

Images in Nephrology
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Metastatic pulmonary calcification

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A 49-year-old man undergoing maintenance hemodialysis three times weekly for the past 14 years due to presumed hypertensive nephrosclerosis was submitted to a chest x-ray during evaluation of flu-like symptoms that resolved 3 days later. The chest x-ray disclosed interstitial infiltrates and bilateral apical opacities (Figure 1). There was no history of chronic cough, exertional dyspnea and exposition to tobacco or occupational aerosols. His current medications included only sevelamer 4 pills/day (800 mg/pill) and amlodipine 10 mg/day. He had been previously submitted to several courses of calcitriol to control hyperparathyroidism with no effect. Laboratory evaluation revealed hemoglobin 10.4 g/dL, white blood cell count $4120/\text{mm}^3$ (normal differential count), platelet count 192×10^3 cells/ μL , ferritin 1639 ng/mL, transferrin iron saturation 28.7%, serum iron 4.1 $\mu\text{g}/\text{dL}$, parathyroid hormone 4700 ng/L (normal range 16–65 ng/L) serum phosphorus 8.1 mg/dL (2.61 mmol/L), serum calcium 11.0 mg/dL (2.74 mmol/L). An axial computed tomographic (CT) scan of the chest showed multiple bilateral centrilobular calcified nodules mainly in the upper lobes, suggestive of calcium deposition (Figure 2).

Pulmonary function test demonstrated mild restriction disorder. Bronchoalveolar wash was negative for mycobacterial and fungal infections. There was also evidence of vascular calcification in hands and legs demonstrated by radiographies. Parathyroid scintigraphy disclosed marked uptake in the upper projection of right and left thyroid lobes. The patient was started on daily dialysis, phosphate-binding optimization and was referred to parathyroid surgery.

Pathological pulmonary calcifications can be broadly divided into metastatic calcifications and dystrophic calcifications [1]. Metastatic pulmonary calcifications occur in normal lung tissue, mainly due to alterations in calcium and phosphorus metabolism and alkali environment [2]. This patient presented severe hyperparathyroidism secondary to renal disease and a CaxP product of $89.1 \text{ mg}^2/\text{dL}^2$. No alkalosis period was detected, even after a dialysis session.



Fig. 1. Lung radiography disclosing interstitial infiltrates and bilateral apical opacities.

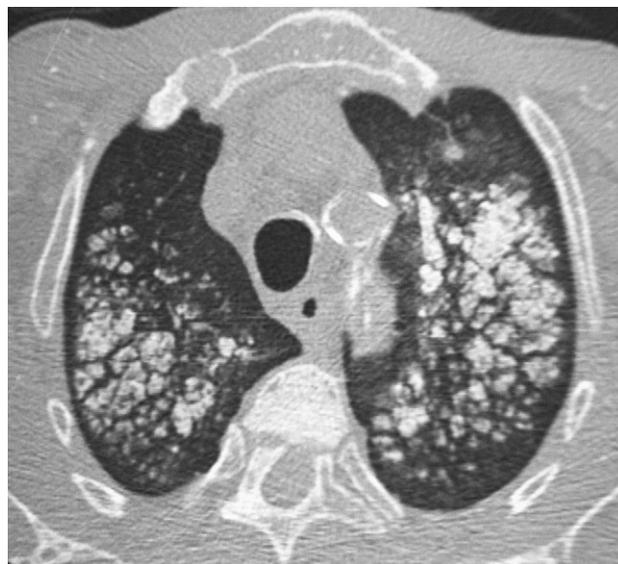


Fig. 2. Axial CT scan demonstrating multiple bilateral centrilobular calcified nodules, mainly in the upper lobes.

Metastatic pulmonary calcification diagnosis is based on CT findings and clinical features, unless there is clinical suspicion of other processes (mycobacterial or fungal infections). Therapy is limited to ensuring adequate dialysis, correcting calcium–phosphorus product and hyperparathyroidism; moreover, discontinuing vitamin D analogs may help [3].

Conflict of interest statement. None declared.

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