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OLGU SUNUMU
CASE REPORT

A-rare-case of h-type tracheoesophageal fistula treated with slide tracheoplasty

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ABSTRACT

A-rare-case of h-type tracheoesophageal fistula treated with slide tracheoplasty

Tracheoesophageal fistulas (TEFs) are abnormal connections between the esophagus and trachea and are associated with atresia of the esophagus in most cases. Herein, we present a case of H-type TEF in a young woman which is successfully treated with slide tracheoplasty technique.

Key words: H-type tracheoesophageal fistula; slide tracheoplasty; surgery

ÖZ

Sliding trakeoplasti ile tedavi edilen nadir bir olgu: h-tipi trakeoözefageal fistül

Trakeoözofageal fistüller (TÖF) özofagus ve trakea arasındaki anormal bağlantılardır ve çoğu durumda yemek borusunun atrezisi ile ilişkilidir. Burada slide trakeoplasti tekniği ile başarılı bir şekilde tedavi edilen genç bir kadında H tipi TÖF olgusu sunulmaktadır.

Anahtar kelimeler: H tipi trakeaözofageal fistül; sliding trakeoplasti; cerrahi

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INTRODUCTION

Tracheoesophageal fistulas (TEFs) are abnormal connections between the esophagus and trachea and are associated with atresia of the esophagus in most cases. Diagnosis is not challenging in the neonatal period due to the typical symptoms such as choking following food intake, coughing and pneumonia (1). However, a rare subgroup of TEFs, termed H-type fistulas, are not associated with esophageal atresia, produce minimal symptoms

Figure 1. A. Tracheoesophageal fistula operation view B. Tracheoesophageal fistula and cartilage portion drawing.

and thus, usually diagnosed during adulthood (2). Herein, we present a case of H-type TEF in a young woman which is successfully treated with slide tracheoplasty technique.

Presentation of Case

A 36-year-old female, non-smoker, presented to our institution with diagnosis of TEF. She had a history of persistent cough since childhood, sometimes initiated after swallowing liquids, and had recurrent chest infections. She was followed-up with the diagnosis of asthma for several years. She was diagnosed with TEF in another hospital 6 months ago and undergone endoscopic esophageal clipping. However, her symptoms recur shortly and she admitted to our institute. Her physical examination and chest x-ray was unremarkable. Esophagoscopy showed. Examination with a direct laryngoscopy showed a fistula in the posterior wall of the trachea.

A low collar cervical incision was performed to access the fistula. Anterior wall of the trachea is freed from surrounding tissues down to the carina. Flexible bronchoscopy through the endotracheal tube was performed to confirm the exact location of the fistula. Then the trachea is divided both from the superior and inferior borders of the fistula, leaving the small portion of the posterior trachea attached to the fistula

tract (Figure 1). The superior and inferior tracheal segments are freed from the esophagus. The cartilage portion of the trachea that remains attached to the fistula tract is trimmed, inverted and folded on to the esophageal portion of the fistula tract. Interrupted vycril sutures are used for closure of the fistula with the enforcement of the folded cartilages. Following the closure of the defect the two segments of the trachea are trimmed to achieve better approximation and anastomosed obliquely (Figure 2). Left sided hyoid muscle is freed and transferred between the trachea and esophagus for additional reinforcement to minimize the risk of long-term recurrence. The patient remained nasally intubated in the intensive care unit for one day and extubated on postoperative day one. Bed side direct laryngoscopy was performed to check the anastomosis and the vocal cord movements. Postoperative course was uneventful. Patient started oral fluids on the 10th postoperative day after confirming the integrity of the anastomosis with computed tomography (CT) scan and discharged home on 13th postoperative day.

DISCUSSION

Congenital H-type TEFs presenting in adults are rare and has only been documented in the literature as sporadic case reports. The first surgical repair was reported by Mathey in 1954 (3). Typical presenting

Figure 2. After the anastomosis - left side hyoid muscle is used as a flap.

symptoms are chronic cough and recurrent pulmonary infections. Although coughing spells when swallowing liquids are pathognomic for this condition, diagnosis might be delayed in some patients.

Several imaging methods can be used in the diagnosis of TEF. Thin-section chest CT and three-dimensional reconstruction is helpful for both showing the exact location of the fistula and the potentially irreversible damage of the lung parenchyma. Bronchoscopy and esophagoscopy are considered to be the main methods to diagnose TEF. However, identification of smaller fistulas can be challenging in some cases. Likewise, fistulas located in the upper 3rd and on the anterior wall may be missed on esophagoscopy (1,4).

Treatment of congenital H-type TEF is surgical closure of the fistula. Although interventional treatment strategies such as stent implantation or endoscopic clipping have been proposed, their results are not encouraging (1,2,5,6). Endoscopic clipping has been tried in our case as well, yet resulted with early failure. Several different surgical approaches have been developed to address this problem so far, however, the optimal strategy is still controversial. Direct closure of the tracheal and esophageal defects, segmental trachea resection and re-anastomosis with direct esophageal closure, closure of both defects with soft

tissue flaps have all been employed (7-9). The disadvantage of these techniques is the remaining juxtaposed anastomosis line after separate closure of tracheal and esophageal sides. That being so, breakdown of one closure line increases the risk of failure on the other side and eventually increasing the chances of recurrence or persistence of the fistula (10). In order to overcome this problem Provenzano et al. used slide tracheoplasty technique for the first time, in the treatment of TEF. They performed slide tracheoplasty with periosteal support to nine children with congenital TEF without any recurrences. In contrast to other techniques, this method offsets the tracheal and esophageal anastomosis lines and prevent juxtaposition of the sides. In addition, the longer anastomosis line used in this technique distributes the tension to a greater surface area resulting in reduced anastomosis tension (8). In this case, we successfully adapted the same technique to an adult patient with congenital H-type TEF by using a hyoid muscle flap instead of periosteum for reinforcement.

CONCLUSION

In conclusion, we present our own experience with this novel technique and recommend this method for the treatment of TEF also in adult population since it is safe, well tolerated and considered to be associated with lower recurrence rate.

CONFLICT of INTEREST

The authors reported no conflict of interest related to this article.

AUTHORSHIP CONTRIBUTIONS

Concept/Design: SU, UK, RD, RÖG

Analysis/Interpretation: SU, UK

Data Acquisition: SU, UK

Writing: SU, UK

Critical Revision: SU, UK, RD, RÖG

Final Approval: SU, UK, RD, RÖG

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