Asymptomatic Metastatic Pleural Calcifications from End-Stage Renal Disease

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A 53-year-old man was referred to a Pulmonology clinic regarding the evaluation of an abnormal Computerized Tomography imaging (CT) obtained during kidney transplant evaluation. His medical history includes end-stage renal disease on intermittent hemodialysis, active tobacco abuse with a 30-pack-year history, and HIV on anti-retroviral therapy with a recent CD4 count above 500. He did not endorse any current or historic respiratory symptoms, specifically any dyspnea on exertion, productive cough, fevers, or pleuritic chest pain. The patient also denied any previous respiratory infections; in particular, he had denied any previous tuberculosis infection, pleural infections, or hospitalizations for bacterial lung infections. He has lived in southern Louisiana for his entire life and has not had a significant travel history. While he had worked in construction, he denied having any significant occupational exposures, specifically asbestos. There was no significant family history regarding previous respiratory conditions or connective tissue diseases.

Vital signs on presentation, including pulse oximetry, were within normal limits. His physical examination was notable for decreased breath sounds on his right lower lung base. Pulmonary function testing revealed moderate obstruction, no evidence of restriction, and normal diffusion capacity. CT imaging of his chest performed for the purposes of kidney transplant candidacy evaluation revealed diffuse calcified pleural plaques along his right pleural margin which was associated with pleural thickening. Given his history and the presented imaging findings, his diagnosis was most consistent with asymptomatic metastatic pleural calcifications in the setting of his end-stage renal disease. He was not initiated on any treatment for his pleural condition and was sent to continue further testing for his kidney transplant candidacy. (See **Figures 1A,B**.)

Asymptomatic metastatic pleural calcification is a rare entity of pleural disease. It can be described as thickened visceral and parietal pleurae, which can develop as a complication of prior intense pleural inflammation or chronic untreated effusions. This is usually caused by an empyema, hemothorax, tuberculosis, asbestos exposure, connective tissue diseases, uremia, drug induced pleuritis, or therapeutic pleurodesis.[1] Patients with end-stage renal disease can develop pleural calcifications through several proposed mechanisms. Traditionally, this is believed to be due to inflammation from uremic toxins in combination with pleural hemorrhage that eventually lead to fibrous pleuritis. Additionally, dystrophic or metastatic calcification due to hypercalcemia and hyperphosphatemia caused from renal

Figure 1A. Computerized Tomography scan of the chest in axial view showing a dense formation of calcium on the posterior right hemithorax. No appreciable lung parenchymal changes present.

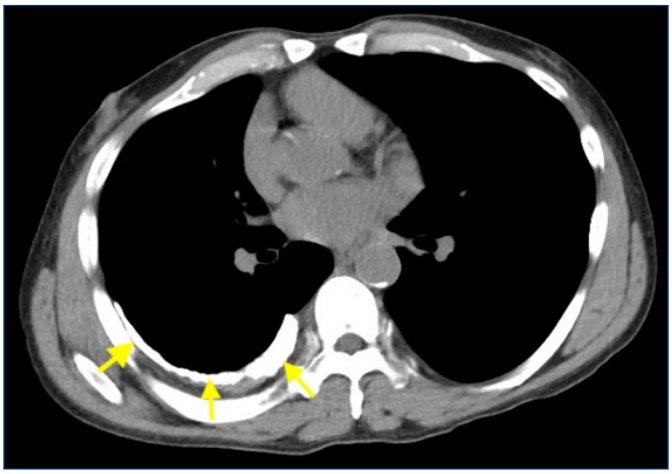
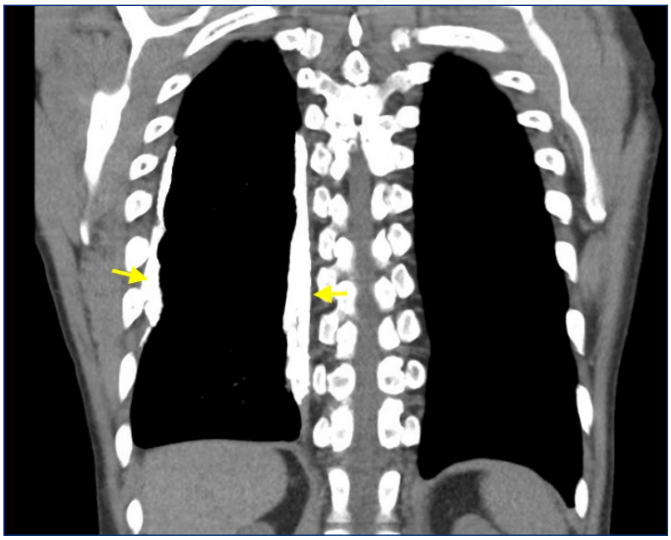


Figure 1B. Computerized Tomography scan of the chest in Coronal view demonstrating pleural based calcium deposition both on the medial and lateral chest wall.



dysfunction has also considered to play a role in its formation.[2] The evaluation of this condition typically includes a chest radiograph which would demonstrate concentric pleural thickening with a decreased size of the ipsilateral hemithorax. CT imaging is useful as it can assist in determining etiology as well as elucidate if there are malignant characteristics. Treatments include conservative management with watchful waiting, or in the case of restrictive lung disease, surgical decortication.[3]

References

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