

Resected squamous cell carcinoma of the lung infiltrating thoracic aorta: the endoprosthetic option – Case report



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E. Triggiani, M. Virzi, G. Baiardi*, I. Riili, N. Filiotis, M. Marra

Università degli Studi di Palermo
Dipartimento di Chirurgia Generale, d'Urgenza e dei
Trapianti d'Organo
Cattedra di Chirurgia Generale
Direttore: Prof. Edoardo Triggiani
*Cattedra di Chirurgia Vascolare
Direttore: Prof. Guido Baiardi

Riassunto

ENDOPROTESI DI APPOGGIO ALLA RADIOTERAPIA ADIUVANTE DOPO RESEZIONE POLMONARE PER CARCINOMA SQUAMOSO INFILTRANTE LA PARETE AORTICA – CASE REPORT

Gli Autori suggeriscono l'apposizione di una protesi endoaortica a protezione della parete vascolare nei confronti della radioterapia selettiva di supporto eseguita sui residui microscopici di tessuto aortico dopo lobectomia superiore sinistra del polmone per carcinoma squamoso.

Parole chiave: Protesi endoaortica, carcinoma squamoso, aorta toracica.

The surgical treatment of patients with lung cancer infiltrating the thoracic aorta remains challenging, although single cases are reported in the international literature with encouraging results. Such a patients with localised tumor and low node stage may benefit from surgery; nevertheless a combined resection of both, lung and aortic segment could be considered a too aggressive procedure. Selective adjuvant radiotherapy on macroscopically or microscopically aortic residual disease under protection of endo-aortic prosthesis following lung resection seems to be a reasonable solution for palliative purposes.

Clinical summary

In a 70 years-old man, an asymptomatic 5 cm left upper lobe tumor was detected at occasional chest x-ray investigation. The lesion was localized medially, close to the aortic area and no disease was shown at CT scan; no distant metastasis; bronchoscopy was negative. Pre-operative work-up also included routine biochemical profile, arterial blood gas analysis and pulmonary function test; due to bilateral emphysematous macrobullae, respiratory performance was severely impaired ($FEV_1 = 62\%$). The operative approach was via left postero-lateral thoracotomy: a 2 cm² area of close contact between the tumor and the initial thoracic descending aorta was evi-

Abstract

The introduction of endo-aortic prosthesis as protection of the vascular wall from selective adjuvant radiotherapy on microscopically aortic residual disease following left upper lobectomy for squamous carcinoma of the lung is suggested by the authors.

Key words: Endo-aortic prosthesis, squamous carcinoma, thoracic aorta.

dent and a formal upper lobectomy was performed en-block with mediastinal pleura and aortic adventitia, combined with extensive regional lymphadenectomy. Frozen sections showed the lymphnodes to be free of tumor and the resected layer of aortic adventitia to be site of malignancy.

The patient was discharged from the hospital 10 days post-operatively, without any complication. As final assessment, the tumor was classified histologically as G2 squamous carcinoma pT4 pN0 pM0, surgically treated with R1 resection; positron emission tomography confirmed our suspicion of tiny residual disease on the aortic wall (Fig. 1). A selective beam radiotherapy on the thoracic aorta was judged useful, but at risk of rupture by our radiotherapist and we suggested and realised some protection: a 36 mm nitinol-steel dacron covered endova-

scular prosthesis was introduced throughout the left external iliac artery, via extra peritoneal approach and eventually installed at the level of the metabolically active area, further the origin of the left subclavian artery. A full course of adjuvant radio-chemio-therapy is to date in progression.

Comment

We focus our attention on aortic invasion as isolated expression of locally advanced pulmonary carcinoma. Computer tomographic (CT) scanning and magnetic resonance (MR) imaging strongly suggest this condition, but operative exploration may be necessary for definitive assessment; intraaortic endo-vascular sonographic studies seem to have a very high accuracy (1). Combined lobectomy or pneumonectomy and thoracic aorta resection can be performed with reasonable morbidity and mortality in highly selected cases (2). Patients with localized tumor and low node stage are expected to benefit from this aggressive procedure, which is reported only anecdotally in the international literature and with poorly

documentated long-term results (3) (4). The less extensive standard lung-resection followed by adjuvant high selective radiotherapy under protection of endo-aortic prosthesis ("endoprosthetic option") should be considered, at least for patients with significantly compromised lung function (our case).

References

- 1) Yasui K., Kanazawa S., Mimura H., Fujiwara T., Kataoka M., Tanaka N., Hiraki Y.: *Assessment of aortic invasion by pulmonary carcinoma with the use of intraaortic endovascular sonography: a case report.* J Thorac Cardiovasc Surg, 2001, 122(5):1041-2.
- 2) Van Reamdonck D.E., Schneider A., Ginsberg R.J.: *Surgical treatment for higher stage non-small cell lung cancer.* Ann Thorac Surg, 1992, 99-1013.
- 3) Klepetko W., Wisser W., Birsan T., Mares P., Taghavi S., Kupilik N., Volner E.: *T4 lung tumors with infiltration of the thoracic aorta: is an operation reasonable?* Ann Thorac Surg, 1999, 67,340-4.
- 4) Doddoli C., Rollet G., Thomas P., Ghez O., Serey Y., Giudicelli R., Fuentes P.: *Is lung cancer surgery justified in patients with direct mediastinal invasion?* Eur J Cardiothorac Surg, 2000, 339-43.

Autore corrispondente:

Prof. Edoardo TRIGGIANI
Università degli Studi di Bari
Cattedra di Chirurgia Generale
70100 BARI