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Anesthesiology

ANAESTHETIC MANAGEMENT OF ANKYLOSING SPONDYLITIS PATIENT POSTED FOR CORONARY ARTERY BYPASS GRAFTING SURGERY

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ABSTRACT **Background and Aim:** Patients with ankylosing spondylitis pose great challenge to anesthetists in terms of intubation, patient positioning, CVP line placement as well as extubation. Perioperative management of these patients will require a deep understanding of the condition and it's implications on anesthesia, so that better outcome can be achieved. We hereby present a case of a patient with ankylosing spondylitis, posted for coronary artery bypass grafting.

KEYWORDS : Fiber optic intubation, Ultrasound machine

INTRODUCTION

Ankylosing spondylitis is an autoimmune sero-negative spondyloarthropathy that typically affects the spine and sacroiliac joints, but may also involve peripheral joints as well. It affects men disproportionately and often presents between the ages of 20 to 30 years.

With the advent of fibre-optic intubation, the road to difficult intubation has become smoother. Ultrasonography has become an eye to anaesthetist, bringing down the complication rates. Ultrasound guided CVP cannulation is very much useful, not only to reduce complications but also easier to cannulate in difficult and complicated cases.

Case Report

A 47 year old male, known case of Ankylosing Spondylitis presented to our OPD with complains of bilateral radiating pain to hands along with retrosternal burning pain on exertion since 2 years. Patient underwent cardiac evaluation and was diagnosed as CAD-Triple vessel disease on CAG report for which patient was posted for CABG.

During Pre-anesthetic evaluation, it was noted that patient had neck stiffness, restricted neck flexion with nil neck extension. Patient required 3 pillows to support his neck in supine position. Patient had 1& 1/2 finger mouth opening and MPC III. Routine laboratory investigations were WNL. ECG was suggestive of Q wave in lead III. 2D ECHO was done which showed EF 60%, no RWMA, and good LVSF. Patient was accepted under grade III HR under GA. The patient was posted for CABG under GA and electively decided for "AWAKE NASAL FIBEROPTIC INTUBATION". Informed consent was taken. On the day of surgery all monitors were attached to the patient. Difficult airway cart was kept ready. Ultrasound guided RIJV CVP line insertion was done. Right femoral arterial line was inserted for invasive BP monitoring. Patient was counseled regarding awake fiber optic intubation and the importance of co-operation during the procedure. LOX 10% was sprayed in oropharyngeal cavity and nasal cavity. Nasal decongestion was done. Awake fiber optic nasal intubation was done and ET tube was placed 2cm above the carina. ETT placement was confirmed. Patient tolerated the procedure well.

Later patient was pre-medicated with Inj Glycopyrrolate 0.2mg iv + inj Midazolam 2mg + inj Fentanyl 100 mcg.Induction was done with inj Etomidate 10mg iv and inj Vecuronium 4mgiv.

Anaesthesia was maintained on Sevoflurane+air+oxygen and inj vecuronium. Intraoperative hemodynamics of the patient was stable and the surgery was uneventful. The duration of surgery was 4 hours and patient was shifted to CVTS ICU with ET tube insitu for AWAKE EXTUBATION. After patient was fully awake, conscious, spontaeous breathing was present, responding to commands, adequate power achieved, AWAKE EXTUBATION was done in sitting position. No adverse events occured post extubation and the patient tolerated the procedure well.

DISCUSSION

Ankylosing spondylitis is a progressive inflammatory arthropathy that primarily affects the spine and sacroiliac joints, also peripheral joints may be involved; usually occurs in males. Ankylosing spondylitis can have important extra-articular manifestations, which includes uveitis, vasculitis, aortitis, and aortic insufficiency. Affected individuals can develop restrictive lung disease related to pulmonary fibrosis or chest wall movement restriction (joint fixation and kyphosis). Kyphosis can be so extreme that patients are unable to face forward,making mask ventilation,direct laryngoscopy and intubation very difficult in these cases. The patient's preoperative evaluation should focus on the cardiovascular, pulmonary, and musculoskeletal systems, along with physical examination including measurement of oxygen saturation on room air. The presence of a murmur on physical examination warrants an echocardiogram (ECG). If any ventilatory compromise is suspected or present, a chest radiograph and PFTs are necessary.

Range of motion of neck and preexisting neurologic deficits should be thoroughly evaluated preoperatively, and adequate neck support should be provided at all times to avoid hyperextension.

Inflammation in the affected joints can lead to formation of fibrocartilage and ectopic bone, and ultimately fusion of the joint. The classic "bamboo spine" appearance seen on radiography in advanced disease is caused by ossification of the vertebral ligaments. This in combination with osteoporotic compression fractures can result in rigid kyphosis that requires surgical correction. Despite the rigidity,

the spines of patients with advanced ankylosing spondylitis are quite fragile. Vertebral fractures may occur spontaneously or with minimal trauma. The cervical spine is a common site of vertebral fracture.

Obviously, this has serious implications for intra-operative positioning, and airway management. Cervical kyphosis makes direct laryngoscopy difficult or impossible, and temporomandibular joint disease may limit mouth opening.

Awake fiberoptic intubation may be the safest option in patients with severe cervical disease, as it allows for spontaneous ventilation with neurologic monitoring throughout intubation. Video laryngoscopy can also be used successfully in ankylosing spondylitis patients. The laryngeal mask airway (LMA) can be used in cases where endotracheal intubation is not required, or as a bridge to intubation if an intubating LMA is used.

The spinal pathology of ankylosing spondylitis can also result in difficulty with neuraxial techniques. Further, the incidence of epidural hematoma after neuraxial anesthesia is higher in these patients than in the general population. This may be related to an increased incidence of traumatic needle placement, prevalence of NSAID use among ankylosing spondylitis patients, or narrowing of the epidural space that makes symptomatic spinal cord compression more likely if a hematoma occurs. If neuraxial anesthesia is indicated, ultrasound or fluoroscopic guidance may facilitate placement. Subsequently, vigilance should be maintained for symptoms of epidural hematoma. Analgesic medications and non-biological disease modifying agents (e.g., sulfasalazine) can be continued preoperatively,also consideration can be given to stopping NSAIDs 2 to 3 days before surgery. Several guidelines recommend holding biological disease modifying agents (i.e. tumor necrosis factor alpha antagonists) before surgery, but there is uncertainty regarding when treatment should be stopped relative to surgery,.Especially,since these drugs have different dosing cycles, patients with complex immunosuppressant therapy are best managed collaboratively with their rheumatologist,physician, and surgeon. It is important to plan for perioperative airway management and counsel the patient about the possibility of awake fiberoptic intubation.Peripheral nerve blocks are also an option for other surgeries,but neuraxial anesthesia is often unsuccessful in the presence of severe spinal involvement.

CONCLUSION

Ankylosing spondylitis is the predominant form of spondyloarthritis, leading to gradual stiffening of the spine over time.In severe cases restricted ventilation due to the involvement of costovertebral joints,limited mouth opening due to the involvement of temporomandibular joint,cervical spine ankyloses and on rare occasions,complications such as aortic insufficiency and cardiovascular conduction abnormalities may arise.It is essential to anticipate potential airway management difficulties,optimize respiratory function and minimize strain on cervical spine during general anesthesia administration for ankylosing patients.Fiberoptic intubation and ultrasound use must be considered for improving quality of anesthesia.

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