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Case Report

Anaesthetic Management of surgical Decompression of Pott's spine during Pregnancy Requiring One-Lung Ventilation: A Unique Case Report

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Abstract

Administration of anesthesia for surgery during pregnancy poses unique challenges because it is important to ensure the safety of both mother and fetus. Spinal tuberculosis in pregnancy is rare but can present with neurological compromise requiring urgent surgical intervention. We present the case of a 25-year-old female at 32 weeks of gestation with tuberculous osteomyelitic involvement of D5–D7 vertebrae and cord compression, who underwent corpectomy and fusion under general anesthesia with one-lung ventilation (OLV). The perioperative challenges included maintaining maternal hemodynamic stability, ensuring adequate oxygenation during OLV, minimizing fetal risk, and preventing preterm labor. With careful multidisciplinary planning, vigilant intraoperative monitoring, and prompt post-operative care, the patient recovered neurologically and subsequently delivered a healthy full-term neonate vaginally. This case highlights that complex thoracic spine surgery can be performed safely during advanced pregnancy when maternal and fetal needs are simultaneously prioritized.[1]

Key words: Anesthesia for non-obstetric surgery, Lung isolation techniques, One lung ventilation, Pott's spine

INTRODUCTION

Pregnancy alters maternal physiology, increasing the anesthetic challenges during surgery. Non-obstetric surgical interventions in late pregnancy require not only maternal safety but also consideration of fetal oxygenation, hemodynamic stability, and the risk of triggering preterm labor. Spinal tuberculosis (Pott's spine) is uncommon in pregnancy but may lead to serious complications such as spinal cord compression and paraplegia if not addressed promptly.

Surgical decompression and stabilization may be required in such situations. Anesthetic management becomes more complex when the surgical approach necessitates one-lung ventilation (OLV), which is associated with maternal hypoxemia and a potential risk of fetal compromise. We report a case of an 8-month pregnant woman with tuberculous osteomyelitis of the dorsal spine requiring corpectomy and fusion under general anesthesia with OLV.

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CASE REPORT

A 25-year-old female, gravida 2 para 1, at 32 weeks of gestation, presented with a 1-month history of weight loss, 5 days of severe back pain, and difficulty walking. On admission, she was conscious, oriented, and hemodynamically stable with a heart rate of 74/min, blood pressure 110/70 mmHg, respiratory rate 18/min, and oxygen saturation 98% on room air.

Neurological examination revealed normal power in both upper limbs, but power in the lower limbs was reduced to 3/5 with decreased tone and depressed reflexes. Sensory deficit was present below the T6 level. Obstetric assessment revealed a uterus of 32-week size with a single live fetus.

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Laboratory investigations showed hemoglobin 12.4 g/dL, total leukocyte count 11,000/μL, platelets 273,000/μL, international normalized ratio 1.23, and normal renal and liver function tests. Chest radiograph, electrocardiogram and echocardiogram were normal. Magnetic resonance imaging of the dorsal spine revealed infective spondylodiscitis with D6 vertebral collapse, kyphosis, paravertebral and epidural abscess, and cord compression with edema. GeneXpert confirmed *Mycobacterium tuberculosis*.

The patient was managed preoperatively in the intensive care unit (ICU) with antitubercular therapy, antibiotics, chest physiotherapy, nutritional support, pre-operative steroids for fetal lung maturation, and daily fetal monitoring. A multidisciplinary team comprising neurosurgeons, anesthesiologists, obstetricians, neonatologists, and neurologists decided on urgent surgical decompression and fusion. High-risk informed consent was obtained, including discussion of the possibility of preterm labor.

In the operating room, standard monitors were applied, and invasive monitoring was established with an arterial line and central venous access. A wedge was placed under the right hip for left uterine displacement. Fetal heart rate was monitored by the attending obstetrician. After aspiration prophylaxis with pantoprazole and ondansetron, a modified rapid sequence induction was performed using propofol and rocuronium following pre-medication with glycopyrrolate and fentanyl. She was intubated with a 32 Fr left-sided double lumen tube. Correct positioning was confirmed by auscultation. Anesthesia was maintained with an O_2-air mixture (50:50), sevoflurane, and intermittent rocuronium. The patient was positioned in the left lateral decubitus position with adequate padding of pressure points, and the abdomen was shielded from radiation exposure during intraoperative fluoroscopy.

OLV was initiated with FiO_2 0.7, tidal volume 8 mL/kg, respiratory rate 20–22/min, positive end-expiratory pressure (PEEP) 5 cmH_2O, and peak airway pressure maintained below 30 cmH_2O. Serial arterial blood gases (ABG) were monitored. OLV was performed with intermittent periods of two-lung ventilation to aim for SpO_2 >97% The surgery lasted 6 h with a blood loss requiring transfusion of two units of packed red cells. The intraoperative course was hemodynamically stable, oxygenation and ventilation were maintained as evidenced by normal intraoperative blood gas reports, and fetal heart rate remained between 140 and 160 beats/minute. Analgesia was provided with fentanyl and intravenous paracetamol. The patient was extubated uneventfully at the end of surgery.

Postoperatively, she was monitored in the ICU with close obstetric supervision. Oral feeds were resumed on post-operative day (POD) 1, and antitubercular therapy continued. The patient had a full neurological recovery by POD 10 and eventually delivered a full term healthy neonate.

DISCUSSION

Although tuberculosis of the spine during pregnancy is rare, it carries significant morbidity if complicated by spinal cord compression. Delay in surgical decompression can result in irreversible neurological damage. Our patient required urgent intervention at 32 weeks of gestation, necessitating careful coordination between neurosurgeons, anesthesiologists, and obstetricians.

Anesthetic concerns in this patient included aspiration risk, prevention of aortocaval compression, intraoperative fetal monitoring, minimization of radiation exposure, and the challenges of OLV in a pregnant patient. Hypoxemia during OLV is common and may adversely affect both mother and fetus. In our case, hypoxemia was prevented by the use of optimal FiO_2, moderate tidal volumes, appropriate PEEP, and close ABG monitoring. Fetal heart rate monitoring intraoperatively ensured reassurance of fetal well-being. Abdominal shielding minimized radiation exposure. Postoperatively, careful monitoring was continued to prevent complications such as preterm labor, urinary tract infection, and pressure ulcers.

This case highlights that with proper planning, multidisciplinary collaboration, and vigilant perioperative care, complex thoracic spine surgery can be performed safely during pregnancy with favorable maternal and neonatal outcomes.

CONCLUSION

The best anesthetic practice is one that balances safety for the mother while minimizing risks to the fetus. Thoracic spine surgery requiring OLV in advanced pregnancy presents significant challenges, but careful perioperative monitoring, multidisciplinary planning, and management can result in successful outcomes for both mother and baby.[2]

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