

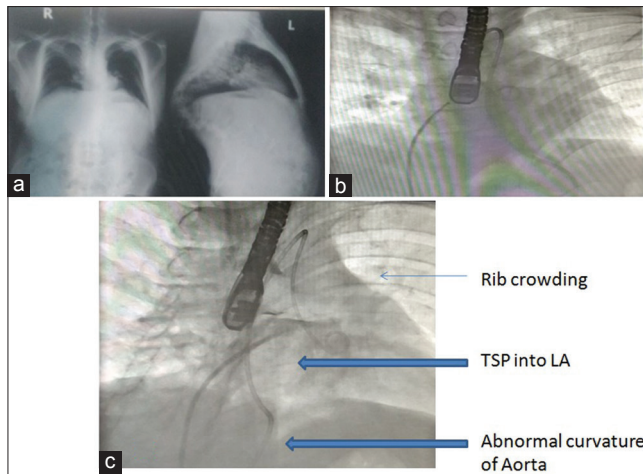
## Balloon Mitral Valvuloplasty in Kyphoscoliotic Patient: It's Not a Cakewalk!

Dear Editor,

Balloon mitral valvuloplasty (BMV) is almost always performed under monitored anesthesia care in a supine position which allows anatomical fluoroscopic orientation of the cardiac structures to the interventional cardiologist. However, authors came across a tricky situation where a 47-year-old male patient with severe kyphoscoliosis of the dorsal spine was posted for BMV. The patient presented with New York Heart Association Grade 2–3 dyspnea, palpitations, and orthopnea. He had severe kyphoscoliosis [Figure 1a] involving lower thoracic vertebrae (T4–T12) and pulmonary function test showed severe restrictive lung disease with poor bronchodilator reversibility. The patient had a history of abandoned BMV in view of a difficulty in septal puncture and entering into the mitral valve. At author's center, this time, it was decided to perform BMV under both fluoroscopy

and transesophageal echocardiography (TEE) guidance. Primary anesthetic challenges were to position the patient comfortably with his back hump and at the same time avoid general anesthesia with endotracheal intubation in the presence of severe restrictive lung disease. Thus, procedure was performed under conscious sedation.

After taking a valid consent, ensuring adequate starvation, patent 18-G intravenous cannula, and cardiothoracic surgical backup, the patient received topical oropharyngeal anesthesia in the form of 2% viscous lignocaine gargle in the preoperative holding area along with injection glycopyrrolate 100 mcg and aspiration prophylaxis and then wheeled inside cath lab where difficult airway and crash cart were kept ready. As the patient was not able to lie down supine, care was taken to support his spine by ensuring that area of maximum convexity of a hump was



**Figure 1:** (a) X-ray chest (b) distorted fluoro-anatomy in anteroposterior view and (c) unusual transeptal puncture site, pigtail catheter depicting abnormal aortic curvature, and severe rib crowding due to kyphoscoliosis

padded well and areas of concavity supported to follow anatomical curvature of the spine. The neck was supported by keeping a pillow under the shoulder to keep the neck and chest in the same plane. A thick cushion was placed under the lower back and hips for optimal access to the femoral vessels. Overall, a slight reverse Trendelenburg position was achieved. Oxygen supplementation was started through nasal prongs at 2–3 L/min. Before inserting TEE probe, 10% lignocaine was again sprayed onto the posterior pharyngeal wall. With our previous experience,<sup>[1]</sup> conscious sedation was achieved using combination of injection midazolam 2 mg, fentanyl 50 mcg, propofol 0.5–0.8 mg/kg IV, dexmedetomidine at 0.5–1 mcg/kg/h, and titrated toward Ramsay sedation score 2–3. TEE probe was tolerated well without any discomfort and care was taken not to image transgastric TEE views. The procedure was successfully completed through usual femoral route although an option of transjugular approach<sup>[2]</sup> was kept reserved. Procedure time was 90–100 min, but the patient tolerated it well without any complications.

Procedural challenge in this case included distorted thoracic anatomy due to ribs crowding and abnormal spine curvature [Figure 1b] which made identification of bony landmark during interatrial septal puncture irrelevant [Figure 1c], and risk of inadvertent cardiac tamponade<sup>[3]</sup> was increased due to inaccurate puncture site. Moreover, fluoroscopic image distortion caused due to reverse Trendelenburg position needed to be mitigated using caudal views to get similar anatomical views. These patients have difficulty in lying down for a prolonged period due to pain over a hump and overhanging unsupported neck. Severe restrictive airway precludes general anesthesia too. Moreover, positive pressure ventilation can worsen preexisting pulmonary hypertension in patients with severe mitral stenosis. Conscious sedation is an attractive option which overcame these challenges and avoided general anesthesia and its complications,

hemodynamic perturbations, risk of prolonged ventilator support, and intensive care unit stay. Furthermore, proper positioning is imperative in such situations where padding and cushioning of the spine is a key to patient comfort and prevent soft tissue and bony injury.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

**Azho Kezo, Pushkar Mahendra Desai,  
Monal Shah, Sanjeeta R Umbarkar,  
Manjula Sarkar**


*Department of Anesthesiology, Seth GSMC and KEM Hospital,  
Mumbai, Maharashtra, India*

*Address for correspondence: Dr. Pushkar Mahendra Desai,  
703, Noopur Apartment, Bhandarwada, Malad West,  
Mumbai - 400 064, Maharashtra, India.  
E-mail: pushkarmdesai@gmail.com*

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