



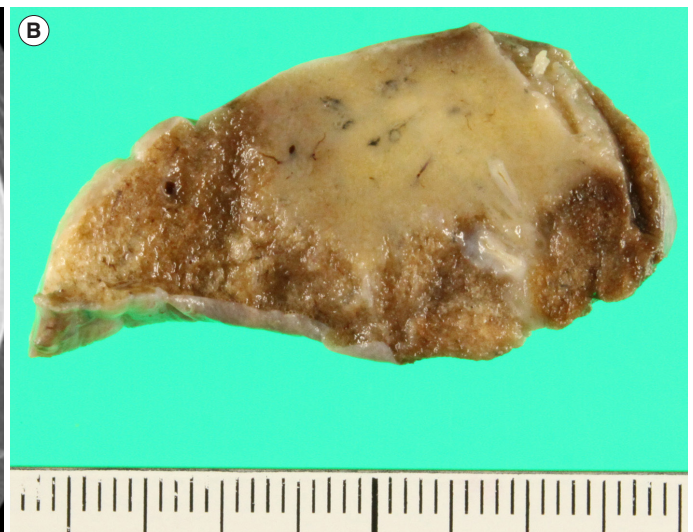
A pulmonary nodule in a patient with Crohn's disease

Akira Hokama¹, Shusaku Haranaga², Takanobu Sasaki³, Hirofumi Matsumoto⁴, Tetsuya Ohira¹, Atsushi Iraha², Tetsu Kinjo¹, Saifun Nahar², Jiro Fujita²

Departments of ¹Endoscopy, ²Infectious, Respiratory, and Digestive Medicine, ³Thoracic and Cardiovascular Surgery, and ⁴Pathology and Oncology, Graduate School of Medicine, University of the Ryukyus, Okinawa, Japan

Question: A 44-year-old man presented with lower abdominal pain and diarrhea. He denied any respiratory symptoms. He had a 7-year history of ileocolonic CD. His medication included infliximab and azathioprine for 5 years, and mesalazine for 6 years. Loss of response to infliximab had been noted. Physical examination showed a body temperature of 37.2°C and left lower quadrant tenderness. Abdominal CT scan for bowel evaluation disclosed incidentally a nodule measuring 12 mm in diameter in the right lung (Fig. A, arrow). Sputum

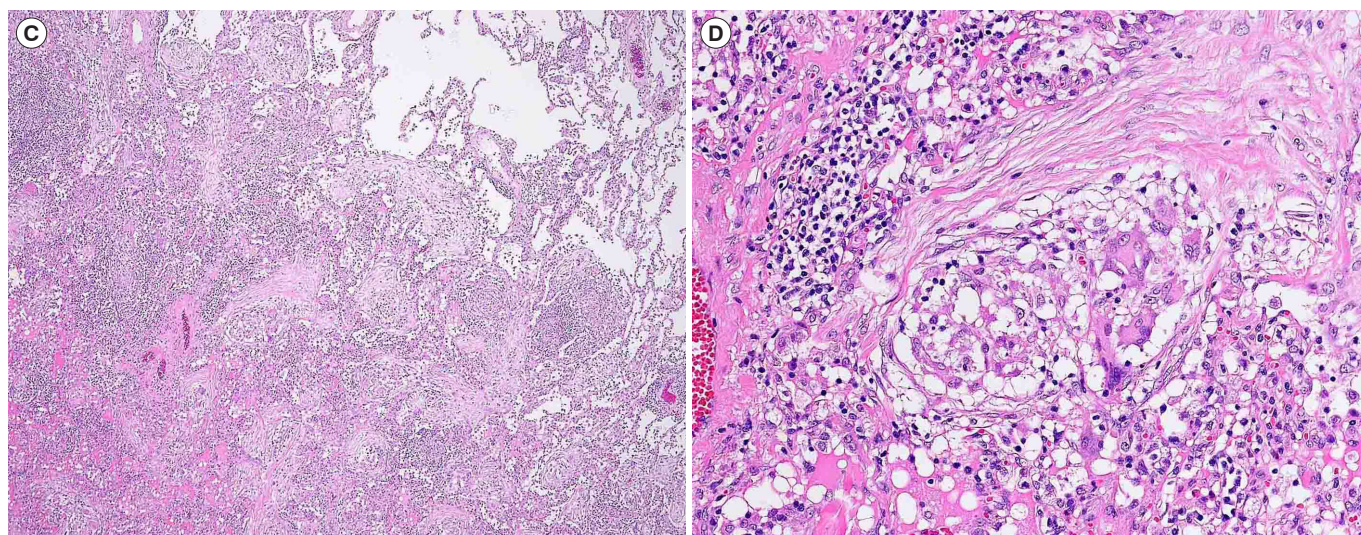
cultures and cytology showed negative results. Tests for tumor markers, β -D-glucan, the purified protein derivative, and *in vitro* interferon- γ release assay were also negative. Both bronchoscopy and CT-guided percutaneous biopsy failed to diagnose the lesion. As the nodule grew and primary lung cancer was not ruled out, the lung mass was resected by video-assisted thoracoscopic surgery for definite diagnosis. Gross examination revealed a solid yellow-white nodule measuring 25 × 20 × 13 mm (Fig. B). What is the most likely diagnosis?



Received January 22, 2019. Accepted January 24, 2019.

Correspondence to Akira Hokama, Department of Endoscopy, Graduate School of Medicine, University of the Ryukyus, 207 Uehara, Nishihara, Okinawa 903-0215, Japan. Tel: +81-98-895-1144, Fax: +81-98-895-1414, E-mail: hokama-a@med.u-ryukyu.ac.jp

ORCID Akira Hokama (<https://orcid.org/0000-0002-8310-9989>)



Answer to the Images: Pulmonary CD with Noncaseating Granulomas and Organizing Pneumonia

The pathological examination showed numerous noncaseating granulomas and organizing pneumonia (Fig. C, H&E, $\times 40$). The granulomas contained typical multinucleated giant cells (Fig. D, H&E, $\times 200$). Pulmonary CD with noncaseating granulomas and organizing pneumonia was diagnosed. Pulmonary lesions have not recurred during 2 years of follow-up with ustekinumab.

Bronchopulmonary involvement in CD is rare, but recently recognized as an important extraintestinal manifestation. These disorders consist of CD-related bronchopulmonary diseases, such as, organizing pneumonia, interstitial pneumonia, and granulomatous inflammation.¹ There may be a certain link between IBD and bronchopulmonary inflammation.² In cases of pulmonary granulomatous lesions in CD, mycobacterial or fungal infections under immunosuppressive therapy, and sarcoidosis should be excluded, as in this case.

FINANCIAL SUPPORT

The authors received no financial support for the research, authorship, and/or publication of this article.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

AUTHOR CONTRIBUTION

Collecting materials: Hokama A, Haranaga S, Ohira T, Iraha A, Kinjo T. Drafting the manuscript: Hokama A. Performing the surgery: Sasaki T. Examining the pathological findings: Matsumoto H. Reviewing the manuscript: Nahar S. Supervising the study: Fujita J. All authors reviewed the final version of the manuscript.

REFERENCES

1. Harbord M, Annese V, Vavricka SR, et al. The first European evidence-based consensus on extra-intestinal manifestations in inflammatory bowel disease. *J Crohns Colitis* 2016;10:239-254.
2. Rodriguez-Roisin R, Bartolome SD, Huchon G, Krowka MJ. Inflammatory bowel diseases, chronic liver diseases and the lung. *Eur Respir J* 2016;47:638-650.