



Unusual Site of Endotracheal Tube Leak - A Case Report

KEYWORDS

Endotracheal Tube Leak, Unusual site

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ABSTRACT *With the very common use of low-flow anaesthesia even minor leaks in the airway path can lead to failure of adequate ventilation of the patient during general anaesthesia. So, an anaesthetist should be aware of the possible leak sites in the airway path. We encountered an unusual site of endotracheal tube leak during our case which could not be detected on routine checkup of the endotracheal tube.*

CASE REPORT

A 45 years old male patient; otherwise medically fit came with Acromio-Clavicular dislocation for K-wire and Tension Band Wiring.

Plan of General Anaesthesia was decided and 9.5 no cuffed endotracheal tube (ETO sterilized) was selected for intubation. It was routinely checked for cuff leak prior to induction.

After routine induction patient was intubated without any difficulty. Air entry checked and tube fixed. Patient was given Beach chair position.

After putting patient on close circuit with low flow anaesthesia, a hissing sound of air leak could be heard near the patient during inspiration. Search was made for locating the site of leak. Bellows of ventilator were filling properly and EtCO₂ trace on the monitor was normal. Trachea was checked for inadequate cuff volume but there was no leak.

Then on careful hearing the leak was located in the lumen of the tube at the junction of the pilot tube and main wall of the tube. Since position of the patient did not allow easy re-intubation and patient had adequate ventilation, we wrapped a gauze piece around the pilot tubing at the junction and then put a sticking on it. It stopped the leak completely. Case was completed uneventfully and then the patient was reversed and extubated.

After cleaning the tube to demonstrate the leak in a better way, we connected the tube to the Bain's circuit and occluded the distal end and held it under water.

(Fig 1.) On starting the flow the bubbles could be seen coming out from the lumen of the tube from the leak site in the wall of the tube. (Fig 2.) This was not detected by routine check for the leak of the cuff of endotracheal tube. The leak site has been diagrammatically shown in Fig 3.

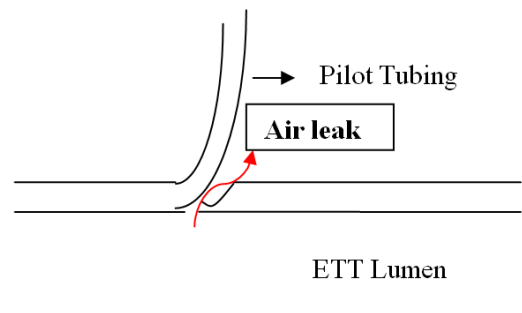
Fig. 1



Fig. 2



Fig. 3



Discussion:

The usual protocol of checking the tube is to check for proper cuff inflation and detecting any leak in the cuff and the inflation system. But in this case the site of leak was such that it could not be detected prior to intubation. In low flow anaesthesia, this could prove hazardous to the patient leading to inadequate ventilation.

Usually the leak is in the cuff either due to puncture or mechanical defect in the inflation system(1-4).

A case have been reported where the cuff tube was leaking at junction of cuff tubing entering the tube lumen(5). Two cases have been reported showing an elliptical defect in the wall of the ETT, which was at the level of the notch cut for the insertion of the pilot tube. It appeared in this case that the notch had been cut too deep, resulting in a defect in the wall of the tube(6,7).

In this case, the junction where tubing enters the tube might have been damaged either due to previous use of plaster sticking used to fix the tube or due to sterilization. Thus, using a new disposable endotracheal tube everytime reduces the risk of leak at this site. And, if at all we need to use Portex disposable tubes again in economically compromised se-ups, then this possible site of leak must be kept in mind.

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