ANAESTHETIC MANAGEMENT OF A CASE OF SEVERE KYPHOSCOLIOSIS POSTED FOR RIGHT PERITROCHANTERIC FEMORAL NAILING

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PRESENTATION OF CASE

Kyphoscoliosis is forward and lateral bending of the spine commonly affecting the dorsal and lumbar spine. Spine deformities are likely to be associated with physiological derangements in cardiac and pulmonary function and may cause difficulties with both tracheal intubation and regional anaesthesia. Due to problems associated with respiratory system, spinal anaesthesia is used widely though technically difficult. We present a case of severe kyphoscoliosis posted for right peritrochanteric nailing successfully managed under epidural spinal anaesthesia.

Kyphoscoliosis is a spinal deformity characterised by anterior flexion (kyphosis) and lateral curvature (scoliosis) of vertebral column.[1] The deformity of the chest wall leads to development of restrictive lung disease pattern and patient's lung volume and compliance both are reduced due to change in vertebral column. Regional anaesthesia including patient positioning was difficult in this case. Patient was given beach chair position with adequate cushioning and hemodynamic changes due to epidural + spinal anaesthesia were tackled well.

72-years-old male patient with severe thoracolumbar kyphoscoliosis presenting with right sided intertrochanteric femur fracture was posted for peritrochanteric femur nailing. He was a known case of restrictive lung disease and ischemic heart disease with hypertension since 4 years on Tablet Nifedipine 10 mg BD. He had history of breathlessness on exertion NYHA grade 3. He had history of myocardial infarction 4 years back on Tablet aspirin 75 mg and Tablet Clopidogrel 75 mg. Patient was unable to lie his back. There was no history of any motor or sensory symptoms and bowel disturbances. On examination general condition was moderate with lean built and poor nourishment. Patient was alert and cooperative. His airway was assessed as Mallampati class 3, 3 finger mouth opening, TMD 5 cms, SMD 10 cms. X-ray chest showed thoracic scoliosis. Electrocardiogram showed sinus tachycardia with old MI changes. 2D echo revealed Diastolic dysfunction grade 1, anteroseptal wall hypokinesia, EF 50%, no RWMA. PFT revealed restrictive lung disease pattern, FEV1/FVC ratio 70%, Bedside PFT showed on air SpO2 94%, Breath holding time 15 sec. All other routine investigations were within normal limit.

The risk of anaesthetic technique (difficult spinal anaesthesia and complications like partial block, failed spinal, high spinal, general anaesthesia and post-operative Intensive care) was explained to patient and his care takers. Patient was accepted for anaesthesia under ASA Grade 3 with informed written valid consent. Difficult airway cart was kept ready.

Figure 1. Thoracolumbar Kyphoscoliosis- Examination of Spine in Pre-Op Check Up

Figure 2. Position Given to the Patient During Procedure

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Figure 3. Beach Chair Position Given to Patient After Giving Spinal Epidural Anaesthesia

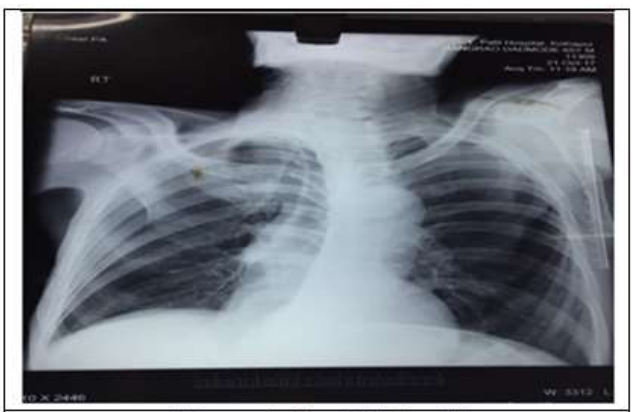

Figure 4. Chest X-Ray PA View Showing Lumbar Kyphosis

DISCUSSION OF MANAGEMENT

Preoperative optimization was done with nebulisation, breathing exercises, incentive spirometry and chest physiotherapy to improve the pulmonary reserve. Tab clopidogrel was stopped 5 days prior to surgery and BT, CT, PT INR was done on day of surgery.

Patient was shifted to operation theatre and intravenous access was secured with 20G IV canula and multi parameter monitor attached to patient. Premedication and antibiotic was given as per institutional protocol. Ringer lactate was started. 2 unit PCV was arranged. Patient was prepared for regional block (epidural & spinal). Patient was placed in sitting position. Intervertebral space was identified by tracing the spine from upwards. Epidural space was located at the level of L2-3 using 16 G Tuohy's needle by Loss of resistance technique to air, 18 G epidural catheter was introduced and fixed at 10 cms. Inj. Lox + Adr 2% 3cc test dose given and spinal anaesthesia was given at the same level using 25G Quincke needle, inj. Bupivacaine 1.5 cc 0.5%(H) and inj. fentanyl 25 mcg given. Patient was made to lie down to maximum extent he could to attain adequate level of spinal anaesthesia, T10 level was achieved. Intraoperatively we had started low dose nor adrenaline infusion @ 2 mcg/ml to prevent hypotension which was stopped at the end of the surgery. Intraoperatively 500 ml RL and 500 ml NS given, urine output was 350 ml.

Proper cushioning using pillows was made to make the patient comfortable in sitting position. Patient was hemodynamically stable intraoperatively. Post operatively shifted to ICU for monitoring. Epidural top up with inj. Bupivacaine 0.125%, 6 cc given for post-operative analgesia.[2]

CONCLUSION

In idiopathic kyphoscoliosis, lung compliance is decreased, work of breathing is increased. This causes hypoventilation and ventilation perfusion mismatch. Abnormal ribcage and crowding of ribs result in restrictive type of lung disease. The cardiac and pulmonary function de-arrangement in kyphoscoliosis patient is related to Cobb angle in the thoracolumbar x-ray. Cobb angle of more than 65 degrees is significant as it may cause cardiopulmonary dysfunction. In our case the cobbs angle was 68 degrees. Airway management and cardiorespiratory changes makes general anaesthesia hazardous, with high chances of post-operative pulmonary complications.[3] Here we managed this case under combined spinal epidural with proper planning and normal coagulation status with efforts towards maintaining airway.

Regional anaesthesia is challenging in our case due to technical difficulty and unpredictable spread of the drug. We managed this case under spinal epidural anaesthesia with proper planning and meticulous care. Apart from dealing with technical skill associated with this technique, there was difficulty in patient positioning too throughout the surgery. Also, there was difficulty in accessing the airway because of the position. Patient positioning during surgery and also for emergency intubation if required would have been very difficult for accessing the airway. Keeping the difficult intubation cart ready, regional anaesthesia was given for the patient and was managed successfully.

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