
Fixed cervical flexion deformity: Difficult airway

Sir,

Airway management in patients with fixed cervical flexion deformity is a challenging. Fixed cervical flexion resulting in the chin on chest deformity can pose significant problems during airway management. Awake fiber-optic intubation is the safest option in those patients with a potentially difficult airway.^[1]

A 46-year-old man presented to casualty with altered sensorium and right-side hemiparesis. He had severe ankylosing spondylitis (AS) as well as a history suggestive of AS for 17 years. On examination, he was unable to lie flat due to fixed cervical region deformity and his Glasgow Coma Scale (GCS) score was E2M5V3. Computed tomography of the brain showed left parietal cystic lesion and immediately cystic tapping was done under local anesthesia. His GCS score improved to E4M6V5. Chest radiography showed Bamboo spine appearance [Figure 1, panel A, black arrow]. Computed tomography of the cervical spine [Figure 1, panel B] showed fusion of cervical vertebral bodies, ossified longitudinal ligaments (black arrow), and fusion of the anterior arch of the

atlas with clivus (white arrow). Fusion is also noted involving the posterior elements including lamina, features suggestive of AS. Definitive emergency surgery for decompression of parietal lesion was planned under general anesthesia. An airway assessment showed a mouth opening with interincisor gap of 2.5 cm, a thyromental distance of 5 cm, Grade III Mallampati, and absent atlanto-occipital extension. Due to fixed cervical flexion deformity, difficult airway was anticipated. We performed the necessary preparations for difficult airway and intubation. After anesthetizing the upper airway with lignocaine, awake flexible fiberscope intubation was done orotracheally with visualization of vocal folds [Figure 1, panel C] to successfully secure the airway before the induction of anesthesia for general anesthesia. After uneventful surgery, tracheal extubation was performed at the end of the procedure and the patient had an uncomplicated recovery.

AS is a chronic, progressive autoimmune spondyloarthropathy that affects primarily the posterior articulations of the spine and adjacent tissues.^[2] The cervical spine involvement progresses to a “chin-on-chest” deformity leading to fixed

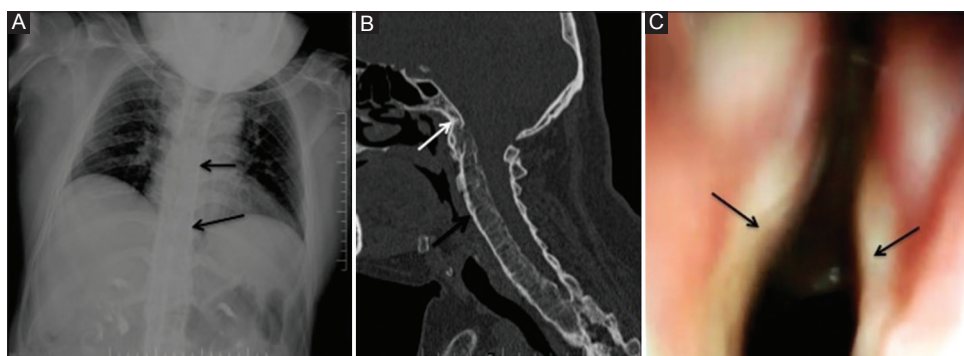


Figure 1: Panel A, chest radiography showing Bamboo spine appearance (black arrows). Panel B, computed tomography of the cervical spine in sagittal view showing fusion of cervical vertebral bodies, ossified longitudinal ligaments (black arrow), and fusion of the anterior arch of the atlas with clivus (white arrow). Panel C, flexible fiberscope view of vocal folds (black arrows)

flexion deformity. Although there are various options available for securing the airway in these patients, ranging from awake fiber-optic intubation to surgical tracheostomy, the management depends on the patient, the clinical setting, and the skills of the anesthesiologist. Fixed cervical flexion deformities limit access to the trachea, rendering tracheostomy impossible.^[2] When management of the airway is expected to be difficult because of fixed cervical flexion deformities, an endotracheal airway should be guaranteed while the patient is awake. There are several reasons to substantiate for awake endotracheal intubation; first, natural airway will be better maintained so that muscle tone of the upper airway structure is maintained and the risk of collapse or distortion of airway due to the induction of anesthesia and muscle paralysis is avoided.^[1] Second, spontaneous ventilation is preserved, and finally, it allows continuous neurological monitoring,^[3] avoiding risk of cervical spine fracture induced spinal cord injury due to excessive manipulation of the neck in an attempt to secure the airway under anesthesia and muscle paralysis. The disadvantage of unpleasant experience of awake endotracheal intubation for the patient can be reduced with adequate anesthesia of upper airway. Awake fiber-optic/fiberscope intubation is the safest option for obtaining a secure airway in fixed cervical flexion deformity.

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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Conflicts of interest

There are no conflicts of interest.

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