

Airway management in a patient of traumatic cervical spine fracture subluxation with ankylosing spondylitis presenting for emergency spine surgery- A Case Report.

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Abstract: Conventional intubation with Macintosh laryngoscope is either difficult or is often not the first choice for intubating a patient with traumatic and ankylosed cervical spine. This is mainly to prevent further cervical spine dislocation and damage caused by neck extension or merely because problems encountered while intubating such patients may end up with failure to intubate or oropharyngeal and dental trauma. A skillfully executed Fiber optic intubation avoids above complications. We hereby report a similar scenario of “expected difficult intubation” in a patient suffering from ankylosing spondylitis presenting for emergency cervical spine surgery following traumatic C5-C6 subluxation .

Key Words: airway management, ankylosisng spondylitis, traumatic cervical spine

I. Introduction:

Ankylosing spondylitis(AS) is a chronic progressive inflammatory disease prominently affecting articulation of the spine along with adjacent tissues. The joint cartilage and the disc space undergo annular fibrous ossification along with typical “bamboo-spine” deformities of the axial skeleton. Stiffness of the atlanto-occipital, temporo-mandibular and crico-arytenoid joints may cause problems with tracheal intubation. Traumatic fracture in ankylosed cervical spine and need of inline spine stabilization during intubation further raises the bar for anaesthetic skills and expertise required for successful intubation in such cases. While a variety of newer alternative techniques are available for anticipated difficult airway, we hereby report a successful use of fiber optic bronchoscope for intubating a patient of ankylosed cervical spine with C5-C6 subluxation received for emergency corrective spine surgery.

II. Case Report:

A 48 year old male, known case of ankylosing spondylitis presented to “Emergency Trauma Room” with a history of fall and trauma to the neck followed by weakness of both upper and lower limbs. Patient was admitted as “suspected spine injury” and subsequent radiological evaluation revealed C5-C6 subluxation with C3-C6 cord edema causing quadriplegia and bowel bladder involvement. Corrective spine surgery through anterior approach was scheduled on the same day. Patient entered pre-op room on flat stretcher and rigid cervical collar in place. Key clinical findings relevant to airway management were facial puffiness, significant neck swelling, mouth opening 3 fingers, Mallampatti grade 3(i.e difficult airway). Range of neck movements couldn't be tested. X-ray cervical and whole spine showed classical Ankylosis in cervical vertebra and bamboo spine appearance. Haemodynamic parameters were stable, NIPB=126/76, HR=86/min ECG: Sinus rhythm. Patient was declared as a candidate of “Expected Difficult Airway” and relevant consent for Awake Fiberoptic Intubation(AFI), need for possible invasive airway access and intraoperative invasive hemodynamic monitoring was taken. Patient was shifted to Operation table, ASA standard monitors including Invasive blood pressure(IBP) was applied. Peripheral access to Central Venous line(CVP) was sought. Patient was given inj ranitidine 50 mg, inj. ondansetron 4mg, inj. glycopyrrolate 0.2mg as premedicants intravenously. Next 10% Xylocaine spray was sprayed over posterior pharyngeal wall and in both the nostrils for local anaesthetic effect to attenuate pressor response to Direct Laryngoscopy(DLS) and Intubation.. Check laryngoscopy was attempted with True- view Laryngoscope, basically to sense the difficulty of DLS, maintaining inline neck stabilization. Cormack Lehane grading of laryngeal view was found to be 4(i.e difficult direct intubation). At this point AFI was selected as the primary method to secure airway. Soon the Operating surgeon interrupted anaesthesia team and requested to insert Ryle's tube(RT). But a serious unanticipated judgemental error occurred at this point. Intubating anaesthesiologist decided to insert RT before intubation reassured by the fact that awake cooperative patient might deliberately deglutinate to facilitate successful RT insertion. When Xylocaine jelly lubricated RT was inserted through right nostril at approx 4-5cms depth it met with some resistance. As soon as

RT was withdrawn for re-attempt and more lubrication, a gush of bleeding was witnessed from right anterior nares. Immediate nasal pressure was applied followed by aggressive oral suctioning to prevent any accidental pulmonary aspiration. Nasal bleed was subsequently managed with manual pressure over the right nostril followed by insertion of an adrenaline soaked nasal pack. At this point it was realized that the nasopharynx is significantly congested and vasculature engorged. Inj. tranexamic acid 500mg was given IV stat and after 10-12 min of collective efforts nasopharyngeal bleed was brought under control. Patient's oxygen saturation was continuously monitored and it never fell below 94%. Seeking this interruption as an opportunity, we changed our mind and decided to secure airway first. Left nostril was sprayed with xylocaine-adrenaline mixture and AFI was successfully done on first attempt with 'spray-as-you-go' technique. A 8 mm wire reinforced (armoured) endotracheal tube was placed in trachea and its correct position was simultaneously confirmed via fiberoptic view and later on by Capnography (ETCO₂). Throughout the procedure a separate anaesthesia resident kept sufficient manual pressure over the right nostril so as to prevent or minimize blood spillage into fiberoptic field. After intubation patient was administered various components of balanced anaesthesia and finally positioned and handed over to surgeons for surgery.

Figure-1 X ray showing C5-C6 subluxation and fracture through disc



Figure-2 MRI showing C5-C6 disc subluxation with intact spinal cord.



Figure-3 “Bamboo Spine” appearance of Ankylosing spondylitis.



III. Discussion:

AFI in ankylosed spine or a C-Spine injury is considered as a gold standard. However its successful execution requires a significant background experience and high clinical expertise. Our Intubating experience in this case clearly shows that even a fairly experienced anaesthesiologist in AFI may fall in trap of a unrealized complication. A cervical spine trauma with neck swelling and facial puffiness must always raise suspicion of a possible nasopharyngeal and intra oral vascular engorgement. This may give way to serious bleed and interfere with both bronchoscopy and pre-op RT insertion. A pre procedure nasopharyngeal packing with adrenaline pack or xylometazoline nasal drops helps to avoid this. AFI despite being considered as gold standard for airway access in ankylosed or traumatic cervical cases may turn highly impractical and inappropriate if for any reason the fiberoptic field becomes contaminated with bleeding.

IV. Conclusion:

Hence we conclude that AFI remains to be the first choice for intubating a ankylosed and C-Spine patients. However one must acquire enough experience in handling fiberoptic bronchoscope and apply a logical forethought at each and every step of AFI to make it successful.

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