

## Airway obstruction following cervical spine surgery: A diagnostic dilemma

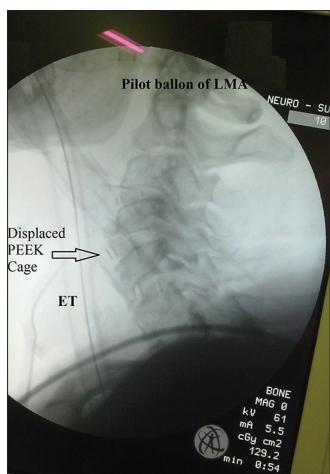
Sir,

Airway management in postoperative period depends on clinical skills, understanding of pathophysiology, and imaging modalities.<sup>[1]</sup> Here, we describe the management of sudden airway obstruction in a patient who underwent cervical spine instrumentation.

A 59-year-old male with diagnosis of prolapsed cervical intervertebral disc underwent cervical (C3–C4, C4–C5, and C5–C6) discectomy and instrumentation. After routine induction of anesthesia, airway was secured with a cuffed 8.5 mm endotracheal tube under direct laryngoscopy and manual in-line stabilization. Surgery was completed in 5 h with the placement of polyetheretherketone (PEEK) cage under the guidance of C-arm image intensifier. After reversal of neuromuscular blockade, trachea was extubated after

confirming sustained eye opening, adequate breathing, good cough reflex, and spontaneous limb movements. Immediately after extubation, the patient had respiratory distress and inspiratory stridor. We attempted bag and mask ventilation with oral airway, but oxygen saturation fell to 80%. Laryngeal mask airway (LMA) was also tried but failed to deliver adequate tidal volume due to high airway pressure and leak. Although oxygen saturation increased to 88–90%, end-tidal carbon dioxide levels reached to 50 mmHg. After a failed attempt of intubation through LMA, lateral view cervical X-ray was carried out using C-arm image intensifier. It revealed prevertebral displacement of PEEK cage from C4–C5 intervertebral space [Figure 1]. Meanwhile, airway was secured with the help of video laryngoscope and bougie to avoid spine movement. A reexploration and replacement of cage with plating were carried out. The patient was electively ventilated and extubated uneventfully next day in Intensive Care Unit.

Most common reasons of immediate respiratory distress after extubation may be inadequate reversal from neuromuscular blocking agents, opioids overdose, laryngeal or bronchospasm,



**Figure 1:** Displaced polyetheretherketone cage into retropharyngeal space and endotracheal tube while attempting intubation through laryngeal mask airway

negative pressure pulmonary edema, and tongue fall.<sup>[2]</sup> These were ruled out in our patient. However, airway following cervical surgeries may also be complicated by local hematoma, pharyngeal edema, and implant displacement with risk factor being multilevel exposure (C2–C4), prolonged surgery >5 h, and blood loss >300 ml.<sup>[3]</sup>

In our case, the failure of oral airway and LMA can be attributed to distorted airway anatomy due to prevertebral dislodgement of PEEK cage into retropharyngeal space.

Retropharyngeal pathology (osteophytes, implants, and abscess) can cause supraglottic airway compromise and stridor.<sup>[4,5]</sup> The dislodgement of cage can also explain the high airway pressure and failure of intubation through LMA.

In general, instrumentation failure develops gradually over a period and can present as respiratory distress late in the course.<sup>[6]</sup> We encountered the situation immediately after surgery which is rarely seen. The reason of displacement of the implant remains largely obscure. It may be due to inadequate surgical technique, excessive movement of neck while extubation or both. Endotracheal intubation was done with the help of video laryngoscope and bougie which has been used as an alternate to fiberoptic bronchoscope in difficult airway scenarios.

To conclude, implant dislodgement following cervical spine surgery is a rare event and should be considered in as a probable cause of acute respiratory distress following surgery. Cervical radiograph may be helpful in identifying the cause and management of airway.

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## Conflicts of interest

There are no conflicts of interest.

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