

**Case report - perioperative Anaesthetic management of excision of right inguinal region schwannoma.**

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**Abstract**

Schwannomas are rare and slow-growing nerve sheath tumors. Surgery is the definitive treatment. It is often misdiagnosed due to lack of awareness and often confused with other common lesions like lipoma and fibroma of the ganglion. However, its diagnosis can be suspected on sonography, computed tomography, and magnetic resonance imaging examination, and it is confirmed by pathological analysis of the operative specimen. When schwannoma grows larger more nerve fascicles are affected making surgical removal difficult.

Risk factors during surgery were the tumor encompassing the external iliac vein. Extension of tumor deep into the iliac fossa. Invasive arterial BP monitoring, blood products transfusion and Epidural Local Anaesthetic and epidural analgesic administration were key to the management.

Anticipation of blood loss, prolonged duration of surgery and severe postoperative pain is important in case of

surgical excision of schwannoma encompassing nearby vasculature and soft tissue.

**Keywords:** Schwannoma, External Iliac vessels, Epidural, Blood transfusion

**Case Report**

A 28-year-old male patient weighing 75 kg with complaints of swelling pain, in the right inguinal region, and weakness of the right lower limb for the last month. MRI scan revealed a lesion in the pre-sacral region encompassing the external iliac vein and extending to right iliac fossa and pushing the bladder. A nerve study was done to document the extent of neural involvement. The tumour encircling the external iliac vein was a risk factor during surgery.

Tumour spreads deep into the iliac fossa. Invasive arterial blood pressure monitoring, blood product transfusion, and Epidural Local Anaesthetic and epidural analgesic administration were key to the management.

In the case of surgical excision of schwannoma covering adjacent vascular and soft tissue, it is critical to anticipate blood loss, a protracted surgical duration, and considerable postoperative pain.

General anaesthesia combined with an epidural was administered. Airway examination revealed adequate mouth opening (Mallam Patti classification I), an inter-incisor distance of 3 fingers and thyromental distance of three fingers and neck extension was eighty degrees, After shifting the patient to the operating room, peripheral oxygen saturation (SPO<sub>2</sub>), 5 lead ECG, non-invasive blood pressure and heart rate were monitored.

Patients' baseline pre-operative parameters were recorded. Two wide bore canula were secured. A crystalloid infusion was started.

The epidural procedure was performed by using the midline approach in a sitting position. Under all aseptic precautions painting and draping were performed. The epidural space was located at the L2-L3 or L3-L4 inter space using the loss of resistance technique and glass syringe. The epidural catheter was inserted 5cm into the epidural space and fixed after confirming negative aspiration for blood and CSF. Urinary catheterisation was done to measure the urine output and for the subsequent postoperative period.

The patient was preoxygenated for 3 minutes and premedicated with Midazolam 1mg Glycopyrrolate 0.2mg and Fentanyl 50mcg i. v. He was induced with Propofol i. v. 100mg.

After confirming that mask ventilation was possible, inj. Succinylcholine 75mg i. v was administered. Laryngoscopy was done through Mcintosh laryngoscope, and the patient was intubated using a 7.5mm Endotracheal tube. Bilateral air entry was confirmed with the 5-point auscultation method. Inj.

Vecuronium 4mg was given to achieve muscle relaxation. Left radial arterial catheter was placed.

Ventilation was maintained with volume control mode, with tidal volume 450ml, fraction of inspired oxygen (FiO<sub>2</sub>) 0.5, respiratory rate 14 cycles per minute, end-tidal carbon dioxide (EtCO<sub>2</sub>) monitored throughout the surgery. Maintenance of anesthesia by Sevoflurane 1.8%, Opioids and bolus doses of Inj. Vecuronium.

Arterial blood pressure monitoring was initiated. Blood loss during surgery was continuously monitored. Extraction of tumor was difficult due to the difficult dissection plane, proximity to major neurovascular structures and deep extension of tumor in the pelvis. The tumor was extracted in a piecemeal approach. This led to a prolonged duration of surgery and blood loss. Adequate amounts of crystalloids were given. Two units of Packed red blood cells along with one unit of Fresh frozen plasma were transfused for the patient. The possibility of damage to the external iliac artery was anticipated. Massive transfusion protocol kept ready. Intra-operatively intermittent titrated bolus analgesic dose of Local anesthetics given through the epidural catheter for haemodynamic stability. (5- 10 ml of 1.25% Levo-Bupivacaine). After spontaneous breathing attempts patient was reversed with Inj. Neostigmine 2.5mg and Inj. Glycopyrrolate 0.5mg I.V. and the patient was extubated. The patient was shifted to the intensive care unit and monitored according to department protocol. postoperatively analgesic (combination of buprenorphine and Levo- Bupivacaine) as epidural infusion was administered.

Adequate fluids were administered. Oxygen support given as and when needed. Complete blood count and CXR repeated on the next postoperative day. His to

pathological analysis of the specimen confirmed the diagnosis.

### **Discussion**

The tumor in this particular case was deeply encompassing the external iliac vasculature. Due to piecemeal extraction of the tumor, necessitated due to difficult extraction, blood components were kept ready, anticipating major blood loss during surgery.

For major surgery, the ideal epidural analgesic approach would deliver efficient pain management with few adverse effects and high levels of patient satisfaction.<sup>1</sup> Additionally, it would inhibit central sensitization and organ dysfunction brought on by pain, improving results.<sup>2</sup> Aiming for a patient who can mobilise, take deep breaths, and cough successfully and who scores 3 or less on a visual analogue or numerical rating scale evaluated on mobility is a more realistic method of measuring pain.<sup>3</sup> Combinations of analgesic doses of Local anesthetic and opioid analgesic adjuvant were used in this patient.<sup>4</sup> Pre-operative nerve study done in this patient to document nerve status and avoid medico-legal complications.

Common complications of epidural catheterisation include Dural puncture, direct trauma, transient neuropathy, spinal haematoma, infection at the epidural site and catheter migration.

It can also lead to respiratory depression, hypotension and motor block.

Blood loss was estimated by the visual confirmation method. The number of blood-soaked mops and gauze was counted.<sup>5</sup> Blood collected in the suction chamber was noted. Blood transfusion started once the maximum allowable blood loss limit was reached.<sup>6</sup> Other methods of blood loss estimation include photometry and serial Hb estimation. But these methods are not used because

of time constraints and lack of necessary equipment and practicality.<sup>7</sup> 30 X 30 cm mop can absorb 100ml of blood. 4 X 4 cm of gauze can hold 10 ml of blood. Blood transfusion was started before the appearance of haemodynamic signs. The disadvantage of this method is the mixing of saline and secretions in the suction apparatus. The blood lost to the floor and drapes can be missed.

Studies have found a strong link between anaesthesia time and poor outcomes such as venous thromboembolism, prolonged duration of stay, and further surgery<sup>8</sup>. The mechanisms that increase anaesthesia-associated risk when the duration is extended to roughly six hours remain unknown. Regardless, many medical institutions and/or private practices have standards in place governing the maximum amount of time that can be spent under anaesthesia, particularly for elective or low-risk procedures.

### **Conclusion**

Anticipation of blood loss, prolonged duration of surgery and severe postoperative pain is important in case of surgical excision of schwannoma encompassing nearby vasculature and soft tissue. When compared to parenteral opioids, epidural analgesia offered superior post operative analgesia regardless of the analgesic agent, the location of the catheter placement, or the kind and timing of the pain evaluation. The use of number of mops depending on the permissible blood loss will help to alert the operating team to the blood loss and aid in the decision-making process for blood transfusion.

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