

# Anaesthetic Management of a Giant Retroperitoneal Tumor

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## Abstract

Sarcomas are malignant tumors developing from mesenchymal cell lineages. The most common soft tissue sarcoma and prevalent retroperitoneal sarcoma is liposarcomas. As this was a major surgery, in view of anticipated blood loss, need for vasoactive medication, a central venous catheter was secured, epidural catheter was placed. Patient was induced as per the standard anaesthesia protocol and maintained on O<sub>2</sub>, N<sub>2</sub>O and Isoflurane. An arterial line was placed. A low dose Noradrenaline infusion was started. Intraoperatively 2 pints of PRBC was transfused, patient was shifted to ICU for elective ventilation. Regular epidural top ups were given for post operative analgesia. Patient was reposed for total thyroidectomy and neck dissection after 15 days and the main concerns of this surgery were the vascularity of tumour and post operative development of tracheomalacia. Utmost care was taken for fluid management and blood loss for the case and patient was checked for vocal cord movements to confirm the absence of recurrent laryngeal nerve injury and tracheomalacia. The anaesthetic management was handled successfully without any complications.

**Keywords:** Anaesthesia; Fluid management; Retroperitoneal tumour.

**Key Messages:** Any space occupying lesion, like giant cell sarcoma, as in our case, possess a problem of high third space loss of fluids and also may present with a compression of major vessels. This gives a challenge to the anaesthetist, in recognising and management of hemodynamics perioperatively. In our case, there was an interdepartmental discussion for preparation and perioperative anaesthetic management. We have successfully managed this case without major complications and post-operative analgesia was provided with an epidural catheter.

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## INTRODUCTION

Sarcomas are malignant tumours developing from mesenchymal cell lineages. The most common soft tissue sarcoma and prevalent retroperitoneal sarcoma is liposarcomas.

Patients with giant retroperitoneal tumor exposes varied anaesthetic complications, such as, effect on respiration and circulation, risk of aspiration during intubation, risk of excessive bleeding, occurrence of RPE.<sup>1</sup>



Hence these patients are regarded to be of high risk for perioperative complications, necessitating diligent anaesthetic management.

### CASE REPORT

A 73 year old male diagnosed with retroperitoneal mass and carcinoma thyroid was posted for sarcoma excision. His computed tomography of abdomen showed soft tissue mass lesion with areas of lipid attenuation measuring about 31\*18.9\*27.5 cms almost occupying the abdominal cavity superiorly, suggestive of liposarcoma. (Fig. 1)



Fig. 1: Showing the intra-abdominal tumor

After the tumour excision and right nephrectomy, tumour was measured to be about 12 kgs of weight. Patient was shifted to ICU for elective

As this was a major surgery in view of anticipated blood loss, need for vasoactive medication, a central venous catheter was secured. An epidural catheter was placed at the level of T8-T9. Patient was induced as per the standard anaesthesia protocol and maintained on O<sub>2</sub>, N<sub>2</sub>O and Isoflurane. An arterial line was placed. A low dose Noradrenaline infusion was started at 5ml/hr as the blood pressure dropped to 80/50mmHg.

Intraoperatively 2 pints of PRBC was transfused. Blood pressure was maintained around 100-110 systolic BP.

ventilation. Regular epidural top ups were given for post-operative analgesia. (Fig. 2)



Fig. 2: Tumor post excision

Patient was reposed for total thyroidectomy and neck dissection after 15 days and the main concerns of this surgery were the vascularity of tumour and post-operative development of tracheomalacia. Utmost care was taken for fluid management and blood loss for the case and patient was checked for vocal cord movements to confirm the absence of recurrent laryngeal nerve injury and tracheomalacia.

## DISCUSSION

This is a case report of successful management of a giant retroperitoneal sarcoma excision. Retroperitoneal sarcomas pose a great risk of perioperative complications and needs careful anaesthetic management. Due to the large size of the abdominal tumor, giant retroperitoneal sarcomas cause: Increased abdominal pressure, resulting in retroperitoneal vascular congestion.

Compression on aorta and increase in cardiac after load; Compression on GIT; Decrease in respiratory compliance due to diaphragm drive up. Due to these factors, general anaesthesia and anaesthetic management for the tumor resection has several risks. The main concerns in anaesthetic management are: Influence on respiration and circulation; Risk of aspiration during intubation; Risk of massive bleeding and occurrence of Re-expansion Pulmonary Edema (RPE).<sup>2</sup>

In this case, patient was a 73 yearold male with no known comorbidities, diagnosed with carcinoma thyroid and giant retroperitoneal sarcoma. A thorough pre anaesthetic evaluation has been done. The tumor was compressing the IVC, and patient had bilateral pedal edema. For large abdominal and pelvic procedures, the risk of perioperative VTE (Venous Thromboembolism) should be evaluated, and thromboprophylaxis should be customized depending on patient stratification.<sup>3</sup> For our case although the Wells criteria score was low, a D-Dimer test was done to rule out the VTE along with the lower limb Doppler ultrasound. A central line has been placed, in anticipation for the need for ionotrope support, fluids and blood transfusion intraoperatively. An arterial line was placed intraoperatively for continuous BP monitoring, similar to the case described by Yue Shi.<sup>3</sup> An epidural catheter was placed at the level of T8-T9 prior to induction of anaesthesia.

Nobuko Ohashi has described about a case where they maintained patient on spontaneous ventilation until the start of operation in anticipation that

tidal volumes could not be generated adequately, however, in our case we followed the standard protocol for administering anaesthesia.<sup>2</sup> We have used Inj. Veuronium 0.08mg/kg as the loading dose initially.

A case report described by Yue Shi, described a patient who has a smooth muscle tumor which had vascularisation arising from the GIT and the anaesthesia was maintained throughout the surgery with dexmedetomidine and sufentanil.<sup>4</sup>

A similar case report done by Dhawan. et.al, have described a case of retroperitoneal sarcoma arising from the renal vein and a radical nephrectomy was done.<sup>5</sup> Bamba described a case report of a giant ovarian tumor where the tumor was cystic and was aspirated after the administration of general anaesthesia.<sup>6</sup>

In our case, anaesthesia was maintained through Isoflurane, Propofol and Vecuronium. When the tumor was uplifted, there was a sudden drop in blood pressure to SBP of 80mmHg.

A low dose infusion of Noradrenaline has been started at 5mL /hr and adjusted according to the blood pressures monitored with the continuous arterial line BP monitoring, titrated upto 8mL/hr. Intraoperatively, hypothermia was avoided with the use of body warmer and monitoring with a temperature probe. Sugars were checked regularly throughout the procedure.

Two pints of PRBC have been transfused intraoperatively, along with 6 pints of crystalloids, making the total input to 3900mL. Total blood loss during the procedure was about 1200mL, with a urine output of about 1400mL, with the total output being 2600mL Total duration of the procedure was 390 minutes. Patient was shifted to ICU for elective ventilation. Epidural top-ups were given regularly according to the VAAS score. Ionotrope support was tapered off completely and patient was reduced on the ventilator support. After the extubation criteria have been met and arterial blood gas analysis was done, patient was extubated.

After one month of recovery, patient was reposed for total thyroidectomy for Papillary carcinoma of thyroid. Procedure was uneventful and vocal cords were checked for recurrent laryngeal nerve palsy and tracheomalacia.

## CONCLUSION

As the tumour was large and was compressing the major vessels, and there was anticipated blood loss,

intraoperative fluid management was very critical. In this case, the anaesthetic management was handled successfully without any consequences.

*Conflict of Interest:* NIL

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