DESATURATION WITH FLEXOMETALLIC ENDOTRACHEAL TUBE DURING LUMBAR SPINE SURGERY – A CASE REPORT

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SUMMARY
We present a 44 years male, who underwent surgical procedure laminectomy and discectomy for prolapsed intervertebral disc under general anaesthesia with flexometallic tube. Surgical procedure and anaesthesia was uneventful but before extubation patient bite the tube creating permanent deformity in the tube resulting in desaturation. The successful management and prevention of further such episode is described.

Keywords : Desaturation : Flexometallic endotracheal tube.

Introduction
Spiral embedded tubes, also known as flexometallic tubes or armoured tubes are useful in conditions where in kinking or compression of the tube can pose a problem intraoperatively. These tubes are preferred for head and neck surgeries, surgery on trachea, and are commonly used in several neurosurgical operations. These tubes can be easily angled away from the surgical site without getting kinked. Though these tubes are certainly useful, but the problems may also be associated with them.2,3 This case report describes introperative compression of an armoured tube during a neurosurgical operation.

Case report
A 44 year-old male, ASA Grade-1 patient diagnosed of prolapse intervertebral disc (L4-5) was posted for lumbar laminectomy and discectomy. After obtaining intravenous access and employing monitoring of ECG/pulse oximetry and non-invasive blood pressure, patient was induced for surgery. Induction was done with fentanyl 2 mg kg⁻¹ and propofol 2 mg kg⁻¹. Muscle relaxation was achieved with vecuronium 0.1 mg kg⁻¹ and patient was intubated with flexometallic endotracheal tube of internal diameter 8.0mm. After securing the tube, patient was turned prone for surgery. Anaesthesia was maintained with Nitrous oxide, Oxygen and isoflurane and intermittent fentanyl and vecuronium. The intra-operative course was uneventful and the surgery lasted for 3 hours. Anaesthesia was terminated after completion of surgery and patient was turned supine. It was noted that the patient had weak respiratory effort and was making swallowing efforts. Oral suction was done but within a minute, the patient started to desaturate (saturation fell to 88%) and there was resistance in ventilating the patient. On chest auscultation, air entry was found to be bilaterally equal and decreased. The tube blockade by mucous plug was suspected and was tried for endotracheal suctioning but it was impossible to introduce a suction catheter (12 French) beyond a few centimetres. Another possibility that the tube getting kinked inside the oral cavity was suspected. Meanwhile, the saturation dropped to 80%. Immediately anaesthesia was deepened by inhalation agent (Isoflurane) and vecuronium bromide 1 mg was given. The armoured tube was removed and patient was re-intubated with 8.5 mm PVC tube. After 30 minutes, the patient was reversed and extubated safely.

Discussion
Spiral embedded endotracheal tube have a metal or nylon spiral-wound reinforcing wire covered with both internally and externally by rubber, latex, PVC or silicone. The primary advantage of this framework is that these tubes are resistant to kinking and compression. This makes them useful in certain clinical conditions like head and neck surgeries. In neurosurgery these are useful for surgeries in prone position, sitting posture and where head and neck positioning is required for better surgical access.1

There are a number of problems associated with spiral embedded endotracheal tubes.2 The tube usually requires stylet for insertion and there are chances that the tube may rotate on the stylet during insertion. Nasotracheal intubation is difficult with armoured tubes. Another practical problem with these tubes is that they cannot be shortened.2,3
Tube-bite by the patient in light plane of anaesthesia can be a serious complication with the tube as it happened with our patient. Tube-bite permanently deformed the tube which was the cause of difficulty during endotracheal suctioning. This may in extreme case, may lead to hypo-ventilation and hypoxia which can be life threatening as occurred in our case. Our patient suffered desaturation due to tube-bite without any morbid sequelae due to early recognition of the problem. Tube laceration as a result of bite can also lead to aspiration of the tube material. The problems associated with these tubes is especially important when post-operative elective ventilation is planned. Based on our experience we suggest that patients who are intubated with spiral embedded tubes, before shifting the patient to post-operative unit, the armoured tube should be changed with PVC tube or tube bite guard to be applied to avoid such complication during intra operative, post operative and during the weaning process.

References


Legends

The flexometallic endotracheal representing obstructed lumen due to bite. This obstructed lumen caused desaturation to the patient.