

CASE REPORT

Epidural Anesthesia for a Patient with Ebstein's Anomaly posted for Transurethral Resection of Prostate

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ABSTRACT

Ebstein's anomaly is an abnormality of the tricuspid valve in which valve leaflets are malformed or displaced downwards into the right ventricle. Patient may develop supraventricular dysrhythmias leading to syncope, cyanosis, congestive heart failure and sudden death.

The choice of anaesthesia is individualized and remains a challenge. We managed one such patient under Epidural Anesthesia successfully. Epidural Anesthesia in a fractionated and graded manner provides a hemodynamically stable patient with adequate intra and post-operative analgesia

Keywords: Congestive heart failure, Ebstein's anomaly, Epidural anesthesia, Tachyarrhythmias, Transurethral resection of prostate.

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INTRODUCTION

Ebstein's anomaly is an abnormality of the tricuspid valve in which the valve leaflets are malformed or displaced downward into the right ventricle. Patient can present with supraventricular dysarrhythmias that leads to congestive heart failure (CHF), worsening cyanosis, syncope, and sudden death.^{1,2}

Here we report a case of a patient with Ebstein's anomaly posted for transurethral resection of prostate (TURP).

CASE REPORT

A 65-year-old male was admitted to the urology department with symptoms of benign prostatic hyperplasia. He was posted for TURP. He had no history of recurrent chest infections, dyspnea on exertion, cyanosis, or palpitations.

EXAMINATION

On examination, the pulse rate was found to be 92 bpm regular, blood pressure was 130/80 mmHg, airway was mallampatti grade II, his weight was 76 kg, and height was 156 cm. His systemic examination was unremarkable. On auscultation, systolic murmur was heard in the tricuspid area with loud S2.

Hemoglobin level was 10.8 mg/dL, electrocardiogram (ECG) showed sinus rhythm, and an echocardiogram revealed a displaced tricuspid valve, intact inter-atrial septum with mildly dilated right atrium, and right ventricle along with moderate tricuspid regurgitation. The ejection fraction was 60% without any regional wall motion abnormality. Written informed anesthesia consent was taken preoperatively.

After securing an 18-gauge intravenous (IV) cannulae, antibiotics were administered (for infective endocarditis prophylaxis). Patient was started on normal saline. In the operating room all standard monitors [SpO₂, noninvasive blood pressure (NIBP), ECG] were connected, and a defibrillator was kept ready. Under aseptic precautions, an epidural catheter was inserted through the L4 to L5 space with a 20-gauge Tuohy needle by loss of resistance technique. A test dose of 2 mL of 2% lignocaine with adrenaline was given after negative aspiration of blood or cerebrospinal fluid.

Subsequently, 7 mL of 0.75% of ropivacaine was administered in graded doses to achieve adequate level of block (up to T10). Patient was hemodynamically stable throughout the procedure. Intraoperatively, his mean arterial pressure was between 80 and 90 mmHg and heart rate was between 80 and 90 bpm. He did not develop any arrhythmia or signs of CHF. Surgery was limited to 1 hour. After the surgical procedure, 20 mg of furosemide was given IV.

Patient was monitored in the ICU for first 24 hours for any signs of CHF, and arrhythmias along with vital parameters (heart rate, NIBP, SpO₂).

DISCUSSION

The severity of hemodynamic derangements in patients with Ebstein's anomaly depends on the degree of displacement and functional status of tricuspid valve.³⁻⁶ Most patients who have an interatrial communication (atrial septal defect, PFO) can develop CHF, worsening

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cyanosis, paradoxical embolization, brain abscess, and sudden death. Basic goals in these patients are to maintain sinus rhythm, preload, after load, and to prevent the increase in the magnitude of right to left intracardiac shut.⁶⁻⁸ Case studies have reported on successful use of epidural anesthesia with intact interatrial septum and good ventricular function.^{3,4,8-11} Although general anesthesia is considered safe, we administered epidural anesthesia for this patient as a result of assessing the patient's sensorium in the event of hyponatremia, if TURP syndrome develops. Supraventricular arrhythmias can occur during general anesthesia if proper depth is not achieved (lighter plain of anesthesia).^{10,12}

Fluid or acid-base disturbances need to be avoided. Invasive cardiac monitoring using central venous cannulation was not used in this case, as it may lead to complications, such as tachyarrhythmias or bacterial endocarditis.^{3,11} We preferred ropivacaine, as it has least cardiotoxic effects. Phenylephrine is indicated for hypotension.^{5,11} It may reflexively decrease the heart rate or terminate arrhythmias like supraventricular tachycardia (SVT). If SVT develops, beta-blockers/adenosine can be used. Calcium-channel blockers are avoided, as they exert negative inotropic effects.

Postoperatively, the patient received epidural analgesia with 0.2% ropivacaine. In this case, this would help in preventing tachycardia, exacerbation of arrhythmias, and right ventricle dysfunction.

CONCLUSION

Ebstein's anomaly has a varied spectrum of presentation. The choice of anesthesia is individualized and remains a challenge to the anesthesiologist. We hereby conclude the successful management of a patient with Ebstein's anomaly posted for TURP under epidural anesthesia.

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