ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 11 | November - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ANAESTHETIC CHALLENGES IN A PATIENT FOR EWING'S SARCOMA KIDNEY

Oncology

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ABSTRACT

We are reporting a case of Ewing's sarcoma kidney associated with an IVC thrombus scheduled for resection and reconstruction. The patient had metastatic disease with lytic lesions in D10 and D11 and partial collapse of L5 vertebrae without neurological deficit. He was on thromboprophylaxis which was to be continued in the postoperative period. We planned to do the procedure under general anaesthesia with bilateral erector spinae plane block. Since the surgery entails major fluid shifts and blood loss we planned for invasive hemodynamic monitoring to guide fluid management.

KEYWORDS

Ewing's sarcoma kidney,Erector Spinae Plane Block,IVC thrombectomy,ultrasound guided muscle plane blocks.

INTRODUCTION

Ewing's sarcoma kidney is a rare tumor of the kidney. It is a neuroectodermal tumor that is highly aggressive. Despite multiple publications outlining surgical approaches and outcomes (1) there have been few studies that evaluate perioperative management of a patient with inferior vena cava tumor thrombus (IVC TT).IVC filters in patients with resectable tumors due to complications involving tumor infiltration of the filter [2] In these surgeries we should anticipate major blood loss and fluid shifts and should prepare well for smooth conduct of surgery.

CASE REPORT

Here we present anesthetic challenges of a 21-year gentleman weighing 56kg who had presented with abdominal pain and swelling diagnosed as Ewing's sarcoma kidney with metastatic disease scheduled for Right radical nephrectomy, and IVC thrombectomy and graft reconstruction. The patient had an IVC thrombus for which the Denali filter was placed preoperatively through the right jugular approach in right infrahepatic IVC. The patient was not on any anticoagulants. He had received 5 cycles of chemotherapy. Following chemotherapy CT evaluation showed lesion encasing right kidney and IVC and extending into aorto-caval space.

An infrahepatic IVC thrombus was also found. There were multiple lytic sclerotic lesions at T11 T12 vertebrae and partial collapse of L5 vertebrae. His systemic examinations and airway assessment were within normal limits. On pre-anesthetic evaluation echocardiogram was normal with an EF of 64%. Because of the nature of the surgery, he was cleared under moderately high cardiovascular risk (Lee's Revised Cardiac Risk index). General anesthesia with controlled ventilation with adjunct bilateral erector spinae plane block was planned.

The procedure was explained to the patient. We avoided epidural analgesia as the patient had multiple lytic lesions in T11 T12, partial collapse of the L5 vertebra, and the possibility of postoperative anticoagulation which is likely to interfere with the removal of the epidural catheter.

Written informed high-risk consent was taken. Standard ASA monitors were attached and baseline readings were recorded. GA was induced with propofol 100mg and fentanyl 60mcg, muscle relaxation achieved with succinylcholine 100 mg, and airway was secured with 8mm ID endotracheal tube. Muscle relaxation was maintained with vecuronium 6 mg intravenously, Anaesthesia maintained with sevoflurane oxygen air and intermittent bolus doses of muscle relaxant. After induction bilateral erector spinae block was given under strict asepsis and ultrasound guidance at T8 level 15ml 0.5% ropivacaine on each side(after calculating toxic dose).

After positioning the patient for surgery 0.2% ropivacaine infusion was started at 10 to 15 ml per hour bilaterally. Radial artery calculation was done and cardiac output monitoring was attached. Goal-directed fluid therapy was administered till the clamping of IVC. The tumor was involving posterolateral IVC >50 % and extending just below the hepatic vein. There was an IVC filter in the infrahepatic portion which was removed. Before clamping we preloaded the patient with crystalloids. Heparin 5000 units was administered before IVC clamping and 3000 units of heparin was repeated after 45 minutes. IVC clamp time was one hour and 25 minutes. IVC was resected and reconstructed with a 16 mm Dacron graft and the left renal vein was reimplanted in the graft. Patient's hemodynamic status was stable throughout the procedure.

100 ml 20%albumin was administered during clamp time. Intraoperatively 2 PRBC transfused after release of clamp. Estimated blood loss was about 2 liters. Intraoperative ABG analysis was within normal limits. The patient was reversed and extubated after surgery. Anticoagulation was started with unfractionated heparin 5000 units 6th hourly from next postoperative day. Bilateral erector spinae infusion of 0.2 % ropivacaine 10 ml per hour was given for postoperative analgesia. The patient had a pain score of less than 3 at any point of time post-operatively without any opioids. Erector spinae block catheter was removed on the 5th postoperative day.

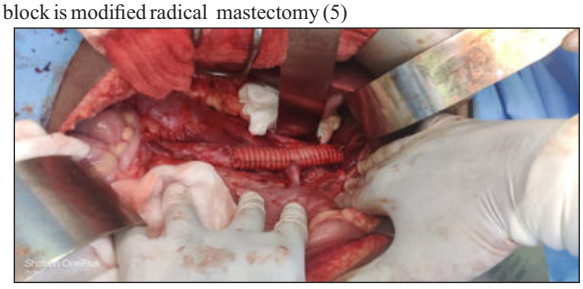
DISCUSSION

The surgical treatment of Renal Cell Carcinoma (RCC) with a tumor thrombus extending to the IVC is dependent on the disease site, thrombus extension level, and the degree of IVC patency. Tumors are classified into four categories before surgery (level I: patients with tumor thrombus extending from the renal vein into the infrahepatic IVC for 1–2 cm and requiring only local control of the IVC for extraction, level II: patients with tumor thrombi that extend no further than the subhepatic IVC, level III: patients with thrombi that extend into the intrahepatic IVC or that extend to the suprahepatic IVC but not into the atrium, level IV: patients with intra atrial thrombi) according to the level of cephalad extension of the tumor thrombus into the IVC, as described by Naves and Zincke [3].

Partial or total abdominal aortic cross-clamping is considered to be a safe and simple technique and can be used to conveniently maintain hemodynamic stability without a shunt, even if the systemic blood pressure decreases during IVC cross-clamping when IVC replacement is performed for patients with gastroenterological, urological, and gynecological diseases with IVC invasion or extension. Preloading the patient adequately with albumin and crystalloids before clamping of IVC helps to avoid intractable hypotension. In our patient vitals were stable throughout the procedure.

Erector spinae plane block is a recently described ultrasound-guided inter-fascial technique aiming to block the anterior and posterior branches of spinal nerves for multi dermatomal analgesia. In one cadaveric study, they injected 20 ml of dye at T7 and observed spread cranially up to lower cranial and upper thoracic vertebra and caudally to as low as L3.[4]The most common indication of erector spinae plane

block is modified radical mastectomy (5)



Erector spinae plane block is an excellent alternative when performed bilaterally in patients with contraindication for epidural catheter placement. We can safely place catheters for continuous infusion of local anesthetic in that muscle plane and pain scores in the postoperative period match with a successful epidural with lesser complication rates.

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