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REVIEW ARTICLE

ANAESTHETIC MANAGEMENT OF EPIDERMOID CYST IN A PATIENT WITH BALLOON MITRAL VALVULOPLASTY

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ABSTRACT

Rheumatic Heart Disease is the commonest cause of mitral stenosis in developing countries. It is anautoimmune reactions to infection with group A Beta hemolytic streptococci which leads to scarring, calcification and thickening of mitral leaflets, commissural fusion causing significant decrease in valve area. Mitral stenosis is characterised by mechanical obstruction to left ventricular diastolic filling secondary to a progressive decrease in the size of mitral valve orifice. This valvular obstruction produces an increase in left atrial volume and pressure. Increases left atrial pressure can be transmitted to pulmonary vasculature leading to pulmonary edema and decreased pulmonary compliance. In mild mitral stenosis, the left ventricular filling and stroke volume are maintained at rest by an increase in left atrial pressure. However, stroke volume will decrease during stress induces tachycardia or when effective atrial contractions are lost as in atrial fibrillation. Such patients pose a challenge to the anaesthesiologists when they present for any non cardiac surgery. Anaesthesia and surgical blood loss, along with major fluid shifts is poorly tolerated by such patients. This can precipitate acute pulmonary edema, significant fall in blood pressure, atrial fibrillation, arrhythmias and thromboembolism. Here we discuss about anaesthetic management in a patient of epidermoid cyst, previously operated for balloon mitral valvuloplasty for mitral stenosis.

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INTRODUCTION

Mitral stenosis, is associated with diffuse thickening of the mitral leaflets and subvalvular apparatus, commissural fusion and calcification of the annulus and leaflets. Rheumatic heart disease is the commonest cause of mitral stenosis, wherein an autoimmune reaction to infection with group A β haemolytic streptococcus leads to cardiac inflammation and scarring. Mitral stenosis is characterised by mechanical obstruction to left ventricular diastolic filling. This valvular obstruction produces an increase in left atrial volume and pressure. Increases left atrial pressure can be transmitted to pulmonary vasculature leading to pulmonary edema and decreased pulmonary compliance. Increase in heart rate and hypovolemia can adversely affect the cardiac output of the patient. At the same time anaesthetic goals for any neurosurgery is to reduce intracranial pressure with simultaneous maintenance of cerebral perfusion pressure. It is a major surgery associated with excessive blood loss and major fluid shifts that can have adverse effects in a patient with mitral stenosis and can also lead to hypothermia and coagulopathy. Patient positioning is another important aspect for anaesthetic concern.

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Case Report

A 45 years old female presented with complains of generalised tonic clonic convulsion 3 days back. Patient was operated case of balloon mitral valvuloplasty 20 years back and was on Tablets digoxin, metoprolol, torsemide, and spironolactone. Patient was on inj. Valproate and inj. Dexona prior to elective surgery. Digoxin and metoprolol were continued till the day of surgery. On examination, pulse was 60/min, regularly irregular, BP- 120/70 mmHg. Airway and systemic examination showed no abnormality. All the Blood investigations were normal. ECG showed regularly irregular rhythm. Chest X-ray was normal. Presently, In 2D Echo LVEF was 55% RVSP 30 mmHg, mild MR with mild TR, no RWMA at rest. Pre BMV 2DEcho showed LVEF 55% PVP 0.8, AOVP 1.7, MVA 1.2 cm^2, RVSP 40 mmHg, RHD with severe MS with mild MR. MRI showed a well defined smooth marginated extra axial Space occupying lesion involving middle cranial fossa with mass effect s/o epidermoid cyst of approximately 13*11*12 mm in size. Pre induction, two intravenous lines with 18 G intracatheter were secured and I.V. fluid in the form of normal saline was started. Monitors were attached and baseline vitals were noted. Defibrillator was kept standby. Emergency cardiac drugs were kept ready.

Patient was premedicated with inj. Glycopyrrolate 4 mcg/kg, inj. Ondansetron 0.15mg/kg and inj. Fentanyl 2.5 mcg/kg. After preoxygenation with100% oxygen for 5 minutes induction was achieved with inj. Etomidate 0.3 mg/kg and inj. Vecuronium 1 mg/kg to facilitate intubation. Patients airway was secured with 7.5mm id sized, cuffed, portex endotracheal tube. After checking bilateral air entry cuff was inflated and tube was fixed and $ETCO_2$ monitor was attached to confirm position of the endotracheal tube. Maintenance of anaesthesia was achieved with 100% oxygen mixture with sevoflurane and inj. Vecuronium bromide 25mcg/kg in incremental dosing. Patient was mechanically ventilated with tidal volume of 6 ml/kg body weight and frequency of 12 cycles per minute using ventilator. $ETCO_2$ was kept between 30-35 mmHg to maintain normocapnia and thereby to maintain normal intracranial pressure. Central line was secured in the right subclavian vein and CVP monitoring done. CVP was maintained between 3-5 cm H_2O. Arterial line was secured in the right radial artery with 20 G, which provided a beat to beat monitoring of blood pressure. Temperature monitoring was done and normothermia maintained during the procedure.

Inj. Mannitol 0.75mg/kg was started before opening the dura to decrease intracranial pressure and facilitate good surgical exposure. Inj. Diclofenac 2mg/kg was given for analgesia. Fluids were administered guided by central venous pressure. Intraoperatively two packed red cells were transfused. Urine output was hourly monitored and kept at 1-2 ml/kg/hr. No adverse intraoperative events were noted. Prior to reversal inj. lignocaine 1.5mg/kg was given intravenously to facilitate smooth extubation. Patient was then, reversed with inj. Glycopyrrolate 8mcg/kg and inj. Neostigmine 50mcg/kg. Once the extubation criteria were met the patient was extubated. In the postoperative ward Oxygen was given through face mask and hemodynamic monitoring was continued. Patient developed hypotension 2hrs following surgery for which Inj. Noradrenaline in normal saline drip was started at 60 ml/hr that was tapered off in 2 days. HPE of specimen confirmed the diagnosis. Patient was hemodynamically stable thereafter without complications.

DISCUSSION

The goals for the anaesthetic management of patients with mitral stenosis are:

- Maintenance of sinus rhythm
- Avoid tachycardia, hypotension
- Adequate venous return
- Immediate treatment of acute atrial fibrillation ,conversion to sinus rhythm
- Avoiding pain, hypoxia, hypercarbia and acidosis

Laryngoscopy and tracheal intubation leads to sympathetic stimulation which causes rise in heart rate and blood pressure. Moreover, positive pressure ventilation increases pulmonary arterial pressure and decreases venous return to left atrium, and predispose to pulmonary edema and congestive heart failure. Despite these disadvantages, if general anaesthesia is contemplated, tachycardia inducing drugs like atropine, ketamine, pancuronium and meperidine should be totally avoided.

A beta blocker and an adequate dose of opioid like fentanyl should be administered before or during the induction of general anaesthesia. Because esmolol has a rapid onset and shorter duration of action, it is a better choice for controlling tachycardia. Induction with etomidate provides stable hemodynamics unlike propofol and thiopentone sodium which can cause sudden fall in blood pressure especially in hypovolemic patients and patients with stenotic valvular heart disease. Using vecuronium instead of suxamethonium prevents sudden rise in intracranial pressure and provides cardiostability. Maintenance of anaesthesia can be carried out with oxygen and nitrous oxide 50:50, sevoflurane, opioids and vecuronium. In cases with severe pulmonary hypertension, nitrous oxide can be omitted. Invasive hemodynamic monitoring is an inevitable guide to maintain fluid input. Temperature monitoring is mandatory in prolonged surgeries. Apart from forced air warming devices, infusion with warm fluids and blood products reduces temperature loss. In neurosurgery per se, surgical approach to the patient and its associated effects on hemodynamics and ventilation should be kept in mind and measures regarding proper padding of pressure points, avoiding undue traction on nerves leading to neuropathy should be taken.

Conclusion

Assessment of functional status of the patient, severity of the valvular heart disease, risk of the surgical procedure, surgical manipulation, and the stable hemodynamics irrespective of severity of the disease and duration of surgery are most important factors to manage such kind of cases.

REFERENCES

Arora, D., Ganjoo, P., Tandon, M.S., Abraham, M. 2004. Anesthetic considerations in a patient with mitral valve disease for posterior fossa surgery *J Neurosurg Anesthesiol.* Jul;16(3):244-7

Bundgaard-Nielsen, M., Holte, K., Secher, N.H., Kehlet, H. 2007. Monitoring of peri-operative fluid administration by individualized goal-directed therapy. *Acta Anaesthesiol Scand.,* Mar;51(3):331-40.

Dinsmore, J. Anaesthesia for elective neurosurgery *British Journal of Anaesthesia*, Volume 99, Issue 1, 1 July 2007, Pages 68–74.

Madagondapalli Srinivasan Nataraj, Venkateshaiah Giri Anesthetic management of cesarean section with mitral stenosis and respiratory tract infection JOACC 2014

Patel, J.J., Shama 1991. DBalloon valvuloplasty versus closed commissurotomy for pliable mitral stenosis: a prospective hemodynamic study. *J Am Coll Cardiol.* Nov 1;18(5):1318-22

Patel, J.J., Shama, D., Mitha, A.S., Blyth, D., Hassen, F., Le Roux, B.T., Chetty, S. 1991. Balloon valvuloplasty versus closed commissurotomy for pliable mitral stenosis: a prospective hemodynamic study. *J Am Coll Cardiol.* Nov 1; 18(5):1318-22

Tej, K. Kaul 2007. Geeta Tayal Anaesthetic considerations in cardiac patients undergoing non cardiac surgery 51(4):285

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