



AIRWAY MANAGEMENT IN A PATIENT WITH SEVERE ANKYLOSING SPONDYLITIS CAUSING BAMBOO SPINE

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ABSTRACT

Ankylosing spondylitis (AS) is a chronic, usually progressive, inflammatory disease that involves the joints of the spine and adjacent tissues. It occurs most frequently in males, a high proportion of whom carry HLA B27 histotype antigen. Diagnosis AS is clinical according to accepted criteria. The uniform development of extensive annular fibrous ossification affects the articular cartilage with eventual ankylosis and the intervertebral disc space of the axial skeleton. The formation of bony bridges (syndesmophytes) is the main cause of the typical radiographic appearance of end-stage ankylosing spondylitis in bamboo spines. Arthritis and ankylosis can also occur in hip, shoulder, and costal joints with or without extra-articular complications. Outside the axial spine and other joints, the organs affected by AS are the heart, lungs, colon, and kidneys. AS can occur in patients presenting with vertebral fractures or deformities and undergoing corrective hip or knee surgery. Manipulating the airway and accessing the nerve axis can be very difficult.

KEYWORDS : inflammatory, bamboo spine, arthritis, stiffness, ankylosing

ANESTHESIA CONSIDERATIONS

The most common symptom in patients with ankylosing spondylitis is back pain. The pain pattern is characteristic of bilateral sacroiliitis. Over time, back pain travels up the spine and affects the chest. Chronic spondylitis and ankylosis bend the thoracic spine forward and limit the ability to breathe. Spondylitis can also affect the area where the ribs attach to the upper spine, further reducing lung capacity. Sternum rib stiffness means that ventilation is driven primarily by the diaphragm

The cervical spine becomes ankylosed late in the course of the disease, limiting neck movement and head rotation. After fixation, the pain in the spine disappears, but the patient loses all spinal mobility. The sudden onset of pain and mobility in the spinal region in these patients may indicate a fracture. The lower part of the neck (cervical spine) is the most common area for such fractures. (1) X-ray is the primary imaging modality for patient detection, diagnosis, and follow-up. (2) Arthritis of joints other than the spine can occur in hips, knees, and ankles. Other body areas affected include the eyes, heart, lungs, and sometimes kidneys. Anesthesia considerations should focus on the extent of disease, degree of upper airway involvement, difficulty in positioning, and increased technical difficulty in neuraxial anesthesia. Anesthesia management must be planned on a case-by-case basis and requires a combination of anesthesiologist knowledge, skill and judgment.

However, it should also be borne in mind that technical issues may increase the risk of complications. Airway management Stiffness of the cervical spine, occipital atlas, temporomandibular joints, and cricoarytenoid joints can cause problems during endotracheal intubation. In many cases it can be done with a fixed position using a rotating component. Achieving a sniffing position is impossible, and the closeness of the chest and chin may interfere with opening the mouth. (3) The cervical spine can be prone to fracture and potential for injury, especially if it is overextended. Patients may also have unstable atlas-occipital joints and spinal stenosis. Finally, large anterior osteophytes can distort the airway and interfere with recognition of laryngeal structures. (4) Some reports demonstrate successful endotracheal intubation in patients with severe AS. One such case presented for hip replacement was successfully intubated with a sharply curved endotracheal tube after a third blind trial. The assistant stabilized the head to avoid overmanipulation of the head and neck. (5) There are several other approaches for endoscopic surgery, including blind nasal intubation and fiberoptic bronchoscopy. , illuminated stylet intubation, Bullard laryngoscopy, retrograde intubation,

laryngeal mask intubation, glidescope, and tracheostomy. As our experience with fiber optic technology has increased, the management of difficult intubations has become easier. Awake endotracheal intubation is performed in cases of extensive spinal injury (6). However, some patients refuse awake intubation and prefer airway management under general anesthesia. If intubation fails, percutaneous transtracheal jet ventilation (PTJV) can be used to provide rapid and effective ventilation (7). Obstruction involves neck osteophytes or severe cervical flexion deformity, impeding successful intubation. (8) Cardiac examinations (ECG and electrocardiography) are essential for determining cardiovascular risk. Aortic valve regurgitation and bundle branch block may occur, requiring replacement of the aortic valve or placement of a pacemaker. (9) External chest compressions may be ineffective if the chest wall is stiff. (10) Pulmonary fibrosis is the most common pulmonary complication. A chest x-ray may show acral fibrosis that may mimic tuberculosis. Costovertebral joint movement is restricted, lung capacity is reduced, and ventilation becomes increasingly dependent on diaphragmatic function. Pulmonary function tests can reveal restrictive lung defects. Careful positioning is imperative not only during the operation, (11) but also in the intensive care unit (ICU) because of increased risk of iatrogenic injury. In some patients with kyphotic deformities, the presence of a highly curved spine prohibits achievement of a free-hanging abdomen. This applies especially, if the abdomen is not supported, and then there is an increase in peak inspiratory pressure and ventilation problems. To compensate, generous additional padding may be used to relieve the pressure and cause a resultant increase in central venous pressure, leading to distension of the epidural venous plexus. Regional and Peripheral Anesthesia Regional anesthesia may be technically difficult or impossible, due to limited joint mobility and closed interspinous spaces, although ossification of the ligamentum flavum is uncommon in these patients. (12) Tracheal intubation may still be required, due to complication of epidural or spinal anesthesia, such as intravenous injection of local anesthetic or a very high block. The cephalad spread of the neural blockade, produced by epidural or spinal techniques is a matter of concern because of unpredictable high motor blockade, which may affect innervations of the diaphragm and acute cardiovascular effects of sympathetic blockade. (13) However, epidural or spinal anesthesia is an acceptable alternative to general anesthesia in the presence of ankylosing spondylitis and perineal or lower limb surgery. In patients who can still move the neck, fusion of the lumbar spine may be incomplete, (14) enabling epidural or spinal anesthesia to be performed successfully. If a central neuraxial blockade is chosen as the anesthetic technique, likelihood of

successful spinal anesthesia seems higher than other neuraxial interventions. (15) Peripheral blocks are also difficult to perform because the patient cannot be properly positioned (16).

CONCLUSION

Anesthesiologists should consider safe and rational alternatives to airway management in patients with severe ankylosing spondylitis. However, even in complex cases, the neural axis technique should not be considered unattainable. A detailed discussion is needed between patients, orthopedic surgeons, and anesthesiologists about the potential risks and benefits of general anesthesia compared to regional anesthesia.

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