An Intermittent Foreign Body in the Airway: A Case Report

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ABSTRACT
A case is described of a surgical ‘stay’ suture which apparently disappeared from the tracheostomy site and took an unusual course before it reappeared in the patient’s tracheostomy tube. Our report highlights the importance of documentation of the surgical techniques and procedures used in the performance of a tracheostomy and the importance of daily bedside examinations in the critically ill patient. (Critical Care and Resuscitation 2001; 3: 173-175)

Key words: Tracheostomy, aspiration, surgical suture, foreign body

Aspiration of a foreign body is an uncommon problem in a patient with a tracheostomy, with the most common object to be aspirated being a portion of a fractured tracheostomy tube. Rarely, other objects have been aspirated, including a safety pin, tooth and an introducer of a metal tracheostomy tube. In an unusual case of self-inflicted injury, introduction of foreign bodies into the lower airways through the tracheostomy tube was reported to be responsible for recurrent attacks of aspiration pneumonia.

We described an unusual case of an intermittent foreign body in the trachea that caused restlessness, agitation, bronchorrhea and hypoxia during weaning from mechanical ventilation.

CASE REPORT
A 58-year-old man was admitted to the intensive care unit following a major road traffic accident with major maxillofacial, thoracic spine, pelvis and long bone injuries. He developed multi-organ failure and acute respiratory distress syndrome requiring a tracheostomy and prolonged mechanical ventilation. Because of the nature of his maxillofacial injuries and swelling involving the neck, a surgical tracheostomy was performed with the insertion of an adjustable flanged 8.0 mm Portex® tube. An adequate seal of the trachea with cuff pressure less than 30 cm H2O was obtained and an uneventful postoperative tracheostomy course was recorded. Two weeks following the tracheostomy, the tube was changed to a 6.0 mm-fenestrated Shiley tube. The procedure was carried out uneventfully under light sedation.

During the week following the tracheostomy tube change, episodes of significant bronchorrhea, tachycardia, hypertension and hypoxia were noted, which required constant tracheal suctioning. Investigations to exclude pulmonary embolism, including a ventilation perfusion scan were performed and were found to be negative. On the 7th day following the change of the tracheostomy tube, the nursing staff noticed a length of suture material entering and leaving the stoma of the tracheostomy tube with each breath (figure 1). This was believed to be the ‘stay’ suture used at the time of the surgical tracheostomy.

As the patient was cooperative and was able to breathe spontaneously through the fenestrated tracheostomy tube, we decided to remove the suture under light sedation. The patient was positioned supine in bed with a head up tilt of 35 degrees. Oxygen was provided through a face mask. Light intravenous sedation was provided with 200 µg fentanyl and 3 mg midazolam. When the tracheostomy tube was partially removed from the stoma (figure 2), the ‘stay’ suture was found to be exiting the stoma from the side of the tracheostomy tube.
migrating back into the tracheostomy tube through the fenestration (figure 2, A1) to project out of the tracheostomy tube (figure 2, A2).

Figure 1. The surgical ‘stay’ suture held in a gloved hand as it protrudes from the tracheostomy tube (arrow).

Figure 2. The surgical stay suture held by two curved hemostat forceps as it tracks from the stoma, migrating back through the tracheostomy fenestration (arrow A1) and exits out of the distal opening (arrow A2).

The proximal end of the suture was held with a curved hemostat and the tracheostomy tube was removed. As the track of the tracheostomy tube was well formed and patient was well oxygenated, the two portions of the stay suture were separated and the suture was pulled out through the stoma. A new tracheostomy tube was replaced through the existing stoma. The patient was subsequently discharged to the general ward for further management of his injuries, with the new tracheostomy tube in situ.

DISCUSSION

The migration of the surgical stay suture into the airway is an unusual complication of a surgical tracheostomy and has not been previously reported. Examination of the tracheostomy site revealed a relatively large incision compared with the size of the tracheostomy tube (figure 2). This may have facilitated the migration of the stay suture into the lumen of the trachea through the tracheostomy stoma during the first two weeks following surgical tracheostomy. As the patient was sedated and narcotised during this period, the suture did not provoke respiratory symptoms. When the tracheostomy tube was changed to a fenestrated Shiley tube the suture was not encountered. Following the initial change of the tracheostomy tube, weaning from ventilation was initiated. At this stage the suture migrated back from the lumen of the trachea, through the fenestration of the tracheostomy tube, into the tracheal lumen and became clinically obvious. This intraluminal foreign body was most likely responsible for the respiratory distress to the patient during the first week following the change of the tracheostomy tube.

With the advent of the percutaneous tracheostomy technique, which has become a standard procedure in many adult intensive care units, the surgical stay sutures at the tracheostomy site are not used and often forgotten as a part of the surgical technique. Similarly, the deskilling of surgical teams in relation to tracheostomy may lead to the post-operative instructions to the attending teams being unclear. As a result, there may be a tendency to ignore the surgical sutures in an occasional surgical tracheostomy, as occurred in our case.

Careful evaluation of the clinical status of the patient and revisiting and documenting all procedures on a regular basis may be the only way to avoid iatrogenic complications in intensive care. In this regard, a separate regular intensive care unit ward round, to focus on invasive line and surgical procedure related issues, may be helpful.

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REFERENCES