

Dilemmas in a parturient with intracranial meningioma with raised intracranial pressure and difficult airway for cesarean section

A parturient with intracranial tumor and raised intracranial pressure (ICP) is a challenge to the anesthetist.^[1-6] We recently encountered a similar patient but more challenging due to the presence of decreased mouth opening secondary to tumor metastasis to bilateral temporomandibular joint. To the best of our knowledge, a similar case is not reported before in literature. The patient was a 55-kg, ASA III, 24-year-old parturient posted for elective cesarean section at 37 weeks of gestation. She was a known case of right sphenoid meningioma since the last 1 year with current size of 5.2 cm on magnetic resonance imaging and presently on treatment of intravenous phenytoin and dexamethasone. She was referred to the anesthesia team 2 days prior to elective cesarean section for preanesthetic examination, which revealed prominent proptosis with chemosis of the right eye with right facial nerve palsy and no vision in the right eye [Figure 1]. Airway examination revealed interincisor distance of 8 mm with decrease mandibular protrusion, nontender bilateral condylar movements, hyomental distance of 5.2 cm, and mallampati grade IV. Fundoscopy revealed a pale disc with total optic atrophy and papilloedema. The rest of the systemic examination and blood investigations were within normal limits.

The main goal in the present patient was to prevent further increase in ICP. To accomplish this, the main challenges were to secure airway with minimal nociception, to administer adequate

perioperative analgesia to prevent pain, and to avoid nausea and vomiting in the postoperative period. A decrease in ICP was also not desirable as it could lead to brainstem herniation. Due to the above challenges along with the presence of difficult airway, general anesthesia with awake nasal fiberoptic intubation was planned, as mouth opening was inadequate to accomplish oral intubation. The procedure was explained to the patient a day prior to the surgery. Intravenous phenytoin and dexamethasone were continued in the perioperative period. In the operating room, 0.05% xylometazolin nasal drops were instilled on more patent right nostril. Nebulization with 2% xylocaine 10 mL was given. Intravenous hydrocortisone 100 mg was injected followed by slow injection of midazolam 1 mg over 5 minute. Right nostril was serially dilated with lubricated nasopharyngeal airway (size 6, 7, 8) following which a fiberoptic 6.5 mm was passed with an epidural catheter threaded in the suction port. Through this, 10 mL of 2% lidocaine was sprayed in the oral airway and the catheter port enabled precise deposition of local anesthetic to the vocal cords and trachea. The fiberscope was then removed to allow for the action of local anesthetic. After 2 minutes, it was reintroduced with a softened endotracheal tube (by immersing in hot saline for few minutes) of size 7.5mm (size determined by nasal and tracheal diameter on chest X-ray). The patient was asked to protrude her tongue and with gentle lifting of her jaw, trachea was intubated without any gag or coughing. Her hemodynamic parameters remained stable. Induction of anesthesia was then done with intravenous propofol 1 mg/kg and atracurium 25 mg. Maintenance of anesthesia was done with Total intravenous anesthesia (TIVA) propofol 120 µg/kg/min without any inhalational gases. Intraoperative invasive ICP monitoring was not available. However, ETCO₂ 30–32 mmHg, BIS 40–50, and 25° elevation of operative table were maintained to ensure no further increase in ICP. Intraoperative analgesia was provided with intravenous paracetamol 1 g and ketorolac 30 mg. A healthy male baby with Apgar score of 8

was delivered. Her intraoperative period remained uneventful and she was hemodynamically stable throughout surgery. After skin closure, bilateral ultrasound-guided Transversus abdominis plane block (TAP) block with 20 mL each of 0.375% plain ropivacaine was given. TIVA was stopped after skin closure. The total surgical time was 40 minutes. Neuromuscular blockade was reversed with neostigmine and glycopyrrolate. The aim of tracheal extubation was to ensure an awake patient due to difficult intubation and to prevent coughing and bucking over the tube to avoid increase in ICP. At the end of the surgery, the patient had spontaneous opening of eyes and responded to oral commands without coughing over endotracheal tube. Trachea was extubated. Pain assessed by visual analogue score (VAS) at extubation was 1–2. She was shifted to high observation unit for 3 days to monitor for any changes in the level of consciousness. Postoperative analgesia was provided by intravenous paracetamol 1 two to three times a day. Her postoperative period was uneventful and she was discharged on the seventh day with advice to follow-up in neurosurgery outpatient department.

Anesthetic management of a similar kind of patient is not reported in literature. In patients with increased ICP, spinal anesthesia may cause transtentorial herniation and thus is not favored.^[1-6] Potential advantage of regional anesthesia is an intraoperative awake patient, which could help in early diagnosis of a deteriorating neurological event.^[1-6] General anesthesia risks a rise in ICP due to hemodynamic variations during intubation, vasodilatation due to inhalational agents, and inadequate depth. In the present patient, spinal anesthesia was not preferred to avoid sudden fall in ICP. Keeping increased ICP in mind, segmental epidural anesthesia was probably an option in the present patient but was decided against as securing an emergency airway device in case of any inadvertent event would have been very difficult. General anesthesia with propofol was chosen as propofol decreases

the Cerebral blood flow (CBF), cerebral metabolic rate of oxygen (CMRO₂), and ICP and is also cerebroprotective.^[5,6] In view of minimal mouth opening, postoperative sedation was prevented by avoiding intravenous opioids and by avoiding use of opioids in Local anesthetic as an adjuvant in TAP block. Avoidance of opioids was also done to prevent nausea and vomiting, which may further increase ICP.

Increased ICP along with difficult airway in a parturient is a challenge to an anesthetist. The need to deliver adequate analgesia along with avoidance of sedation and nausea vomiting in the mother while maintaining brain and fetal circulation are the goals in such a patient. This requires judicious combination of drugs and procedures to ensure successful outcome of mother and fetus.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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Figure 1: Front and lateral views showing proptosis and decreased mouth opening

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