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ANKYLOSING SPONDYLITIS AND ANAESTHESIA IMPLICATIONS

Anaesthesiology

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ABSTRACT

BACKGROUND-Ankylosing spondylitis (AS) is a chronic progressive multisystem disease form of seronegative spondyloarthropathy. Patients with AS have arthropathies and they have many extra-articular manifestations. AS has almost always been a challenge to the anesthesiologist due to either a difficult airway or technical difficulties encountered while performing a central neuraxial blockade. Rigid posture and restricted neck movements of the patients with ankylosing spondylitis leads to difficulties in the administration of general and neuraxial regional anaesthesia. **CASE REPORT-** A 40 yr old male patient with history of Right intertrochantric fracture with implant in-situ, no co-morbid conditions. Posted for Implant Removal. SAB was attempted in median and paramedian approach but failed due to bamboo spine. General anaesthesia was planned. Patient was intubated by VIDEOLARYNGOSCOPY. **CONCLUSION-** Ankylosing spondylitis continues to be a challenge for the anaesthetist because the rigid, immobile, yet fragile spine makes not only intubation and general anaesthesia but also central neuraxial anaesthesia difficult.

KEYWORDS

ankylosing spondylitis, neuraxial, vidolaryngoscopy.

INTRODUCTION

Ankylosing spondylitis (AS; also known as Bechterew disease; Marie Strumpell disease), is an autoimmune seronegative spondyloarthropathy. It primarily affects the spine and sacroiliac joints and eventually causes fusion and rigidity of the spine ('bamboo spine'). AS can present significant challenges to the anaesthetist as a consequence of the potential difficult airway, cardiovascular and respiratory complications, and the medications used to reduce pain and control the disease.

Rigid posture and restricted neck movements of the patients with ankylosing spondylitis leads to difficulties in the administration of general and neuraxial regional anaesthesia.

Giving ideal position for the administration of regional anaesthesia is very difficult due to the ossification of ligaments around the vertebral column. Due to ossification of interspinous ligaments and enthesitis, there is the formation of a bamboo spine-like appearance which includes syndesmophyte formation, squaring of the vertebral bodies and vertebral endplate destruction.

Airway management: Patients with severe ankylosing Spondylitis have difficult airway due to potential complexity in visualisation of glottis because of-

1) Inability to align oral-pharyngeal-laryngeal axes owing to fused cervical spine.
2) Inability to introduce conventional/bulky airway devices in oral cavity owing to restricted mouth opening.
3) Inability to apply excessive force during laryngoscopy considering risk of significant neurological injury

New airway managements such as awake video laryngoscopic intubation as well as the standard general and neuraxial techniques were defined for this patient.

CASE REPORT: A 40-year-old male patient with history of Right intertrochantric fracture with implant in-situ, no co-morbid conditions. Posted for Implant Removal. He had a classical bamboo spine with no mobility of cervical or thoraco-lumbar spine. Examination of spine showed that the intervertebral disc spaces were not palpable.

Airway examination revealed restricted neck movements with Mallampati Grade 4 and normal thyro-mental distance. So difficulty in neuraxial and general anaesthesia was anticipated and difficult airway cart was kept ready with videolaryngoscopy.

The cardiac and respiratory systems were normal on examination. Hematological and biochemical parameters were also within normal limits.

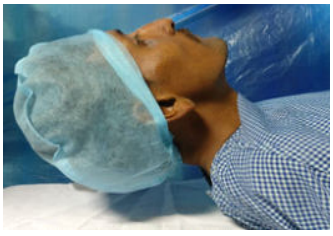

FIGURE 1- Cervical spine rigidity

Written informed consent was obtained for both general and regional anaesthesia and the patient was fasted adequately. The plan was to first attempt a spinal block and in case of difficulty or failure, the alternative was a video laryngoscopy.

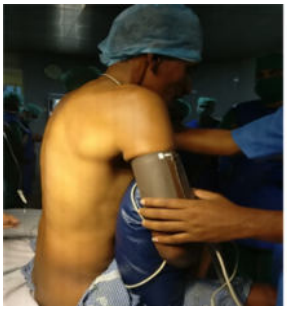

FIGURE 2- Spine Immobilty

Sub Arachnoid block was attempted at different lumbar spinal levels (L2-L3, L3-4, L4-L5) by median or paramedian approach by three experienced anaesthesiologists, but they failed due to the presence of bamboo spine and the positioning of the patient for lumbar puncture was extremely difficult.

General anaesthesia was planned. Patient was preoxygenated and pre medicated. Induced with Inj. Propofol 100 mg IV and relaxed with Inj. Succinylcholine 100mg IV. Direct Laryngoscopy was not done. Patient was intubated by VIDEOLARYNGOSCOPY with size 8mm ID CETT.

FIGURE 3- Video Laryngoscopy being done.

Pt was maintained with O2, N2O, isoflurane and Inj. Vecuronium IV top ups. Intra-operative period was un-eventful. Surgery lasted for 90 minutes. Patient was reversed with Inj. Neostigmine 2.5mg IV and Inj. Glycopyrrolate 0.5mg IV and extubated after adequate respiratory efforts. Post-operative period was un-eventful.

DISCUSSION:

Patients with AS present tremendous challenges to the anaesthesiologist due to fusion of the cervical and thoracic spine and stiffness of the temporomandibular joint. Due to the cervical spine involvement progresses, neck extension also decreases progressively, ultimately leading to a 'chin-on-chest' deformity. This was seen in our patient. Many methods have been described to predict difficult airway among which neck extension, interincisor distance, sternomental distance and modified Mallampati class were found to be significant predictors of difficult intubation in patients suffering from AS.

Regional anaesthesia offers many advantages over general anaesthesia in these patients,[1] but central neuraxial blocks are known to be difficult, though not impossible, depending upon the severity of the disease. They have been underutilised in the past and there are only a few reports of successful spinal and epidural puncture in patients with AS.[4] In the largest review of 80 patients over a 10-year period, Schelew et al. planned spinal anaesthesia in only 16 patients out of which they reported success in 10.[5] A paramedian approach may be easier because of the midline ossification of the interspinous ligaments. Taylor's approach, a paramedian approach to L5-S1 interspace, may also be better to access in some cases. [6]

Awake fibreoptic intubation has been considered the gold standard in difficult airway situation but many patients are apprehensive and refuse to remain awake during the procedure [1]. The technique is time consuming and requires expertise.

Videolaryngoscopes are now being increasingly used in managing a difficult airway. Tahan et al. described the combined use of King Vision™ videolaryngoscopy and fibrescopy in patients with critical tracheal stenosis [7]. Park et al. described the use of Glidescope™ in patients of severe mentosternal contracture [8]. Suzuki et al. also reported the use of Pentax AWS™ in morbidly obese patients after failed fibreoptic intubation [9]. Gazynska et al. reported two cases in which King Vision™ videolaryngoscope was used for awake intubation in patients with pharyngeal and laryngeal tumours [10].

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