Dislodge of T-Tube into the Bronchus, an Unusual Complication of the Montgomery T-Tube: A Case Report

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Abstract

Laryngotracheal stenosis is a sequel of laryngeal trauma. Many surgical techniques have been developed to correct this problem. Sometimes it requires a tracheal T-tube after the surgical correction. Here the authors report an unusual complication of tracheal T-tube and suggest a method for the management of this complication.

Key word : Foreign Body, Montgomery T-Tube, Bronchus

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The use of intraluminal stents has become an integral part of laryngotracheal reconstruction (LTR). The purposes of an intraluminal stent are : to hold grafts or flaps in place, to support the reconstructed but still unstable laryngotracheal framework, and to prevent scar contractures[1]. The Montgomery T-tube[2] is a preformed hollow silicone tube used mainly for stents.

The advantages of a tracheal T-tube are: minimal tissue reactivity, airway maintenance, prevention of blockages from secretions, and allowing phonation[2,3]. The Montgomery T-tube has been used mainly in adult patients, with low complication rates and good results[4,5]. However, physicians should be aware of an over-flexibility of the T-tube, which can lead to unusual airway problems requiring emergency management, as illustrated in the following case report.

CASE REPORT

A 31 year old man had a history of subglottic stenosis as a consequence of laryngeal trauma.

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Three months later, a laryngofissure was performed at a hospital in Bangkok, and a Montgomery stent was inserted at the level of the larynx. He also had a Montgomery T-tube placed at the site of the tracheostomy. Once stable, the patient was discharged and advised to go to his rural hospital in Kalasin for maintenance of the T-tube. Two weeks later, the patient began coughing vigorously while a nurse was clearing secretions from the tracheal T-tube. The external limb of the T-tube was suddenly aspirated through the tracheostomy into the tracheal lumen. The patient experienced severe inspiratory and expiratory stridor, mild cyanosis and substernal retractions. A physician placed a portex tracheostomy tube into the tracheostomy stoma. The patient improved and was transferred to Srinagarind Hospital, Khon Kaen University.

New chest film, taken on arrival, showed an increased density in the distal trachea (Fig. 1). Direct laryngoscopy was done under general anesthesia. The Mongomery stent was observed at the laryngeal inlet and it was blocking entry of the rigid bronchoscope, so the bronchoscope had to be inserted through the tracheostoma. The external (skin) limb of the T-tube and the upper limb of the T-tube occluded the left main bronchus (Fig. 2). The T-tube was removed with forceps *via* rigid bronchoscope. A portex tracheostomy was placed in tracheostoma.

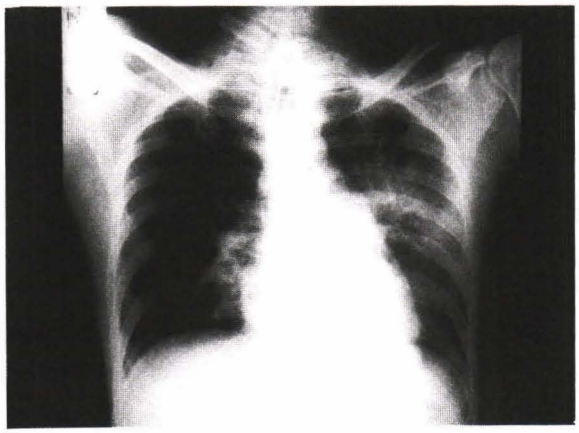

Fig. 1. The chest film of the patient shows increasing density in the distal trachea.

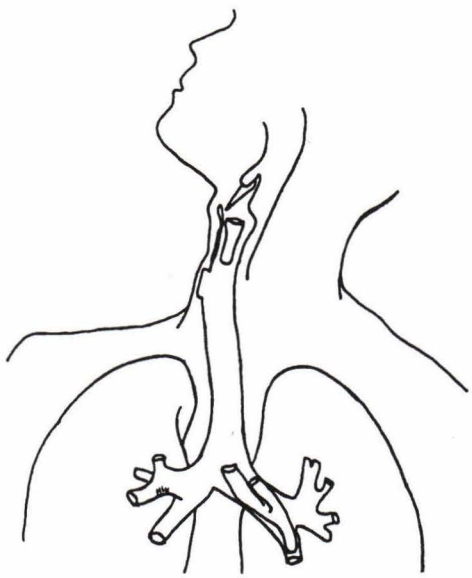

Fig. 2. Position of the aspirated tracheal T-tube in the left main bronchus.

DISCUSSION

Even though the tracheal T-tube has many advantages, caring for patients fitted with tracheal T-tubes requires specially trained nurses. Partial or total airway obstruction can occur and is more difficult to treat than with standard tracheostomy tubes. For example, Reh et al reported respiratory arrest in a 5-month old infant after the Montgomery T-tube became completely obstructed(6). T-tubes can become obstructed by mucous and can then be dislodged during removal of the mucous by catheter suction.

The patient in the present study apparently aspirated the entire Montgomery T-tube when coughing during suction and generated a strong negative inspiratory pressure. The positive pressure from introducing the catheter into the tube at that time forced the tube into the trachea, which caused a potentially fatal upper airway obstruction. A portex tracheostomy tube was used to maintain the airway and a Montgomery T-tube was pushed into the right or left main bronchus. This management was the only means of clearing the upper airway obstruction in cases where there is no equipment for foreign body removal.

SUMMARY

This case report described an unusual and potentially lethal complication of the Montgomery T-tube when used for an airway stent. Aspiration of the entire T-tube into the trachea may occur. We recommended a tonsil forceps be used for the immediate removal of the T-tube. In case there is no specific T-tube removal equipment, a portex tracheostomy tube or an endotracheal tube (of appropriate size) must be used to push the T-tube from the trachea. These tubes will maintain the airway before transferring the patient to the operating room for removal of the T-tube by using a rigid bronchoscope.

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การหลุดของท่อรูปอักษรทีเข้าไปอยู่ในหลอดลม : ภาวะแทรกซ้อนของท่อรูปอักษรทีที่พบน้อย

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ภาวะกล่องเสียงและหลอดลมตีบ ที่เกิดตามหลังการกระแทกบริเวณกล่องเสียงมีวิธีการรักษาโดยการผ่าตัดหลายวิธี เพื่อที่จะแก้ไขภาวะดังกล่าว ภายหลังการผ่าตัดแก้ไขบางครั้ง มีความจำเป็นต้องใช้ท่อรูปอักษรที ดังนั้นจึงได้รายงานภาวะแทรกซ้อนของท่อรูปอักษรทีที่พบน้อยและแนะนำวิธีในการรักษาภาวะแทรกซ้อนที่เกิดขึ้น

คำสำคัญ : สิ่งแปลกปลอม, ท่อรูปอักษรที, หลอดลม

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