Tracheocutaneous fistula, as a long-term complication of Percutaneous Dilatational Tracheostomy Case Report

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Abstract

Tracheostomy is a common surgical process which is performed worldwide. Percutaneous Dilatational Tracheostomy (PDT) is a new safe and fast bedside method that was introduced first time by Ciaglia in 1985. With more routine and long-term use of the PDT some new complications are reported. In this case we report tracheocutaneous fistula as a long-term complication of the PDT. The patient was a 53 year-old man who had underwent PDT using Griggs method nine months ago. The complaint was some drainage from the skin lesion. Tracheocutaneous fistula diagnosis was confirmed by radiographic imaging study. The fistula was repaired surgically and the patient was discharged in good condition. (J Cardiovasc Thorac Res 2009; Vol.1 (1): 33-36)

Keywords: Percutaneous dilatational tracheostomy ● Long-term ● Complication ● Tracheo-cutaneous fistula

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Introduction

Tracheostomy is one of the oldest surgical operations in medicine. Ancient Egyptians have performed it because of some indications from 3500 years ago. In more recent times, the German Trendelenburg was the first to explain the usage of tracheostomy tube with a cuff in human in 1870. Modern surgical tracheostomy was introduced by Jackson in the early 1900s. Non surgical methods called Percutaneous Dilatational Tracheostomy (PDT) which can be performed rapidly and in the bedside have been described since 1957. The different PDT methods are related to differences in the method of identifying the trachea (needle, aspiration, seldinger wire, bronchoscopy with tracheal transillumination or bronchoscopic visualization), the formation of tracheostoma (single dilation, progressive dilators, cutting trocar) and insertion of tracheostomy tube (blindly, bronchoscopically, guided by introducer, trocar or seldinger wire). After 1985 Ciaglia method and Griggs method gained popularity and are used as alternative techniques to standard surgical tracheostomy. Some advantages of PDT over surgical tracheostomy are easy performance, being performed in bedside, cost saving, rapidity, less bleeding and infection. Along with popularity of PDT, new complications like internal deviation of tracheal cartilage are reported. Long-term complications like tracheal stenosis are also reported with more usage of PDT. In this case we introduced tracheocutaneous fistula as a long-term complication of PDT.

Case presentation

The patient was a 53 year-old man who was admitted to Intensive Care Unit because of intra cerebral hemorrhage while he was under mechanical ventilation. Percutaneous Dilatational Tracheostomy was performed in 14th day using Griggs method. He was transferred to the ward after 45 days ICU stay with a metal tracheostomy tube while he was hemiplegic. After 6 months the tube was removed. Three months later the patient was unsatisfied because of the some drainage from a skin lesion in previous tracheostomy site (Fig.1). He underwent imaging study and CT scan revealed a tracheocutaneous fistula however there were not any tracheoesophageal fistula or any other problems in large airways (Fig.2). The fistula was repaired in the operating room. The size of fistula on trachea was 1.5 mm and cartilage necrosis with lessening of intercartilage space was seen. The patient was discharged two day after operation with a good health condition.

Figure 1: Tracheocutaneous fistula is seen in the neck of patient
Discussion

In the past, many patients were excluded from the undergoing PDTs because of different reasons such as bleeding problems, Difficult airway, Infection, younger ages and urgent situation. However nowadays more patients undergo PDT with a history of prior tracheostomy, short neck, obesity and bleeding abnormalities, so new complications of this method were reported. Studies that were evaluating the long-term complications of the PDT are few probably because of the high mortality rate in ICU patients and difficulty in establishing subjective and objective criteria to define significant complications. Long-term complications of tracheostomy include tracheomalacia, voice change, laryngotracheal stenosis, tracheoesophageal fistula, cosmetic problems and even tracheal atresia. Ernest Van Heurn et al reported two cases of persistant tracheocutaneous fistula after PDT, but there is not any report of tracheocutaneous fistula till now. In this report we also introduced tracheocutaneous fistula as a long-term complication of PDT. Although some studies showed that early complications of PDT as well as late complications of various methods depend on to some degree to inappropriate technique and lack of experience of the physician who performed it, but a definition of sufficient experience has not yet been agreed upon in the literature.

In summary literatures shows good overall results and an acceptable long-term complication rate following PDT. Despite this information, we think that it is in the responsibility of intensivists to perform this technique based on their skills, equipments and collaboration in their ICUs.

References