Preoperative embolization followed by surgical excision of a giant thymic carcinoid

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Received 4 October 2012; received in revised form 15 November 2012; accepted 26 November 2012

Abstract

We report the case of a 35-year old woman with a giant thymic carcinoid of the left hemithorax. Enhanced computed tomography showed marked vascularization of the tumour, with an enlarged drainage vein. Endovascular embolization of the major feeding arteries of the tumour was performed preoperatively with good angiographic results. A left thoracotomy was performed the following day. Minimal bleeding was observed due to prior embolization. The patient made a rapid postoperative recovery and was discharged 8 days later.

Keywords: Mediastinal tumour • Surgical techniques • Embolization

We report the case of a 35-year old woman with a giant thymic carcinoid who underwent preoperative embolization followed by the successful removal of the carcinoid by a left thoracotomy with minimal intraoperative blood loss. Thymic carcinoid is a relatively rare disease that was described as a specific entity in 1972 [1]. Complete surgical resection is the only potentially curative treatment.

CASE PRESENTATION

A 35-year old woman was admitted with a 6-month history of increasing breathlessness. The patient had no associated paraneoplastic syndrome, and her medical history and laboratory tests on admission were unremarkable. Routine chest radiography found a tumour mass occupying four-fifths of the left hemithorax. Enhanced computed tomography (CT) showed a giant anterior mediastinal mass with rich vascularization and an enlarged drainage vein (Fig. 1). A fine-needle aspiration biopsy was inconclusive. Abdominal CT, emission computed tomography and brain magnetic resonance imaging showed no distant metastasis. Given that it was a hypervascular tumour, an interventional radiology consultation was obtained to assess the possibility of embolization before surgical resection. Angiography revealed that the branches supplying the giant mass were from the bilateral internal thoracic arteries. The feeding arteries were embolized using 500–700 µm polyvinyl alcohol particles (diameter 500–700 µm; PVA-500, Cook Medical, Bloomington, IN, USA). Branch embolization resulted in an almost complete disappearance of the tumour blush (Fig. 2). There were no procedure-related complications. During surgical excision the next day, the tumour was encapsulated and had not invaded the surrounding organs; the drainage vein was identified and ligated, and complete removal of the tumour was achieved. We then conducted a thymectomy with lymph node dissection. Bleeding was minimal and easy to control. Histology confirmed a completely excised thymic carcinoid. The Masaoka-Koga stage of this tumour was IIa, and the histological type was typically carcinoid. The patient made a rapid postoperative recovery and was discharged 8 days later. The patient received radiotherapy 1 month after the operation as indicated by a previous study [2]. At a 12-month follow-up, the patient was normotensive without medication.

DISCUSSION

Thymic carcinoid is thought to arise from the foregut. The role of radiotherapy, chemotherapy or both in the treatment of thymic carcinoid tumours has not been adequately established. Surgical excision with complete clearance is the treatment of choice [3]. Giant thymic carcinoid is rare and is a surgical challenge.

Previous reports of thymic carcinoid have typically reported low-grade to intermediate grade malignancy with less-aggressive behaviour than thymic carcinoma. However, ~30% of all patients with thymic carcinoid show lymphogenous or distant metastasis [4]. No report has mentioned that it could be highly vascularized.

In this case, because it was located entirely in the left hemithorax, we chose a left thoracotomy as our approach. The main challenge to treatment is the vascularity of these lesions.

Preoperative embolization has a proven role in minimizing bleeding and facilitating dissection in vascularized tumours. Although a few case reports describing the preoperative

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embolization of pleural or mediastinal tumours are available in the literature [5–7], no previous reports have attempted this procedure for thymic carcinoid. In 2 reported cases, embolization was only performed after an unexpected severe haemorrhage that compelled the abandonment of the operation on the first attempt [5, 6]. Others have used this method for giant thoracic sarcomas [7].

Our experience shows that preoperative embolization has a valuable role in the management of giant chest tumours, such as thymic carcinoid, particularly those with rich vascularization. Preoperative embolization may significantly reduce the vascularity of the mediastinal tumour and facilitate surgical resection, and we believe this approach is safe. We recommend preoperative angiography of all giant tumours in the chest.

Conflict of interest: none declared.

REFERENCES


