

An Unnoticed Broken Sheathed Metallic Stylet in an Endotracheal Tube

A case report

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قطعة مكسورة غير مُلاحظة في الأنبوب الرغامي من مرود معدني مُغلف تقرير حالة

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المخلص: ندرج هنا حالة مريض عمره 58 سنة كانت قد أُجريت له عملية لعلاج كسر في عنق عظم الفخذ. تمت عمل التَّنْبِيْب الرغامي بمساعدة مرود، لكن بعد 15 دقيقة أُعيد إلى أخصائي التخدير وأُخبر أن قطعة من المرود انكسرت وبقيت في الأنبوب الرغامي، مع العلم أنه لا يوجد دليل قبل هذا بوجود جسم غريب سواء كان داخل الأنبوب الرغامي أو الشجرة الرغامية القصبية. تم بنجاح سحب قطعة المرود بواسطة ملقط كوشر.

مفتاح الكلمات: مرود مكسور، انسداد الأنبوب الرغامي، جسم غريب، تقرير حالة.

ABSTRACT: We report a 58-years old patient, who underwent surgery for a fracture to the neck of the femur. Tracheal intubation was performed with the aid of a stylet; however, 15 minutes later, it was brought to the notice of the attending anesthesiologist that a broken piece of stylet had been left inside the lumen of the endotracheal tube. Prior to this, there was no evidence of a foreign body in the endotracheal tube or tracheobronchial tree. The broken piece of stylet was successfully retrieved with the help of a Kocher's forceps.

Keywords: Broken stylet; Endotracheal tube obstruction; Foreign body; Case report; Oman.

A STYLET IS AN ESSENTIAL AIRWAY adjunct, frequently used to facilitate endotracheal intubation. There have been several case reports of the shearing of the tip of a stylet.¹⁻⁴ We report a case of broken piece of metallic stylet which remained initially unnoticed in an endotracheal tube.

Case Report

A 58 year-old male patient with a fractured neck of the femur was scheduled for hemiarthroplasty. He was classified as a Grade II American Society of Anaesthesiologists (ASA II) patient. He was a known case of insulin dependent diabetes. Preoperatively, the physical examination and relevant investigations were found to be within normal limits.

The patient was premedicated with midazolam

7.5 mg orally one hour prior to anaesthesia. Following induction of the anaesthesia and adequate neuromuscular relaxation, laryngoscopy and intubation were attempted by a senior anaesthetist. The first attempt was unsuccessful as the larynx was noted to be very anterior. The second attempt at tracheal intubation aided by a sheathed metallic stylet was successful. The trachea was intubated with an endotracheal tube size 8.0 mm. Immediately after intubation the chest was auscultated. Air entry was noted to be equal bilaterally and there were no adventitious sounds. Peak airway pressure and oxygen saturation were well maintained between 18- 20 cm H₂O and 97-99% respectively.

About 15 minutes later, while patient was being painted and draped, the anaesthesia staff nurse brought to the notice of the attending anaesthetist that part of stylet was missing. Immediately

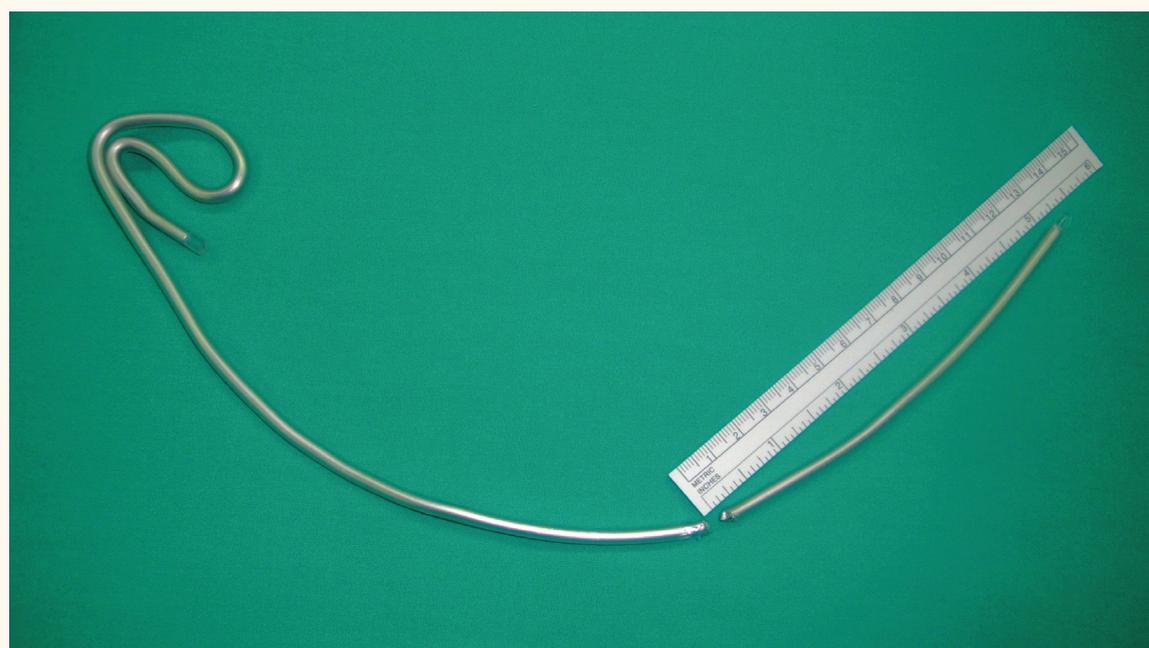


Figure 1: The broken stylet with sheath measuring 13.2 cm.

laryngoscopy was done and something could be visualised above the vocal cord inside the lumen of the endotracheal tube. The surgeon was informed of the incident and requested not to proceed further, till the diagnosis of broken stylet could be confirmed and remediable measures taken.

The radiographer was asked to perform a C-arm (X-ray image intensifier) screening of the head and neck region. During screening a radio opaque shadow could be visualised around the glottic region. Immediately after confirmation of the foreign body, a Kocher's forceps was introduced in the oropharynx and the endotracheal tube was firmly grasped just above the vocal cord. The endotracheal tube was now gently pulled out along with the broken stylet in-situ. The sheared portion of the stylet measured 13.2 cm [Figure 1].

The trachea was now re-intubated with the help of a new sheathed metallic stylet. After confirmation of correct the placement of endotracheal tube, the surgeon was allowed to proceed. The surgery lasted for about 90 minutes and the intra-operative period remained uneventful.

After completion of surgery, the residual neuromuscular blockade was reversed and the endotracheal tube removed. The postoperative period was uneventful.

Discussion

There are occasional reports in the literature regarding broken stylets, especially unsheathed metallic stylets. Despite this fact, this type of stylet is still being used in third world countries, may be because of cost constraints or ignorance. In many places anaesthetists have abandoned the use of stylet and are pre-shaping the endotracheal tube by immersing it in ice cold water.⁵ In the present case, we used a sheathed metallic stylet, but our anaesthesia staff nurse did not notice that its sheath had been damaged.

The shearing off of a tip can occur in both metallic and plastic covered stylets, especially when removal of the stylet from an endotracheal tube is difficult.⁶ However, in our case, we did not encounter any difficulty in removing the stylet. These patients usually show some chest signs or a change in ventilatory parameters which mimics a partial endotracheal tube obstruction, or increasing resistance to flow, or bronchospasm. Surprisingly, our case remained asymptomatic. This could have been because the broken stylet may not have occupied enough of the internal diameter of the endotracheal tube to produce respiratory signs or increased airway resistance. Had it not been for the vigilance of the anaesthesia staff nurse, the event could have gone unnoticed until it progressed into the trachea with signs and symptoms of a foreign

body in the tracheobronchial tree or, rarely, until tracheal extubation.

Conclusion

In conclusion, it is strongly recommended that a routine, regular check of equipment be performed to avoid such mishaps. If the removal of the stylet proves difficult, the attending anaesthetist should immediately examine the stylet to note if any portion of it has been damaged, broken or shorn off into the endotracheal tube or tracheobronchial tree.

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