

Anaesthetic Management Of A Patient With Giant Cell Tumour Of Mandible With Rheumatic Heart Disease With Mitral Regurgitation With Epilepsy For Excision

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Abstract

Giant cell tumor of mandible with intraoral extension with rheumatic heart disease with mitral regurgitation with complex partial seizure is a complex case. Securing and maintaining airway and haemodynamic management for prolonged surgery may be difficult for an experienced anaesthesiologist also. We used nasotracheal intubation with invasive monitoring to manage this case.

INTRODUCTION

Giant cell tumor of mandible is a rare aggressive tumor of the bone. Giant cell tumors of bone occur spontaneously. It may rarely be associated with hyperparathyroidism. Association with mitral regurgitation and epilepsy more complicates the case. We report a case of giant cell tumour excision in a patient with rheumatic heart disease with mitral regurgitation and epilepsy.

CASE REPORT

A 30 year female patient (50 kg) with gradually increased swelling in the lower jaw since 3 years diagnosed as giant cell tumour of mandible. It was associated with intraoral extension. She was diagnosed as rheumatic heart disease with mitral regurgitation since 10 years on Inj. Benzathine penicillin G 1.2 lacs unit intramuscularly in every 4 weeks. She was also a known case of complex partial seizure since 2 years on tab. phenytoin and sodium valproate.

On Airway examination: Mouth opening-2 finger, MPC-II, Intraoral tumour extension. On Cardiovascular system examination: Pansystolic murmur-present. Routine haemogram, X-Ray Neck AP & Lat. View, LFT& RFT-WNL. X-Ray Chest-PA View - Cardiomegally. ECG shows left ventricular hypertrophy by voltage criteria. 2D-Echo - Moderate mitral regurgitation with LVEF-60% with good biventricular function. On CT - Scan brain - Lacunar infarct. CT-Scan of mandible-3×4 cm mass involving inner cortex of mandible.

Figure 1

Figure 1: Photograph showing intraoral tumour extension



Cardiac and neurological evaluation was done. Tab.

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phenytoin and tab. sodium valproate were continued till day of surgery. High risk and tracheostomy consent taken. Starvation confirmed. Inactive endocarditis prophylaxis tab. amoxicillin 2 gm. was given orally preoperatively 1 hour prior to procedure. Inj. phenytoin 100mg was given i.v. intraoperatively. Monitors like pulse oximeter, cardioscope, NIBP attached.

Figure 2

Figure 2: Photograph showing external jugular vein cannulation using cavafix



A large bore intravenous access was secured on left upper limb. The patient was premedicated with inj. midazolam 0.03mg/kg intravenous and inj. buprenorphine 3 µg/kg intravenous. Patient was induced with inj. propofol 100mg intravenous. After confirming ventilation muscle relaxation was achieved with inj. Vecuronium 5mg intravenous and trachea was intubated with 6.5 no. of north pole polyvinyl chloride endotracheal tube. Air entry was confirmed by auscultation and capnometry. Throat packing done. Internal jugular vein was cannulated through external jugular vein with 16/18G cavafix fixed with a stitch at 17 mark and central venous pressure was 6-8 cm H₂O.

The patient was maintained with nitrous oxide, oxygen, isoflurane and inj. vecuronium bromide and closed circuit was used. Appropriate amount of intravenous fluid were given by infusion pump and central venous pressure was maintained at 6-8 cm H₂O. Urine output was measured hourly and kept at 0.5 ml/kg/hr. Intraoperative ABG was normal. Duration of surgery was 5 hours. Blood loss was 350 ml. Patient was reversed with inj. glycopyrrolate 4

mcg/kg i.v. and inj. neostigmine 0.05 mg/kg i.v. but not extubated and shifted to ICU for observation.

Proper postoperative analgesia was given. The patient extubated on next day morning after thorough orotracheal suction. Post extubation period was uneventful and patient was discharged after 10 days.

DISCUSSION

Giant cell tumor of bone (GCT) is a rare, aggressive non-cancerous (benign) tumor. It generally occurs in adults between the ages of 20 and 40 years. Giant cell tumors occur in approximately one person per million per year.¹

Giant cell tumors of bone occur spontaneously. They are not known to be associated with trauma, environmental factors or diet. They are not inherited. In rare cases, they may be associated with hyperparathyroidism.

They most frequently occur around the knee joint in the lower end of the thighbone (femur) or the upper end of the shinbone (tibia). Also can occur in mandible and wrist and hip bones.² Giant cell tumors appear on X-rays as destructive (lytic) lesions next to a joint. Magnetic resonance imaging (MRI) and computed tomography (CT) scans can help better evaluate the area of involvement.¹

Treatment includes scooping out the tumor (curettage).² This technique causes a hole in the bone that can be filled with a bone graft. The bone may be taken from other parts of the patient's own body (auto graft) or from a cadaver (allograft). Other treatment modalities include radiation therapy, embolization and treatment with interferon that are generally reserved for those tumors that are difficult to remove surgically or in situations where the tumor keeps returning despite treatment or if it spreads.

Large giant cell tumour of mandible can distort the facial contour and make mask ventilation difficult. As the tumor size was small and there were no signs of airway obstruction, we induced the patient first with intravenous anaesthetic agents. A nasotracheal tube was preferred as it was an oral surgery. Other intubation techniques in such patients include awake intubation, tracheostomy and transtracheal jet ventilation in emergency situations.¹¹ The various methods of awake intubations include direct laryngoscopy, blind nasal, fiber optic, and retrograde intubation after appropriate airway anaesthesia. Blind nasal intubation does not require any special equipment but requires skill and expertise. However, the risk of bleeding

from nose and tumor exists. Retrograde intubation can be safely used to retrieve the catheter. It may be especially useful in patients with airway trauma or limited neck mobility and in the presence of oropharyngeal bleeding that may obscure the fiberscope field.

Since patient is a known case of mitral regurgitation, Patient may be on anticoagulation therapy, so we had done the coagulation profile. Type and degree of severity of cardiac lesion should be determined preoperatively. We had done ECG,2D-ECHO. ECG shows left ventricular hypertrophy by voltage criteria. On 2D-ECHO-- Moderate mitral regurgitation with LVEF-60% with good biventricular function. Invasive monitoring should be done in case of moderate to severe MR. In this case we had put cavafix in external jugular vein and reached junction of superior vena cava and right atrium through internal jugular vein and fixed at 17-mark. Infective endocarditis prophylaxis was given with tab.amoxycillin 2 gm orally because 16% nasotracheal intubation is associated with bacteremia^{4,6}. Mild tachycardia,mild hypotension should be maintained so that it will reduce the regurgitation.We had kept CVP 6-8cm H₂O throughout the procedure. We had maintained this haemodynamic properly throughout the procedure. Epileptic patients require proper continuation of antiepileptic perioperatively⁸. Tab. phenytoin and tab. sodium valproate were continued till day of surgery . Inj.phenytoin 100 mg i.v.was given intraoperatively. Giant cell tumour may be associated with hyperparathyroidism . So we had done serum calcium,serum phosphate,serum alkaline phosphatase and serum PTH level¹⁰. All the level were within normal limit.

At the end of surgery, prior to reversal, the oral cavity should be cleared of blood and secretions. The postoperative presence of airway oedema can cause airway obstruction and, in such situations, it may be prudent to leave the endotracheal tube in place. Also, care must be taken to ensure that patient is fully awake. In our case patient was reversed but not extubated and shifted to ICU for observation. Before extubation, the patient should be alert and extubation should be done only when all of the airway protective reflexes have returned to normal.

CONCLUSION

Securing and maintaining airway in a case of giant cell tumor of mandible with intraoral extension with rheumatic heart disease with mitral regurgitation is important. Proper and meticulous haemodynamic management should be done in this cases. Nasotracheal intubation with invasive monitoring should be used to manage these cases.

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References

1. Stuart James Fischer, J. Sybil Biermann .Your orthopedics connection . American Academy of Orthopaedic Surgeons.updated in 2007
2. Whitaker CB,Waldren CA : central giant cell lesions of the jaws : A clinical,radiologic and pathologic study , oral surg oral med oral pathology ,1993 Feb,75(2) ,199-208
3. Choung R,Koban LB,Kozakewich H : Central giant cell lesions of the jaws : a clinicopathologic study , Journal oral maxillofacial surgery 1986 sep;44(9) : 708-13
4. Permertan AT : Anaesthetic techniques for patients with valvular heart disease presenting for noncardiac procedure :AANA J.1993 Jun ; 61(3) 315 – 324
5. Mary Jane burton ,Styphen A. Gerai : Infective endocarditis prevention : update of 2007 guidelines , American journal of medicine Vol.121 ,issue 6, June 2008 page 484-86
6. Dario LJ , Carloti AE Jr., Elson MJ ,Sauk JJ. Giant cell tumour of the mandible: Surgical treatment and implant supported reconstruction: a clinical report , Practical periodontics Aesthetit Dent 1996 Aug. 8(6) 547-52
7. Berry FA,Blanket baker WL,Ball CG : A comparison of bacteremia occurring with nasotracheal and orotracheal intubation : Anaesthesia Analgesia 52 : 873,1973
8. Dajani AS ,Bisino AL,Chung KJ et al : Prevention of the bacterial endocarditis .Recommendation bu the American heart association: JAMA264:2919,2920
9. Shamer DM, Mc cundy SA,Herring Mo et al : Treatment of status epilepticus : A prospective comparison of diazepam and phenytoin versus Phenobarbital and optional phenytoin ; neurology 38;202,1988
10. Hensel P,Roizen MF : Patients with disordes of parathyroid function.Anaesthesiol clin north am 5 : 287,1987
11. Dureja J , Balhara S, Saini S, Ghai A. Airway Management in Ameloblastoma- A Case Report. J Anaesth Clin Pharmacol 2005; 21(3): 317-19

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