Article:
Salehi, M. and Rea, B. orcid.org/0000-0002-4568-0359 (2022) Preoperative chest radiograph. Heart, 108 (15). pp. 1224-1246. ISSN 1355-6037

https://doi.org/10.1136/heartjnl-2022-320973

Title – Preoperative chest radiograph

Authors: Mahan Salehi[1], Benjamin Rea[1]

1 – Sheffield Teaching Hospitals, Department of Radiology, Sheffield, UK

Corresponding Author:

Dr Mahan Salehi

Sheffield Teaching Hospitals

Department of Radiology

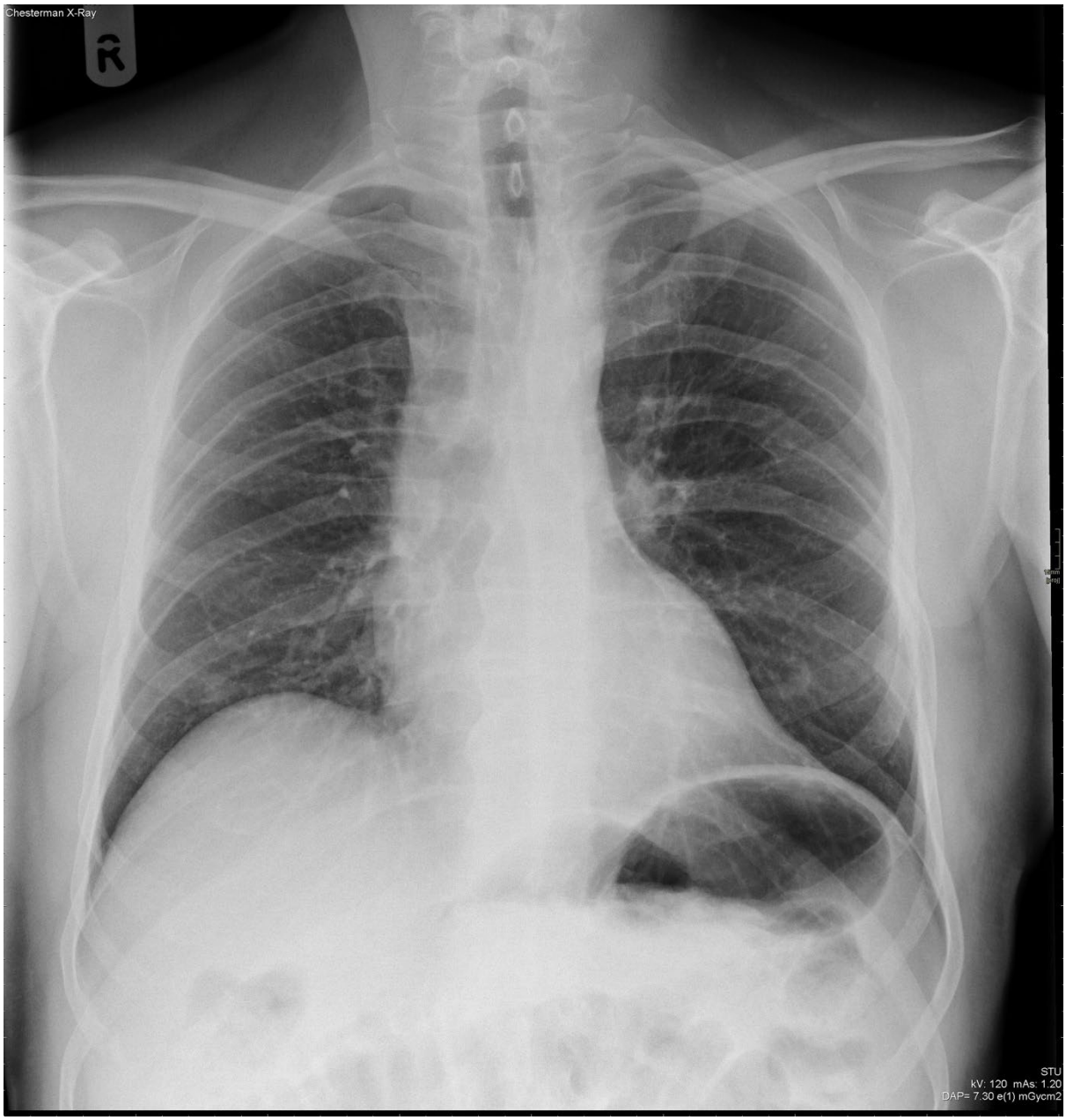
Sheffield

S5 7AU

UK

Email: Mahan.salehi@nhs.net

A man in his 60s attended for a preoperative appointment for a cholecystectomy having recently moved to the area. He reported to be asymptomatic. He had a past medical history of hypertension and took Amlodipine and had no known allergies. A chest X-ray was performed as part of the work up (Figure 1).



What is the cause of abnormalities seen on the image?

1. Prominent pericardial fat pad
2. Bilateral healed rib fractures
3. Pneumoperitoneum
4. Aortic coarctation
5. Lung cancer

Answer

The correct answer is (4), as there is evidence of bilateral inferior rib notching (Supplementary Figure 1 – white chevron) as well as an absent aortic knuckle (Supplementary Figure 1 – white circle) that would be compatible with the diagnosis of an aortic coarctation. Answer (1) is therefore incorrect as the film is abnormal. Although the ribs are abnormal on both sides, there is no break in the cortex, and no sclerosis to suggest healing. Additionally, the abnormality is localised to just the inferior aspect and with a fracture you would except morphological changes to extend across the rib.

The gas projected in the midline and left upper quadrant is the gastric bubble projected over gas in the colon and not pneumoperitoneum. When looking for free gas, normally the gas will be on both sides of midline and looking for gas above the liver is more sensitive. Finally, the increased density at the left hilum is due to normal hilar vessels, some of which are coming towards the film. Your eye is drawn to them more than normal, because of the absence of the aortic knuckle and AP window (Supplementary Figure 1 – white circle). The slight change in the concavity of the heart border is due to a prominent pericardial fat pad.

He subsequently underwent Axial CT Aortogram where at the level of T7 demonstrates a hypoplastic descending thoracic aorta with evidence of previous repair (Supplementary Figure 2 – White arrow). An oblique sagittal reformat from the same study also demonstrates an enlarged left subclavian artery (Supplementary Figure 3 – White block arrow), due to the longstanding previous stenosis within the aorta.