as it relies on spread of the drug in the epidural space. There are certain complications associated with regional anesthesia like damage to spinal cord which can be transient or permanent, aseptic meningitis, spinal cord infarction, and limb damage from sensory and motor block [4]. In this case, due to non-availability of MRI and urgency of situation, assessment of the present state of spinal cord and meninges was not possible. In this study, surgical causes were identified as the probable cause in four out of 10 of the patients. Of the remaining six in whom non-surgical causes were identified, neuraxial anesthesia (spinal in all cases) was thought to be the primary etiology in three cases. The patients tended to exhibit worsening of preexisting pain with or without the presence of new sensory deficits. The

majority of these resolved partially or completely. Statistical analysis showed that the risk of neurological deficit was increased by the presence of other neurological diagnoses: Nine out of 10 patients had symptoms of a compressive radiculopathy, and six out of 10 had multiple neurological diagnoses. Interestingly, a history of previous spinal surgery did not increase the risk of complications nor was it associated with technical difficulty in performing the block. Open spinal dysraphisms are commonly treated with surgical intervention during the early neonatal period. Clinical outcomes may vary from no neurologic sequelae to sensorimotor deficits, lower extremity paraplegia, and bowel and bladder dysfunction. Four anecdotal case reports have been described in the literature in which epidural analgesia or spinal anesthesia [5, 6] has been used in parturient during labor and delivery with a history of spina bifida cystica and subsequent surgical correction. In all but 1 case, the authors describe extensive cranial spread of local anesthetic and dense neural blockade with normal or reduced doses of local anesthetic. Limited spread of local anesthetic caudad to the site of surgical intervention was also noted. None of the patients experienced an inadvertent dural puncture, post-dural puncture headache, or new or progressive neurologic dysfunction after the regional technique. Tidmarsh and May [7] have also described the use of epidural analgesia in four parturient who previously underwent meningomyelocele repair during infancy. Clinical outcomes included extensive cranial spread of local anesthetic (n = 1), poor sacral analgesia (n =

1), and successful epidural analgesia (n = 2). The authors cautioned that performing neuraxial techniques within this patient population can be technically challenging, with an increased risk of inadvertent dural puncture and unpredictable local anesthetic spread [7]. If neuraxial anesthesia or analgesia is performed under these clinical circumstances, it is recommended that the site of needle insertion occurs at a level above the original lesion because of limitations in local anesthetic spread [8].

### Conclusion

The Spinal Anaesthesia which might be technically challenging to give in an operated case of Meningocele, but at the same time can be safely exercised in some lone cases in unique situation like in our case, keeping in mind not to over try to make thing worse, but to give it as an attempt to provide safe mode of anaesthesia, if it goes well in 1 or 2 attempt, else the General Anaesthesia is always kept ready as the backup plan.

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