



MANAGING THE UNMANAGEABLE: ANAESTHESIA FOR LARGE, VASCULAR CERVICAL REGION NEUROFIBROMA RESECTION WITH MASSIVE BLOOD LOSS

Dr. Tushar Sidgur

Assistant Professor, Department Anaesthesiology, BJGMC, Pune

Dr. Kirti Chavan

Senior Resident, Department Of Anaesthesiology BJGMC Pune

Dr. Aysath Nuhaimah

Junior Resident, Department Of Anaesthesiology, BJGMC Pune

ABSTRACT

Cervical neurofibromas of significant size pose formidable anaesthetic challenges due to potential airway distortion, vascular compression, and risk of massive intraoperative hemorrhage. Multidisciplinary planning is essential for safe resection. Young male underwent resection of large neck region neurofibroma under general anaesthesia and despite massive blood loss was managed and maintained vital parameters normal invasive monitoring, giving blood, blood products and inotropic drugs and thorough vigilance throughout the case.

KEYWORDS : Neurofibroma, Flexometalic Endotracheal Tube, Video Laryngoscopy

INTRODUCTION

Neurofibromas, benign tumors arising from Schwann cells of the peripheral nerve sheath are hallmark lesions of neurofibromatosis type 1 (NF1), affecting approximately 1 in 3,000 individuals worldwide. Neck neurofibromas often encase vital structures including the carotid arteries, jugular veins and trachea, leading to compressive symptoms such as dysphagia, hoarseness, and airway obstruction. Excision of large cervical neurofibromas under general anaesthesia is high-risk due to their hypervascularity, potential for massive intraoperative blood loss, and difficult airway management. Anaesthetic strategies must address preoperative optimization, invasive hemodynamic monitoring, blood conservation techniques.

Case Report

25 year old 50 kg male Diagnosed with large neurofibroma neck mass with complaints of neck swelling and hoarseness of voice. No complaints of airway obstruction or dysphagia.

On MRI, neck swelling was heterogeneous hyperintense 12*13*10 cm in dimension. Superiorly extending into mandible, laterally into cervical space, medially mildly compressing the trachea, inferiorly into clavicular fossa. Moderate to severe compression of right subclavian artery, mild compression and displacement of right carotid and jugular vein. Left common carotid, subclavian, vertebral artery and jugular vein are normal.

All necessary blood reports (CBC, LFT, RFT, PT INR, serum electrolytes, blood sugar, ECG) and cardiac 2 d echo was normal with hemoglobin 13 mg/dl and ejection fraction of 60 percent. CT and MRI reports suggesting of large neck mass with extension into various directions. Restriction of sideways neck movement, normal neck flexion extension noted with mallampati grade 2 and normal mouth opening in pre anaesthesia check up with normal pre operation video laryngoscopy and indirect laryngoscopy scan.

All appropriate consents including ICU bed with ventilation machine facility been taken and explained. Nil per oral confirmed as planned for general anaesthesia. Patient taken to operation theatre and monitors attached including ECG, BP, SPO2. Two wide bore catheter secured and Femoral vein catheterization for fluids, blood and left radial artery catheterization for invasive blood pressure monitoring was done with USG guidance.

General anaesthesia given in supine position with anticipation of difficult intubation with difficult intubation trolley ready with small size Endotracheal tubes, bougie, stylet,

video laryngoscope and emergency drugs. Induced with Inj propofol after giving Inj Ondansetron, glycopyrrolate, midazolam, fentanyl as premedication. Inj Atracurium as muscle relaxant, intubated with flexometalic endotracheal tube size 8mm with videolaryngoscope. Patient kept on Oxygen and nitrous on closed circuit volume control mode, tidal volume 500 ml, PEEP 5 cm H₂O with sevoflurane as inhalational agent and Atracurium as muscle relaxant. Tube fixed secured after confirming the air entry into lungs with stethoscope and capnography. Throat packing and gastric tube insertion done after intubation.

Intraoperative blood loss was around 4.2 liters due to high vascularity, was managed by giving warm packed RBC:FFP:Platelets in 1:1:1 ratio (total 4 PRBC, 4 FFP, 4 units platelet) with Mean arterial pressure targeted as > 65 mmHg. Avoided excess crystalloid to avoid hemodilution and monitoring urine output which was > 0.5 ml/kg/hr. Nor adrenaline infusion 8 mg in 50 cc NS at 2cc/hr started to maintain MAP and blood pressure within normal limit. Inj Tranexamic acid 1 gm iv given to manage coagulopathy. Inj calcium was given as citrate in blood products chelates the calcium. Forced air warmer and fluid warmer used to prevent Hypothermia induced coagulopathy. Arterial line used for beat to beat blood pressure and arterial blood gas analysis. Neurofibroma mass excision surgical procedure lasted for 5 hours and patient was vitally stable throughout and shifted to ICU not reversed not extubated for mechanical ventilation which was extubated next day after achieving all parameters for trial of extubation.



Image 1. Cervical Region Neurofibroma (Intubated Patient)

Image 2. Intraop Neck Region After Excision of Mass.

Image 3. Blood Loss (Mobs Filled With Blood And Excised Mass)

Image 4. Excised Neurofibroma Mass.

Summary

Anaesthetic management of a young male undergoing excision of a large cervical region neurofibroma presents multifaceted challenges, primarily stemming from difficult airway access, massive intraoperative blood loss, and potential hemodynamic instability due to the tumor's vascular nature and anatomical distortion. Careful intubation with all measures for difficult intubation required for successful ventilation. Invasive monitoring (arterial line, CVP) facilitates goal-directed fluid therapy. Vasopressor support (e.g., norepinephrine) and timely blood and blood products helps to maintain vital parameters within normal range. Elective postoperative ventilation is warranted in this patient due to high risks of airway compromise from edema, hematoma. This strategy allows close monitoring and prevents life-threatening reintubation. Patient was extubated next day after fulfilling the criterias for extubation.

REFERENCES

1. Kishan RB, Durga SV, Mohan K, Swapna T, Maneendra S, Murthy SGK. Anaesthetic Considerations in a Patient with VonRecklinghausen Neurofibromatosis. *J Anaesthesiol Clin Pharmacol*. 2010 Oct-Dec; 26(4):553-554.
2. Hirsch NP, Murphy A, Radcliffe JJ. Neurofibromatosis: clinical presentations and anaesthetic implications. *BJA* 2001;86(4):55-64.
3. Charles JF, Samir T, Aaron JK, Stephanie R, Jacqueline VA, Alan DK. Perioperative Management of Neurofibromatosis Type 1. *Oshsner Journal* June 2012;12(2):111-121.
4. Fisher M. Anaesthesia difficulties in Neurofibromatosis. *Anaesthesia*, 1975; 30(5):648-650.
5. Priyanka S. Neurofibromatosis: Challenge for Anaesthetist. *Jour Col Phy and Surg Pakistan*. 2015; (25):73-75.
6. Guedes F, Branquinho MV, Sousa AC, Alvites RD, Bugalho A, Mauricio AC. Central airway obstruction: is it time to move forward? *BMC Pulm Med*. 2022;22(1):68.
7. Taniguchi H, Mishima T, Uchida J, Kinoshita H. [Retroperitoneal malignant peripheral nerve sheath tumor (MPNST) in a patient with neurofibromatosis I: a case report]. *Hinyokika Kiyo*. 2007 Sep;53(9):619-21. Japanese. PMID: 17933136.
8. Mendonça FT, de Moura IB, Pellizzaro D, Grossi BJ, Diniz RC. Anesthetic management in patient with neurofibromatosis: a case report and literature review. *Acta Anaesthesiol Belg*. 2016;67(1):48-52. PMID: 27363215.