Case report

Esophageal patching for an unsuturable tracheoesophageal fistula

Jacques Jougon*, Louis Couraud

Service de chirurgie thoracique, Pr. J.F. VELLY, Hôpital du Haut-Lévêque, Bordeaux, 33604 PESSAC, France

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Abstract

We herein report a case of unsuturable tracheoesophageal fistula developed after chemotherapy of a mediastinal lymphoma. Esophageal exclusion was primary performed to prevent continued contamination of the respiratory tract. In a second stage procedure the fistula was patched with the esophageal posterior wall and the digestive tract was restored by a substernal colic bypass. This case leads to discuss the management of extrinsic tumoral tracheal compression and reminds us of an old reported procedure for the cure of large tracheoesophageal fistula. © 1998 Elsevier Science B.V. All rights reserved

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Malignant tracheoesophageal fistula (TEF) have an inexorably poor prognosis. The death mainly arises from the spillage of esophageal contents and fluids from gastroesophageal reflux into the airways causing pneumonia and respiratory distress [1]. Treatment is problematic in such advanced and uncontrollable malignant disease and therapeutic options are limited to palliative measures as esophageal intubation or esophageal exclusion lowering airway contamination.

Among them, TEF after chemotherapy for lymphoma is uncommon [2,3] but results in specific problems since the basic disease might be cured.

We report such a case which sets both problems: management of acute tumoral tracheal compression and treatment of a very large tracheoesophageal necrosis and fistula.

I. Case report

In July 1991, G.B., a 19-year-old woman was admitted in her local medical center with a severe and increasing dyspnea. Clinical and radiological assessment demonstrated an extensive cervicomedial tumor which was identified as a non Hodgkin lymphoma. The team in charge of the patient controlled the dyspnea by positioning two endotracheal Dumon prosthesis (4+4 cm in length), and the lymphoma was treated through a chemotherapeutic combination of C.H.O.P (four pulses).

In August 1993, severe episodes of cough and aspiration pneumonia established the diagnosis of TEF. The tracheal prosthesis was removed and a gastrostomy was performed without any improvement of the respiratory status. The problem was referred to us at this time and we advised to perform a temporary esophageal exclusion consisting in lateral cervical esophagostomy and stapling the lower esophagus in order to avoid corrosive reflux, and feeding the patient through the gastrostomy. The treatment was effective enough to give time for improving the respiratory status, clearing the chest X-ray and performing a complete assessment of the lymphoma which was considered cured.

Then, the patient was referred to us for definitive cure of the TEF. The CT scan (Fig. 1) and endoscopic examinations demonstrated a 6 cm gap secondary necrosis of tracheal membrane and anterior wall of esophagus, the length of which precluding any possibility of suture or tracheal resection anastomosis. Therefore, patching the large defect with a substernal colic bypass was the only management option.

1 Dumon prosthesis: Laboratory COMETH, 38 Bd Gay Lussas, BP 120, 13007 Marseille, France.
the posterior wall of the esophagus appeared to be the only possibility to close the fistula.

The fistula was approached through a left cervicotomy along the anterior edge of the sternocleidomastoid muscle extended to median manubriotomy. It was avoided to freed the esophagus from the trachea around the fistula. The esophagus was transected and closed by endoGIA\(^3\) stapling, proximal and distal to the fistula so that the posterior esophageal wall plugged the large tracheal defect. The endoGIA suture lines were reinforced by a running resorbable suture and some interrupted resorbable knots were added to fix and stretch the posterior esophageal wall against the tracheal membrane. The esophageal continuity was restored in the same stage procedure with an isoperistaltic colonic bypass after a median laparotomy. The colon bypass was the left side of transverse and splenic flexure passed through a substernal root. Anastomosis were a terminal esophago colonic proximally and a terminal cologastric distally.

The post operative course was uneventful and after a post operative follow-up of 4 years, the patient still remains in remission and is doing very well without dyspnea and swallowing problems. As sequellae, bronchoscopy shows a slight swelling of the posterior tracheal patch (Fig. 2) without functional stenosis.

2. Comments

Various comments are suggested by this clinical course. Primary application of any endotracheal prosthesis is probably inappropriate for controlling acute extrinsic tumoral tracheal compressions. We prefer primary tracheal intubation allowing immediate diagnosis through mediastinoscopy or thoracoscopy, followed by immediate adapted chemotherapy or radiotherapy. Extubation is generally possible after 3–8 days in all tumors responding to the treatment. This strategy lowers the risk of parietal ulceration to the contact of the tube. On the contrary a long lasting endotracheal prosthesis increases the risk of tracheal ulceration as result of hard compression as well as a possible submucosal vascular network compression. In our patient, it looks likely that the fistula results both from prosthesis compression plus necrosis of the tumor which had infiltrated the tracheoesophageal wall.

As spontaneous evolution of TEF rapidly leads to death, once the diagnosis of TEF is made, treatment should be early, indicated before the remission could be confirmed by a long follow-up [1].

Life threatening pulmonary complications after TEF often preclude immediate surgical repair without high risk of failure and death. While the patient is prepared for acceptable conditions, the airway contamination and recurrent pneumonitis may be prevented by temporary esophageal exclusion with cervical esophagostomy and stapling the lower esophagus [4]. After stapling without section, the esophagus permeability is generally restored spontaneously in a few weeks or easily recanalized under the pressure of an esophagoscope.

Faced with the impossibility of suturing a large TEF, it maybe advised to patch the wide lack of substance of the posterior trachea with the posterior wall of the esophagus. The esophagus must be transected immediately above and under the defect and sutured to the edges of the fistula. The esophageal mucosa has demonstrated to be a suitable material into the tracheal lumen [5,6]. The digestive tract continuity is easily restored in the same stage procedure or secondarily with a colic bypass.

\(^{3}\) GIA: United States Surgical Corporation, Norwalk Connecticut 06856 USA.
References


