

# Shearing Of Plastic Coating Of Stylet With Armored Tube: A Case Report

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## Abstract

ETT obstruction due to shearing of the plastic sheath of the stylet has been reported in the past with small endotracheal tubes (ETT) (1, 2). We report a similar case of partial obstruction with a 4.5mm armored ETT. To the best of our knowledge, this is the first report of shearing of the plastic-coated stylet that occurred with an armored ETT. We believe that endotracheal tube stylets should be inspected after each use.

## INTRODUCTION

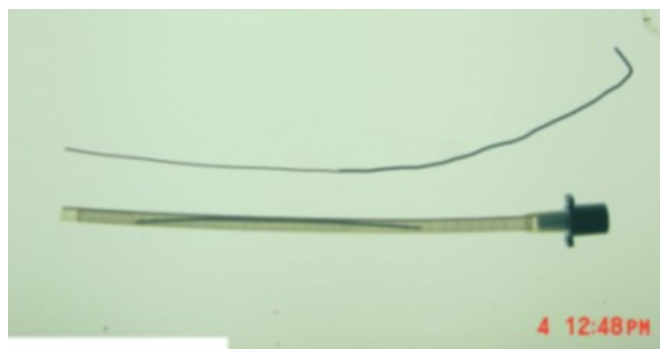
ETT obstruction due to shearing of the plastic sheath of the stylet has been reported in the past with small endotracheal tubes (ETT) (3). We report a similar case of partial obstruction with a 4.5mm armored ETT.

## CASE REPORT

A 2-yr-old child weighing 8.5 kg was scheduled to undergo craniotomy and excision of a glioma under general anesthesia. Upon arrival of the patient to the operating room, he was connected to routine monitoring and an i.v cannula was inserted. Inhalational induction was accomplished using 2 MAC sevoflurane and 100% oxygen. After the child was adequately anesthetized, atracurium 0.5mg/kg i.v was given to facilitate tracheal intubation. The trachea was intubated easily with a 4.5mm armored ETT (Mallinckrodt, Athlone, Ireland) with the aid of a 6-French plastic-coated stylet (Portex, UK). The stylet was removed with difficulty and it was immediately noted by the attending anesthesiologist that the plastic coating over the distal half of the stylet was missing. The ETT was removed immediately and the trachea was reintubated uneventfully with another ETT. Inspection of the removed ETT showed the sheared plastic coating in the middle portion of the inner-diameter of the ETT. The surgical procedure was performed without further incident.

## Figure 1

Figure 1:



Above: The stylet with missing of the plastic coating over its distal half Below: The armored ETT showed the sheared plastic coating in the middle portion of its inner-diameter

## DISCUSSION

Stylets are used to shape pediatric ETT to facilitate tracheal intubation. Shearing of the plastic sheath of the stylet leading to ETT obstruction has been reported with smaller tubes (4). It has been suggested that this happens due to the tight-fitting stylet with a pliable coating and a firm grasp of the ETT over the stylet. In a previous case report shearing of plastic coating of stylet with double-lumen tube was reported in an adult (5). It was suggested that, shearing of the plastic coating of the stylet usually occurs at the point where it is angulated to assist intubation.

A similar incident involving a 2.5mm ETT was reported previously and it was suggested that plastic ETT connectors would obviate the shearing problem (6). Our incident

occurred with a 4.5mm ETT despite the use of plastic ETT connector. In smaller tubes the friction between the ETT and the plastic sheath of the stylet is dominant. Obviously, in our incident, the frictional force of the armored ETT was greater than the tensile strength of the sheath, therefore shearing occurs. To the best of our knowledge, this is the first report of shearing of the plastic-coated stylet occurring with an armored ETT. We believe that endotracheal tube stylets should be inspected after each use.

### **References**

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