

# Investigating an isolated serum alkaline phosphatase: an incidental mediastinal seminoma

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## INTRODUCTION

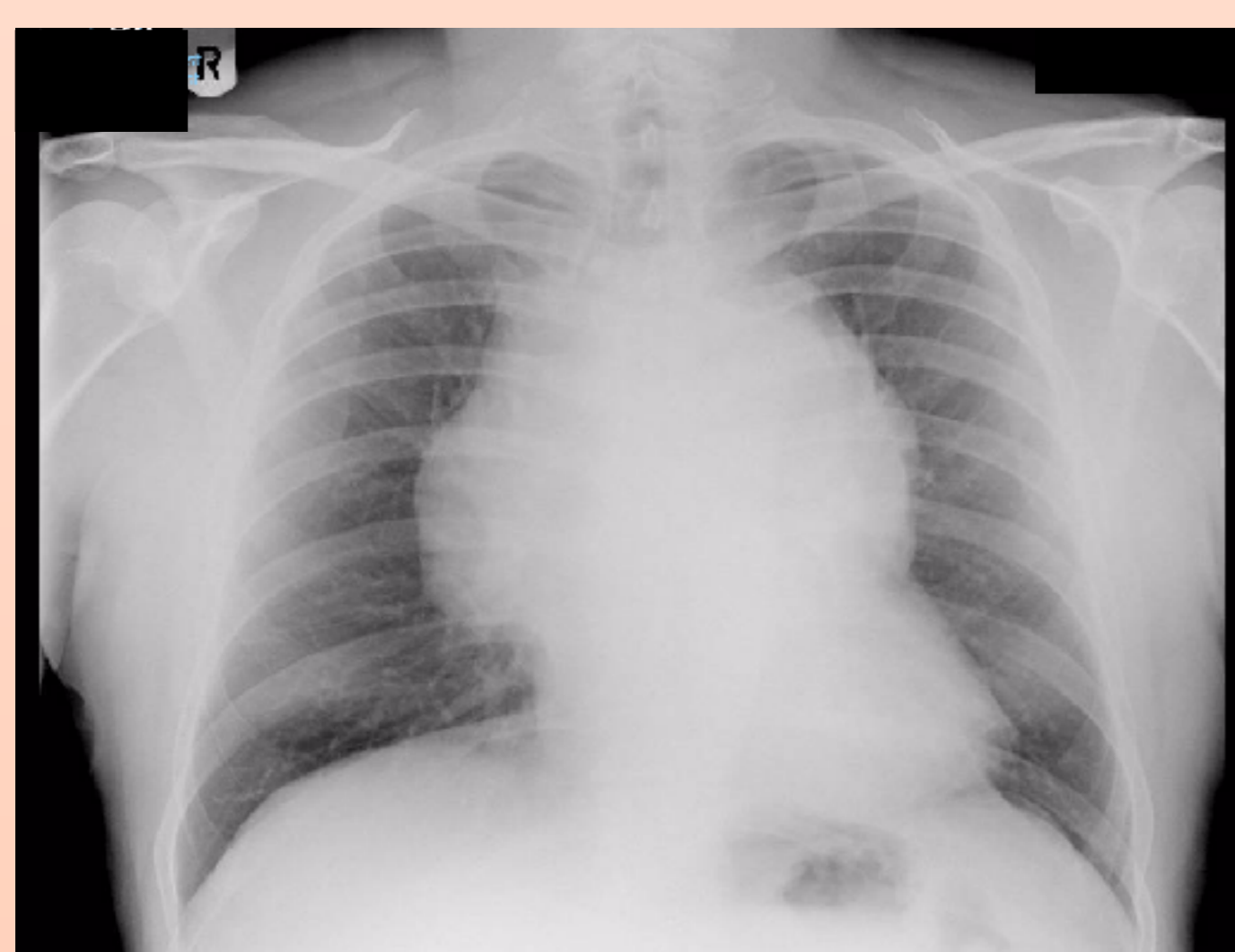
- Serum alkaline phosphatase (ALP) may be released from various sources, including liver, bone, thyroid, intestine and placenta.
- We describe a rare case of an isolated serum ALP rise initially dismissed, and later resulting in an incidental finding of a mediastinal seminoma.
- Seminomas account for one-third of testicular germ cell tumors, the most common malignancy in men 15-35 years of age (1); however, primary mediastinal seminoma is rare among extragonadal germ cell tumors (2).

## CASE HISTORY

- A 56-year-old gentleman was referred to the Endocrinology Outpatients by his general practitioner, with a 1-month history of presumed post-viral fatigue and rise in serum ALP.
- He was initially investigated in the outpatient Gastroenterology department with US liver in keeping with two benign liver cysts.
- No interval change seen on imaging and therefore the patient was discharged.

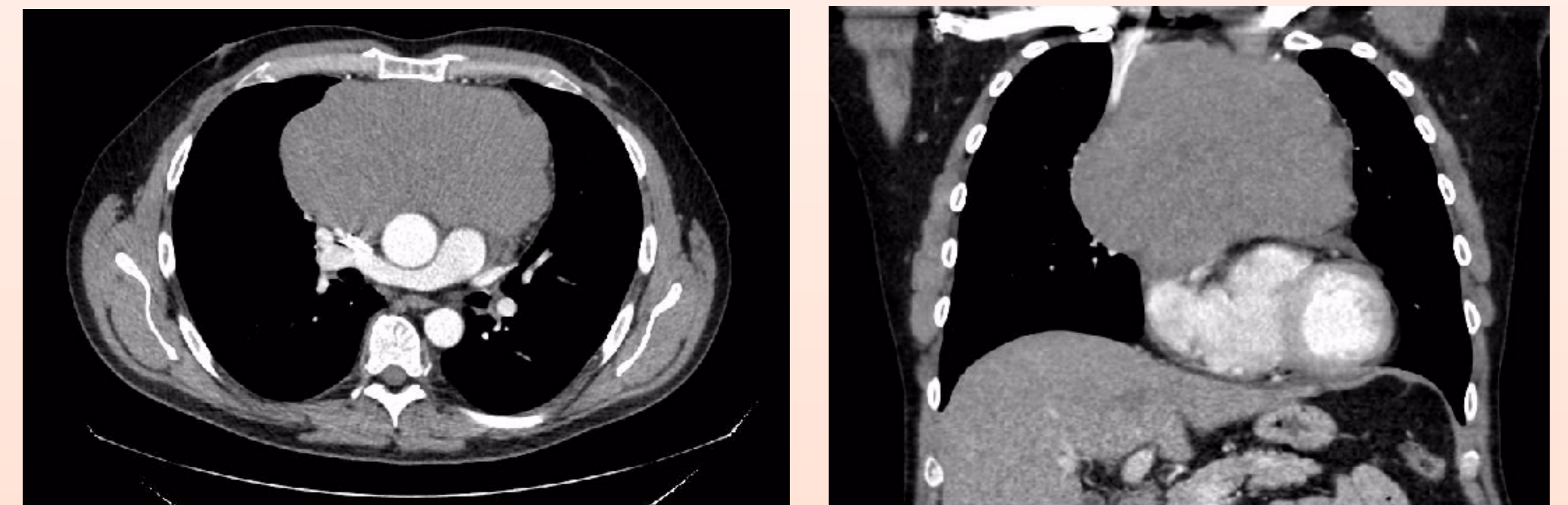
## INVESTIGATIONS

- ALP 296 U/L; ALT 92 U/L; GGT 27U/L; Bili 11 umol/L
- aCa 2.43 mmol/L; phosphate 1.25 mmol/L; Vit-D 55nmol/L
- ESR 45mm/hour.
- IgG 17.2g/dL; IgM 2.45g/dL with slight polyclonal increase in gamma region.
- Autoimmune, thyroid and pituitary profile normal.
- ALP isoenzymes = predominantly bone
- Rising ALP prompted skeletal survey, which showed no bony lesions, but a large anterior mediastinal mass 15.6cm x 8.6cm x 14cm *encasing at least two-thirds of the ascending aorta.*
- Staging CT: No other significant lesions found.



**Image 1:** Chest XR as part of skeletal survey showing large anterior mediastinal mass.

## TREATMENT



**Image 2:** CT imaging axial (left) and coronal (right) views of anterior mediastinal mass revealing large anterior mediastinal mass 15.6cm x 8.6cm x 14cm encasing the ascending aorta.

- Diagnostic core biopsy: in keeping with a seminoma, associated with strongly, diffuse positive placental ALP (PLAP), and positive CD5 and CD45.
- He was referred to the Oncologists for further treatment and underwent neoadjuvant chemotherapy (POMB/ACE: cisplatin, vincristine, methotrexate, bleomycin, actinomycin D, cyclophosphamide and topotecan) and surgery.
- Two-years on, he remains well with stable residual soft tissue mass retrosternally post surgery.

## DISCUSSION

- Differential diagnosis of a mediastinal mass in the context of an isolated ALP rise, include thymoma, lymphoma and teratoma.
- ALP isoenzymes can help differentiate the source of release (ie. bone, liver, intestine or placenta)
- Seminomas account for approximately one-third of testicular germ cell tumors, with less than 5-7% of germ cell tumours being extragonadal. They often respond well to radio/chemo-therapy.
- CT is the recommended imaging modality for the evaluation of most anterior mediastinal masses.
- Prompt diagnosis is paramount to minimise complications.

References:

1. UWhitaker WG, Droulias C. Benign encapsulated neurilemoma: a report of 76 cases. Am Surg. 1976;42:675-678.
2. Xu et al. *Oncol Lett*. Primary seminoma arising in the middle mediastinum: A case report. 2016 Jul;12(1):348-350.
3. Ishii et al. Mediastinal Seminoma with an Elevated Level of Serum Angiotensin-converting Enzyme. Intern Med. 2015;54(15):1909-12.