

# Germ cell tumours: a scary presentation

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## DESCRIPTION

A 32-year-old patient presented with dyspnoea, fatigue and haemoptysis in the emergency room.

Thoracic radiography was performed and demonstrated a large mass in the left lung. CT was also performed and demonstrated a large heterogeneous mass with cystic component measuring 24×16×14 cm.

CT showed the anteroposterior diameter allowing depth of lesion approach and great vessels deviation (figure 1).

Coronal view (figure 2) and sagittal view (figure 3) allowed better delineation of compression and longitudinal view of the lesion as well as viable lung. These views, specially sagittal (figure 3), allow a more accurate view of bronchi compression.

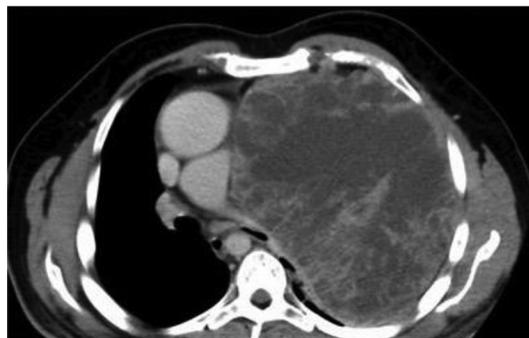
Biopsy was performed and revealed a mixed germ cell tumour combined with embryonal carcinoma, yolk sac and teratoma.

Tumour markers such as LDH, AFP and β-hCG were elevated (LDH 700 U/mL, AFP 1.4 ng/mL and β-hCG 400 mIU/mL).

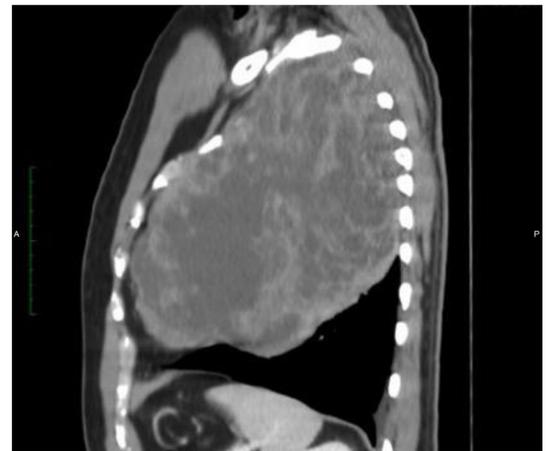
The patient was treated with a cisplatin-based chemotherapeutic regimen (four cycles of bleomycin, etoposide and cisplatin). Chemotherapy allowed marked reduction of the tumour. Next, the pneumonectomy was performed and histology confirmed a non-seminomatous mixed germ cell tumour (85% embryonal carcinoma, 10% yolk sac and 5% teratoma).

However, the patient is extremely debilitated physically, and the prognosis remains uncertain. During the last appointment, tumour markers were normal.

The mediastinum is centrally located in the thorax and divided into anterior, middle and posterior compartments.



**Figure 1** Germ cell tumour. Portal-phase contrast-enhanced CT (axial view) shows an heterogeneous giant mass occupying most of the left lung measuring 24×16×14 cm. Note the heterogeneous enhancement of the mass.



**Figure 2** Germ cell tumour. Portal-phase contrast-enhanced CT (sagittal view) heterogeneous giant mass occupying most of the left lung measuring 24×16×14 cm.

Germ cell tumours comprise 15%–20% of all anterior mediastinal masses, occurs in young adults in their second to fourth decade of life, with equal sex distribution. The majority are benign, with teratoma being the most frequently type seen.<sup>1 2</sup>

Benign teratomas are classified into the following three groups: epidermoid cysts, dermoid cysts and teratomas. Approximately 60% of teratomas are asymptomatic.<sup>1–3</sup> The probability of malignancy increases with immature type.

Seminomas are the most common malignant mediastinal germ cell tumour and are located in the anterior and superior mediastinum.<sup>1 2</sup> Malignant lesions can present with pain caused by local invasion.<sup>3 4</sup>



**Figure 3** Germ cell tumour. Portal-phase contrast-enhanced CT (coronal view) shows an heterogeneous giant mass occupying most of the left lung and that causes right deviation of the mediastinum. The mass respects the large vessels margins without invading them.



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## Images in...

Non-seminomatous germ cell tumours are a relative rare group and present a more aggressive behaviour. Approximately 80% of patients developing these tumours are men. Serum  $\beta$ -hCG is elevated in approximately 60% of patients with non-seminomatous germ cell tumours. Elevated alpha-fetoprotein levels are correlated with the presence of embryonic or yolk sac component.<sup>1 2</sup>

CT usually shows a heterogeneous mass with cystic component, often infiltrative with obliteration of fat planes.<sup>1 2 4</sup>

### Patient's perspective

I feel scared for the future. I am very young and afraid to die.

### Learning points

- ▶ Contrast-enhanced CT and biopsy play a central role to exclude malignancy of a mediastinal mass.
- ▶ Never forget germ cell tumour when a giant mediastinal mass is found.
- ▶ The risk of malignancy increases in immature types of germ cell tumours.

**Contributors** CABO reported the case, selected the images and also talked with a special team for the English language and image review. ACC asked the patient for consent to publish, helped reporting the CT and image improvement and selection and also helped with planning. VM supervised all the work and defined the plan to the study as well as analysis of the data.

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