

EMERGENCY SURGICAL INTERVENTION TO TRACHEO-INNOMINATE ARTERY FISTULA

İbrahim Demir¹, Ergin Arslanoğlu², Shiraslan Bakhshaliyev³, Salih Duman¹, and Ufuk Alpagut¹

¹Istanbul University

²Kartal Kosuyolu Training and Research Hospital

³Mehmet Akif Ersoy Thoracic and Cardiovascular Research and Education Hospital

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Abstract

Tracheo-innominate artery fistula (TIF) is a rare and fatal complication that can be seen after tracheostomy, neck and trachea surgery. In this report, we present the surgical treatment of TIF, which is a major bleeding after neck surgery in a 24-year-old male patient.

Introduction

Head and neck tumors are generally composed of oral cavity, oropharynx, hypopharynx, and laryngeal squamous cell carcinomas. The prognosis of hypopharyngeal squamous cell carcinoma (SCC) is the worst. The incidence of hypopharyngeal SCC secondary to esophageal tumors increased significantly (1). Smoking and alcohol use are common in these patients and increase the risk (2).

The standard surgical treatment of locally advanced laryngeal and hypopharyngeal cancers is total laryngectomy. However, it is applied only in selected patients due to failure and recurrence in postoperative radiotherapy (3).

Tracheo-innominate artery fistula (TIF) occurs especially after the 3rd day and the 6th week after the tracheostomy. It can also be seen after head and neck surgery and trachea surgery (4). It is a fatal complication with hemoptysis. Although surgical intervention is required after the endovascular approach in treatment, the life expectancy in patients undergoing surgery is 25% (5,6).

Methods

In this case, a 24-year-old male patient who was operated on due to malignant hypopharyngeal neoplasm was presented. He did not have any other known diseases other than smoking.

The patient applied to the otolaryngology (ENT) clinic with reflux and neck stiffness. On physical examination, a mass on the neck was detected. The mass was diagnosed as hypopharyngeal carcinoma by the pathology unit. Radical neck dissection was decided by the ENT clinic. Total laryngo-faringo-esophagectomy was performed by the ENT and general surgery unit. The patient was extubated on the 12th day and transferred to the ENT.

Massive hemoptysis occurred on the 17th day in the patient whose service follow-up continued. The patient was intubated and bleeding was controlled. Emergency surgery was performed, ENT and Thoracic Surgery units also participated in the operation.

The operation was started with partial median sternotomy. Innominate artery was found. Tracheal fistula was seen. The intubation tube was pushed forward and the fistula segment of the trachea was removed. The patient was heparinized (5000 U) and a clamps were placed proximal and distal to the artery. No pathology was detected in near infrared spectroscopy (NIRS) and the fistula segment was divided. 10 mm PTFE graft was interposed (Fig. 1). The trachea was end-to-end anastomosed. The patient was transferred to the ENT service on the 6th day. After follow-up and treatment, the patient was discharged on the 16th day. The outpatient follow-up of the patient continues.

Discussion

TIF is a fatal complication if it is not treated surgically. The predisposing factors are very diverse. The entubation tube inflated under the 3rd or 4th cartilage brings trachea closer to innominate artery and erodes the trachea. Sharply twisted tubes can compress to trachea. Head and neck anomalies and previous surgeries may create unexpected neighborhoods between the innominate artery and trachea (7-9). The reason for the development of TIF in our case was the appearance of abrasive affinity between the innominate artery and trachea as a result of previous head and neck surgery.

Although early diagnosis of TIF is haemoptysis, intubation and inflation of the balloon is the best method for controlling hemorrhagia. In cases where this method is not effective, it is reported that bleeding is controlled by pressing the index finger forward into the trachea (10).

In some limited experiences, the results suggest that partial sternotomies can be used up to the 4th intercostal space. In our case, operation with partial median sternotomy was uneventful. Although mediastinitis develops as a result of the tracheal fluid being contaminated with mediastinum, the general approach is median sternotomy. It is the safest method to remove the fistula segment and tie the proximal and distal parts (11).

Despite the traditional surgical approaches in selected cases, the acceleration of radiological methods offers us many treatment options. Nowadays, endovascular treatment options are applied as an alternative to surgery. Coil embolization methods have been successfully reported in thoracal aneurysms. In another case, TIF repair was successfully completed using an endovascular stent graft (12-14).

Our patient's controls continue without any problems. Endovascular treatment and coil embolization methods increase the variety of treatments. The methods that can be applied in the selected situations are still developing. However, conventional or modified open surgical methods remain the first choice as cost, speed of emergency response and workforce.

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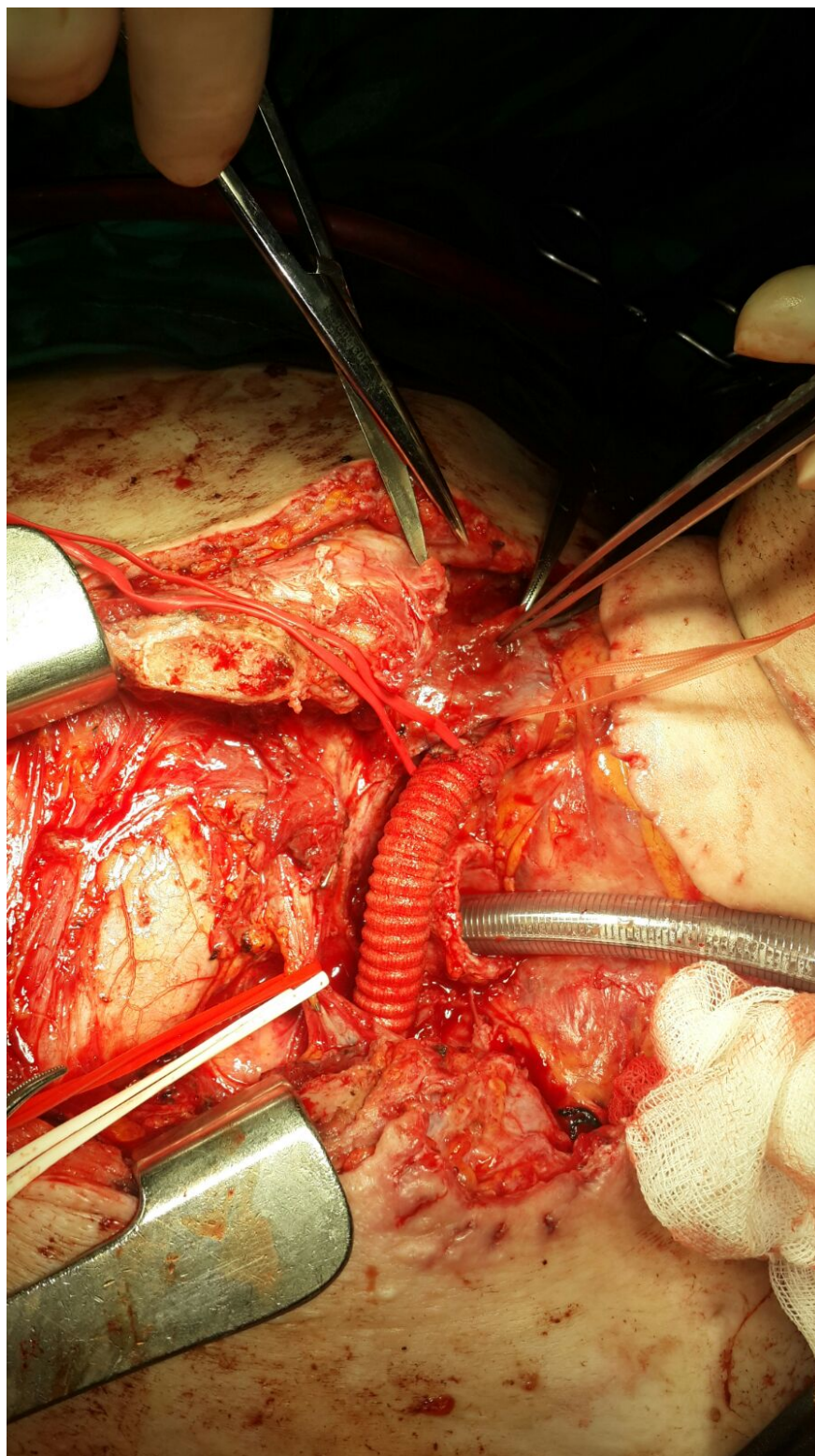


Figure 1. 10 mm PTFE graft was interposed to resected artery area.

