

CASE REPORT

Invisible pleural effusion on standard postero-anterior X-ray

E. Turki, H. Dutau, M. GOUITAA AND D. CHARPIN

Department of Chest Diseases and Allergy, Hospital NORD, Marseille, France

A 73-year-old man was admitted on February 2000 because of exacerbation of chronic dyspnoea.

His medical history included a chronic respiratory insufficiency related to past heavy smoking, ischaemic heart disease and pulmonary embolism.

On admission the patient was polypnoeic and had no fever. On examination, fine crackles could be heard in both lungs and some dullness of lower parts of the chest was noticed. There was no swelling, erythema or pain in the legs. Blood count was normal, chest X-ray demonstrated an enlarged cardiac shadow and a left pleural shadow (Fig. 1). Pleural puncture drained 100 ml of light yellow fluid. Chemical analysis showed it was transudate.

Surprisingly, thoracic scanning performed on the same day (Fig. 2) demonstrated a bilateral pleural effusion, more prominent in the right side where it went up to the apex (Fig. 3). In the left side, it was partitioned. Right pleural puncture drained 700 ml of light yellow fluid. Chest X-ray performed after this puncture is shown in Fig. 4.

The patient received diuretics and inhibitors of conversion enzymes. He rapidly improved and was discharged to his home with a chest X-ray comparable to the previous one. The bilateral pleural effusion could be considered to be related to left cardiac failure due to severe ischaemic heart disease.

This case report demonstrates an important pleural effusion which was invisible on a standard postero-anterior chest X-ray. How can such a discrepancy be explained when the chest X-ray is performed in the upright position and the effusion is not partitioned (right side)? There are no answers to this question in the literature. We have only found mention in a French textbook that transudative pleural effusion might be less visible on chest X-ray than exudative effusion (1).



FIG. 1 Chest X-ray performed on admission.

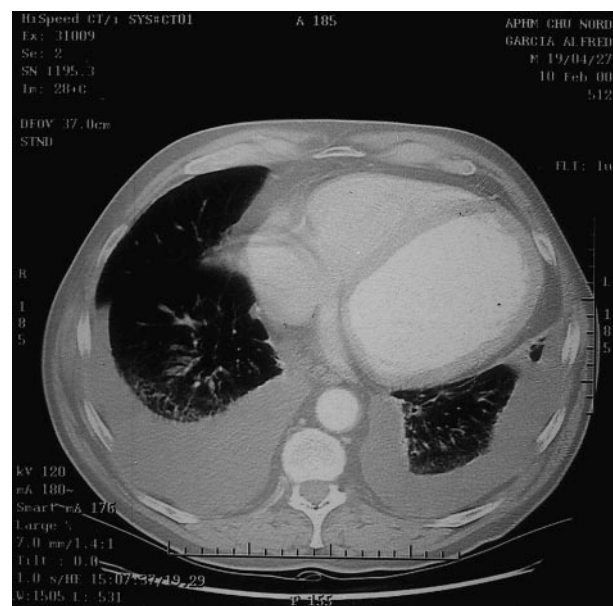


FIG. 2 Computed scanning examination performed on admission. Lower sections.

Received 6 March 2001, accepted in revised form 5 June 2001 and published online 13 September 2001

Correspondence should be addressed to: Dr D. Charpin, Department of Chest Disease and Allergy, Hopital Nord, I3915 Marseille Cedex 20, France. Fax: 33 491 09 09 94; E-mail: dcharpin@ap-hm.fr



Fig 3 Computed scanning examination performed on admission. Upper sections.

Usually, the first radiographic evidence of a limited pleural effusion is a filling of the posterior segment of the costo-diaphragmatic sinus, mostly visible on a lateral film (2). Under these conditions, on the postero-anterior view, the costo-diaphragmatic sinus has the same shape but is moved laterally; this radiographic sign was described by Fleischner for the first time in 1927 (3) and named a lamellar pleural effusion. A pleural effusion which is responsible for a filling of the costo-diaphragmatic sinus on an poster-anterior view performed in the upright position is supposed to correspond to 175 –

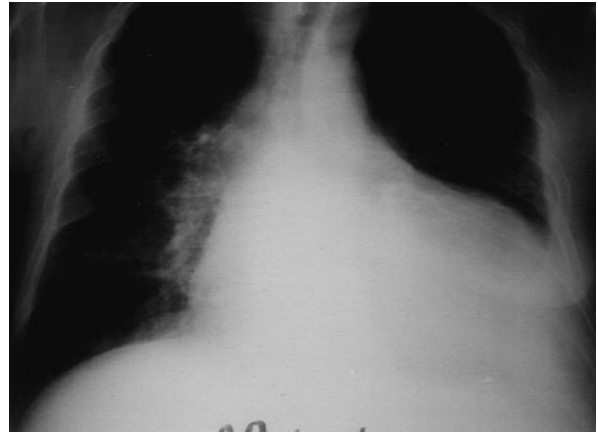


Fig. 4 Chest X-ray performed after puncture of the right pleural effusion.

525 cm³ (4). Our case report emphasizes that a more important pleural effusion can be invisible on a standard X-ray.

REFERENCES

1. J. Chrétien, Marsac J. Epanchement liquide pleural: pleurésies. In: Chrétien JM, Marsac J, eds. *Pneumologie*. Paris: Masson, 1990; 466–488.
2. Rudikoff JC. Early detection of pleural fluid. *Chest* 1980; **77**: 109–111.
3. Fleischner FG. Die Lamellare pleuritis. *Fortschr.* 1927; **36**: 120.
4. Collins JD, Burwell D, Furmanski S, Lorber P, Steckel RJ. Minimum detectable pleural effusions: a roentgen pathology model. *Radiology* 1972; **105**: 51–53