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CLINICAL IMAGE

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Imaging in pleural amyloidosis: A diagnostic challenge

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Key message

Pleural amyloidosis does not present with specific imaging findings and is difficult to diagnose unless pleural biopsy is performed. However, distinguishing pleural amyloidosis from malignant disease is important and biopsy should be performed wherever possible to establish a treatment plan as early as possible.

KEYWORDS
lung cancer, pleural amyloidosis, pleural biopsy

CLINICAL IMAGE

The patient was a 78-year-old man who had been referred to our hospital for investigation of an abnormal chest shadow identified during a medical checkup. Computed tomography (CT) of the chest showed pleural thickening along the right interlobar fissure and an uneven border with the lung (Figure 1A). Positron emission tomography-CT showed a series of point and nodular accumulations of ^{18}F-fluorodeoxyglucose (maximum standardized uptake = 2.8) along the pleural thickening (Figure 1B). Based on these findings, pleural dissemination associated with lung cancer was suspected. No other findings suggested distant metastasis. A surgical biopsy of the pleura was performed for diagnostic purposes (Figure 2A). Histopathologic examination of the pleura using haematoxylin and eosin staining showed deposits of acidophilic non-structural material (Figure 2B). This non-structural material stained reddish-orange with Congo red staining (Figure 2C) and showed apple-green birefringence under polarized light microscopy (Figure 2D). The non-structural substance was considered to represent amyloid deposition. Tissue immunostaining of the amyloid

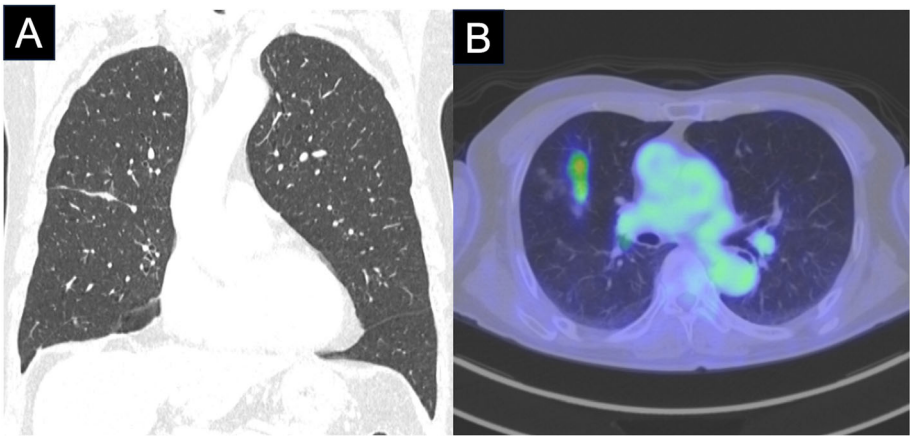

FIGURE 1 Findings from preoperative computed tomography (CT) and positron emission tomography-CT of the chest. (A) Chest CT shows pleural thickening along the right interlobar fissure and an uneven border with the lung. (B) Positron emission tomography-CT shows a series of point and nodular accumulations of ^{18}F-fluorodeoxyglucose (maximum standardized uptake = 2.8) along the pleural thickening. These findings are consistent with lung cancer and pleural dissemination. No ^{18}F-fluorodeoxyglucose accumulation suggestive of lymph node metastasis or distant disease is apparent.

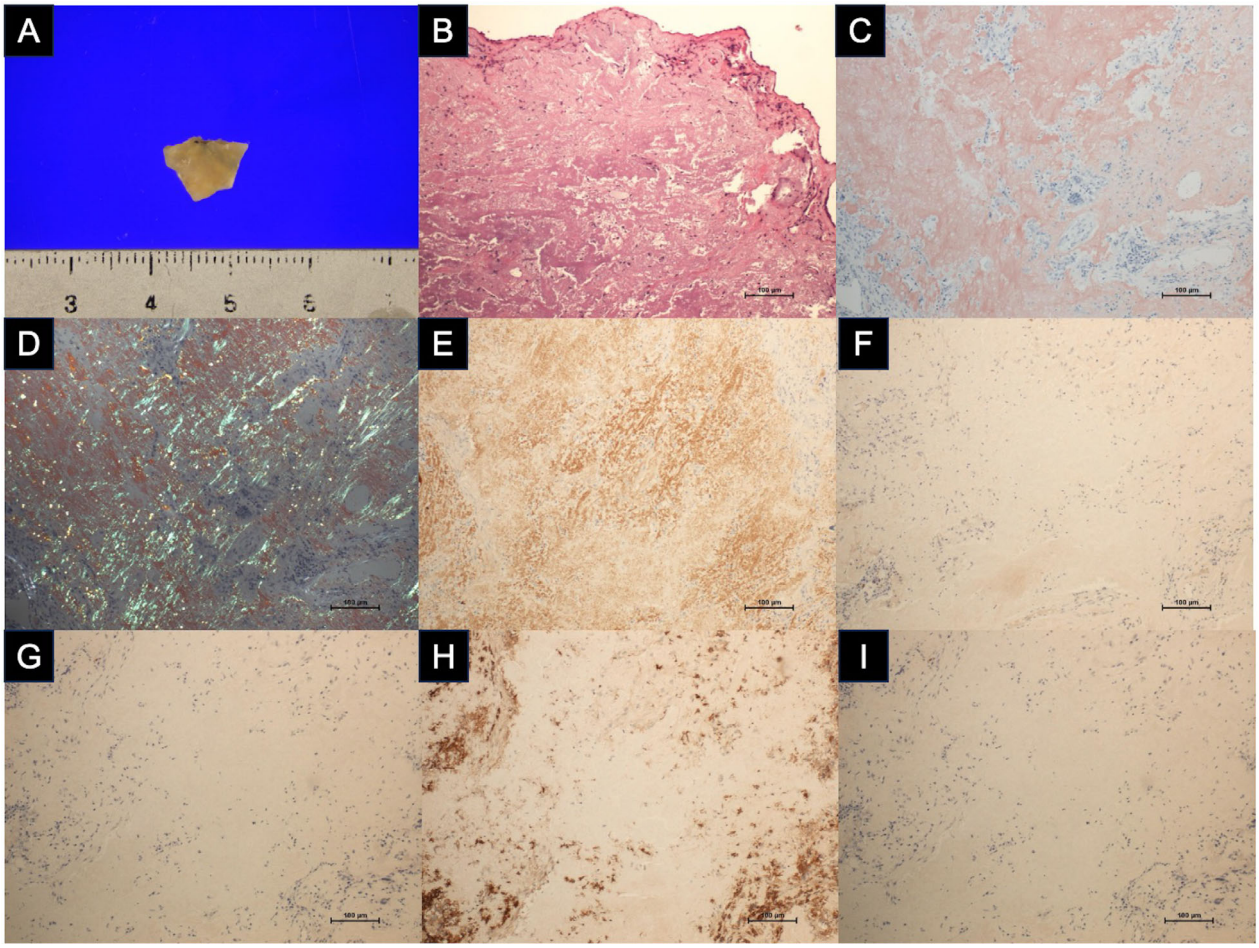

FIGURE 2 Histopathological examination of pleural specimens obtained from surgical biopsy. (A) Macroscopic findings of the collected pleura. The specimen appears very hard. Differentiation from malignant disease is not possible from external examination. (B) Histopathologic findings of the pleura using haematoxylin and eosin staining. The specimen shows deposition of acidophilic, non-structural material surrounded by infiltrated inflammatory cells with giant cells, lymphocytes, plasma cells, and histiocytes. (C) Histopathological findings of the pleura using Congo red staining. The specimen shows non-structural deposits staining reddish-orange. (D) Histopathological findings under polarized light microscopy. The specimen shows apple-green birefringence. (E) Histopathological findings of the pleura using immunostaining with anti-λ antibody. The specimen shows positive findings. (F) Histopathological examination of the pleura using immunostaining with anti-κ antibody. The specimen shows negative findings. (G) Immunostaining of the pleural specimen with anti-AA antibody. The specimen shows negative findings. (H) Immunostaining of the pleura with anti-β2 microglobulin antibody. The specimen shows negative findings. (I) Immunostaining of the pleura with anti-TTR antibody. The specimen shows negative findings.

deposits showed positive results for Aλ (Figure 2E) and negative results for Aκ (Figure 2F), AA (Figure 2G), β2-microglobulin (Figure 2H), and TTR (Figure 2I). Subsequent systemic scrutiny led to a diagnosis of localized AL (λ) amyloidosis.[1,2]

AUTHOR CONTRIBUTIONS

MH wrote the manuscript. MH and TI contributed to the data collection. All authors read and approved the final manuscript.

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CONFLICT OF INTEREST STATEMENT

None declared.

DATA AVAILABILITY STATEMENT

Research data are not shared.

ETHICS STATEMENT

The authors declare that appropriate written informed consent was obtained for the publication of this manuscript and accompanying images.

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