A Case of Laryngeal Closure for Dysphagia Following Percutaneous Dilatational Tracheostomy

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In recent years, there are many reports about percutaneous dilatational tracheostomy (PDT). This procedure has been reported as being simple to perform and has less complications. However, we experienced a case in which a tracheostoma stenosis and granulation hyperplasia occurred due to PDT, and dysphagia occurred because of the defective laryngeal elevation.

A 79 years old woman presented with disturbance of consciousness due to a subarachnoid hemorrhage and PDT was performed at an intensive care unit. Following the procedure she was quadriplegic with dysphagia and had to continue rehabilitation. Because of the dysphagia and difficulty in the management of the tracheotomy tube, she was referred to us.

We selected laryngeal closure as preventive surgery against aspiration, and obtained a good result. PDT complications have also been reported in several studies.

As the procedure is performed blindly, the tube may not be placed medially in the trachea or it may happen to break tracheal cartilages. When particularly long-term breathing management is necessary, we think that surgical tracheotomy associated with very few occurrences of tracheostoma stenosis and granulation hyperplasia is desirable.

In addition, the operation that we performed was useful because it was hard to make a diastasis and it was easy to make a permanent tracheal stoma. In those patients with a tracheostoma and dysphagia, we would like to recommend a laryngeal closure operation.

Keywords : percutaneous dilatational tracheostomy (PDT), tracheostoma stenosis, dysphagia, preventive surgery against aspiration, laryngeal closure

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VF findings

① sitting position, ② 30° reclining position.
Both ① and ② had aspiration.

Operation findings

- ① The trachea stoma was displaced.
- ② The median of the thyroid cartilage and the cricoid cartilage were removed.
Thin arrow: cricothyroid membrane, Big arrow: resection stump of thyroid cartilage
Arrowhead: resection stump of cricoid cartilage
- ③ Median of the cricothyroid membrane was cut and the arytenoid cartilage (thin arrow) and vocal cord (big arrow) are now in the field of view.
Arrowhead: trachea
- ④ The vocal cord (arrow) and the arytenoid cartilage were divided into the upper parts and lower parts.
- ⑤ Each tissue was sutured closed.
Thin arrow: upper part of vocal cord, Big arrow: lower part of vocal cord,
- ⑥ The trachea stoma is out of position to the right.
- ⑦ The trachea was sutured (arrow).
- ⑧ The thyroid cartilage was sutured together.
Arrowhead: resection stump of thyroid cartilage.
- ⑨ The trachea stoma is big enough.

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a

b

c

Preoperative CT findings

a: horizontal section, b: coronal section, c: 3D Volume Rendering.
The CT shows that a trachea cannula is inserted by the right flank of the trachea. It also shows that tracheal cartilages are crushed.

Permanent tracheal stoma (Postoperation)