Oesophagectomy in a pneumonectomized patient: a case report

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Abstract

Introduction: Oesophagectomy in pneumonectomized patients has rarely been reported. To our knowledge, not more than two cases have been reported in the literature. We report a case of transhiataloesophagectomy (THE) in a man with a history of left pneumonectomy.

Presentation: A 77-year-old pneumonectomized man with grade 3-4 dysphagia presented with tissue diagnosis of squamous cell carcinoma (SCC) of the oesophagus.

Discussion: Oesophagectomy and lung resection is not a common occurrence and even much more uncommon is oesophageal cancer in pneumonectomized patients. There is not much experiences in this regard. Considering that pneumonectomy may be on the right or left and oesophagectomy can be minimally invasive, open or transhiatal, there is no single confirmed outline or surgical approach for doing oesophagectomy in pneumonectomized patients. We present THE in a left pneumonectomized patient.

Conclusion: THE is an acceptable choice especially in left pneumonectomized patients.

Key words: pneumonectomy, squamous cell carcinoma of oesophagus moderately differentiated, transhiataloesophagectomy.

Streszczenie

Wstęp: Doniesienia o resekcji przełyku u pacjentów po pneumonektomii są bardzo rzadkie i – jak wynika z dostępnych danych – w piśmiennictwie odnotowano jedynie dwa takie przypadki. W pracy opisano przypadek przezrozworowej resekcji przełyku (ang. *transhiataloesophagectomy* – THE) u mężczyzny z pneumonektomią lewego płuca w wywiadzie.

Opis przypadku: Siedemdziesięciosiedmioletni pacjent po pneumonektomii, z dysfagią 3.–4. stopnia, zgłosił się z rozpoznaniem biopsyjnym raka płaskonabłonkowego (ang. *squamous cell carcinoma* – SCC) przełyku.

Dyskusja: Usunięcie przełyku z resekcją płuca nie jest częstym zjawiskiem, jednakże jeszcze rzadziej zdarza się rak przełyku u pacjentów po pneumonektomii. Doświadczenie w tej kwestii jest więc znikome. Biorąc pod uwagę fakt, iż pneumonektomia może dotyczyć prawego lub lewego płuca, zaś resekcja przełyku może odbyć się z zastosowaniem metody małoinwazyjnej, otwartej czy przezrozworowej, nie istnieje jeden potwierdzony schemat czy też dostęp chirurgiczny do wykonania tego zabiegu u pacjentów po pneumonektomii. W omawianej pracy przedstawiono THE u pacjenta po pneumonektomii lewego płuca.

Wniosek: Przezrozworowa resekcja przełyku jest zadowalającym wyborem, szczególnie w przypadku pacjentów po pneumonektomii lewego płuca.

Słowa kluczowe: pneumonektomia, średnio zróżnicowany rak płaskonabłonkowy przełyku, przezrozworowa resekcja przełyku.

Introduction

Surgery of the oesophagus and lung in one patient is not a common procedure and is a surgical challenge to the thoracic surgeon. Surgery may be simultaneous or with an interval according to the patient's medical condition. Two cases of simultaneous oesophagectomy and pneumonectomy have been reported [1]. One case was on the left and the other on the right. One case of simultaneous left pneumonectomy and subtotal oesophagectomy has been reported. One case of thoracoscopicoesophagopneumonectomy has been reported [2]. Another two cases with simultaneous pneumonectomy and oesophagectomy have been reported by Prauer et al. [3]. Simultaneous surgery or pneumonectomy after previous oesophagectomy may not be technically challenging

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but oesophagectomy in a pneumonectomized patient due to mediastinal shift is technically challenging. THE after pneumonectomy, because of dense mediastinal adhesions and fibrosis, is increasingly hazardous. While transthoracic oesophagectomy through left thoracotomy in non-pneumonectomized patients entails more difficulty than through right thoracotomy, this approach in left pneumonectomized patients is theoretically impossible. Due to some spaces in right pneumonectomy, oesophagectomy through the right transthoracic approach is more feasible than in left pneumonectomy through the left transthoracic approach. The former approach can expose the patient to respiratory insufficiency and the latter because of severe mediastinal shift and close proximity of the pericardium to the ribs may be impossible. To address these issues, we report transhiataloesophagectomy (THE) in a patient presenting with mid-portion oesophageal cancer and a history of left pneumonectomy for tuberculosis. The anatomical and physiological changes in pneumonectomized patients undergoing oesophagectomy are discussed.

Case presentation

A 77-year-old man, a heavy smoker with a history of left pneumonectomy due to tuberculosis infection, 11 years ago, presented with grade 3-4 dysphagia. Barium swallow and upper GI endoscopy were performed and biopsies were taken from an ulcerated mass in the middle third portion of the oesophagus (Fig. 1). They revealed squamous cell carcinoma. The clinical TNM staging was T3N0M0 and pathological TNM was T3N1M0. Abdominal sonography was normal. Chest X-ray was compatible with left side pneumonectomy (Fig. 2). CT scan of the chest and upper abdomen showed the pericardium in close proximity to the ribs fully filling the left hemithorax, an oesophageal mass with some pressure effect on the left atrium in front of the aorta and no distant metastases (Fig. 3A–B). Pulmonary function test revealed forced expiratory volume in 1 second (FEV1) of 1.3 L (63% predicted), and forced vital capacity (FVC) of 1.34 L (51% predicted). Ejection fraction was 50%. THE was performed after general anaesthesia, in the supine posi-

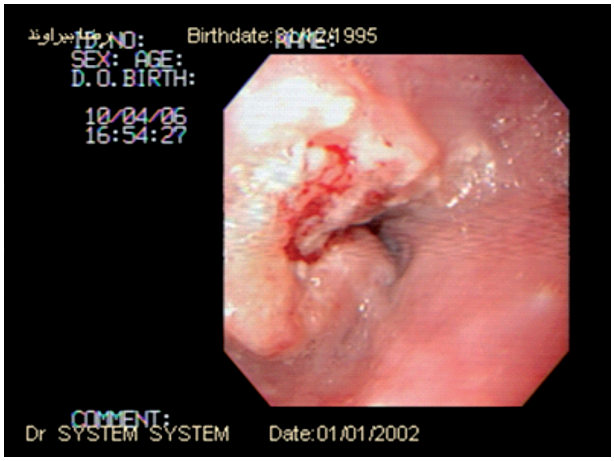


Fig. 1. Large irregular mass lesion at mid portion of oesophagus that partially obstructed the lumen

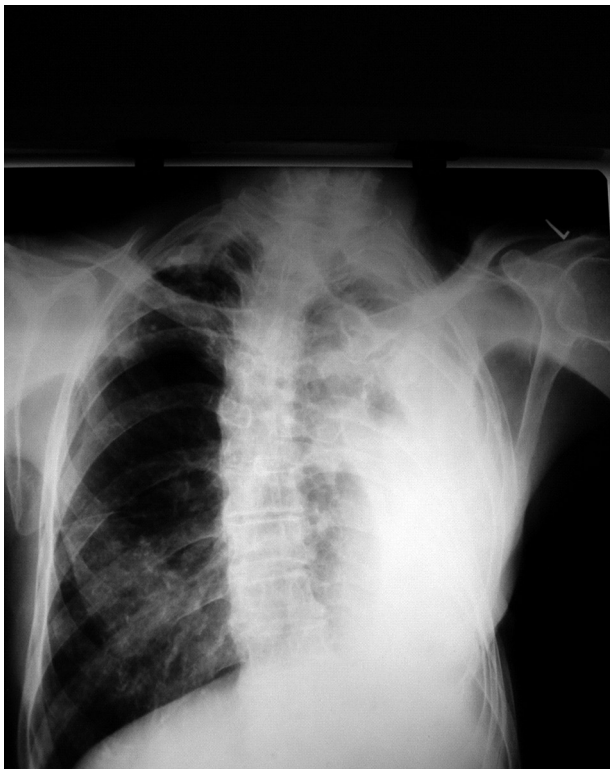
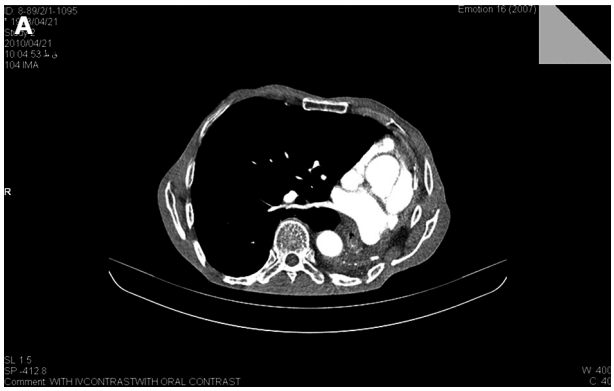


Fig. 2. Chest X ray was compatible with left pneumonectomy



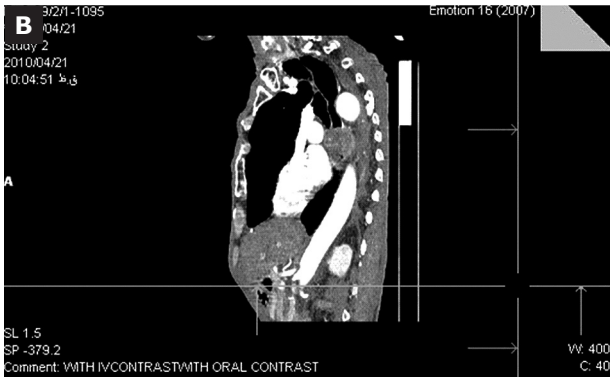


Fig. 3A–B. CT scan of the case

tion midline laparotomy was performed, the stomach and duodenum were released and, by opting a transhiatal approach, blunt dissection of the distal oesophagus in spite of dense adhesions in the left hemithorax was accomplished. The pericardium and the heart were adjacent to the lateral chest wall because of clockwise rotation of the mediastinum. The oesophagus was identified in the posterior mediastinum and oesophagectomy was completed. In the cervical portion, the trachea had severe deviation to the left and finger dissection was too difficult. The mobilized stomach was brought through the hiatus and anastomosed to the cervical oesophagus. Cervical gastroesophageal anastomosis was hand made, end to end, two layer anastomosis with interrupted sutures. Transhiataloesophagectomy is not R0 resection. Lymphadenectomy was not performed in transhiatal resection. A Penrose rubber drain and a chest tube were used for the neck and right hemithorax respectively. The patient was monitored under mechanical ventilation for five days. The patient was weaned and extubated after passing a course of high-output renal failure. On day seven oral feeding was resumed.

Conclusion

Oesophagectomy is safe and feasible in pneumonectomized patients. Because of possible respiratory problems in the right transthoracic approach and technical problems in the left transthoracic approach, our preference in left pneumonectomized patients is THE.

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