

## A case report on tocilizumab in a patient with ANCA-associated vasculitis and concurrent lung cancer

Sirs,

Antineutrophil cytoplasmic antibody (ANCA)-associated vasculitis (AAV) encompasses a group of autoimmune disorders marked by inflammation of small- to medium-sized blood vessels (1). Standard treatments rely on corticosteroids and cytotoxic agents (2), but the coexistence of malignancies complicates therapy because immunosuppression may inadvertently promote tumour progression. Conversely, aggressive cancer therapies, including immune checkpoint inhibitors, can exacerbate underlying autoimmune disease, creating a significant clinical dilemma when both conditions arise in the same patient (3).

We recently managed a 74-year-old male with a three-year history of progressive interstitial lung disease (ILD), which initially presented incidentally on routine imaging. Despite developing a radiographic honeycombing pattern by 2018, he remained asymptomatic until mid-2019, when intermittent fever and a cough with sticky sputum prompted further investigation. Laboratory tests revealed elevated inflammatory markers (including C-reactive protein and interleukin-6) and positive for myeloperoxidase-ANCA, indicating a likely vasculitic process. New imaging also revealed a thick-walled cavity in the left upper lobe measuring 3.4 cm.

Subsequent histopathological examination confirmed poorly differentiated squamous cell carcinoma (T1N3M0) in the lung, with mediastinal and hilar lymph node metas-

tases. Although the patient received CyberKnife radiotherapy, a follow-up scan revealed tumour enlargement alongside worsening ILD. He then experienced additional symptoms, including hearing loss and hoarseness. In the context of active vasculitis and advanced cancer, traditional immunosuppressants such as cyclophosphamide risk promote malignant growth (4-6), whereas immunotherapy for lung cancer could plausibly worsen this autoimmune disease.

Given the high levels of interleukin-6, we adopted a novel strategy using tocilizumab, an IL-6 receptor antagonist, combined with intravenous methylprednisolone (40 mg/day) (7, 8). Tocilizumab was administered once per month (8 mg/kg) for five months, beginning in March 2020. This regimen led to a striking clinical response: the patient's fever subsided, inflammatory marker levels normalised, and ANCA titres became negative. Moreover, follow-up imaging revealed near-complete resolution of the pulmonary nodules and thinning of the previously thick-walled cavity. Crucially, there was no radiographic or clinical indication of tumour progression during this period, and the patient did not experience severe treatment-related toxicity.

Our experience underscores the therapeutic complexity of addressing AAV in patients who also harbour malignancies. While conventional approaches focus on controlling vasculitis through immunosuppression, clinicians must remain vigilant about the possibility of cancer acceleration. The successful use of tocilizumab in our patient highlights the dual relevance of IL-6 in inflammatory and neoplastic processes. By blocking IL-6 signalling, it may be possible to reduce autoimmune disease activity while preserving sufficient immunosurveil-

lance against tumour cells (9, 10). Although evidence supporting this approach remains limited to case reports and small studies, the results in this scenario are encouraging.

Further research and controlled trials are warranted to clarify the optimal timing, dosing, and safety profile of tocilizumab for patients with coexisting AAV and malignancy. Identifying reliable biomarkers of treatment response will also be critical, as will close collaboration among rheumatologists, oncologists, and pulmonologists. By adopting multidisciplinary strategies, we may identify treatment paradigms that simultaneously manage life-threatening vasculitis and aggressive cancers in this vulnerable patient population.

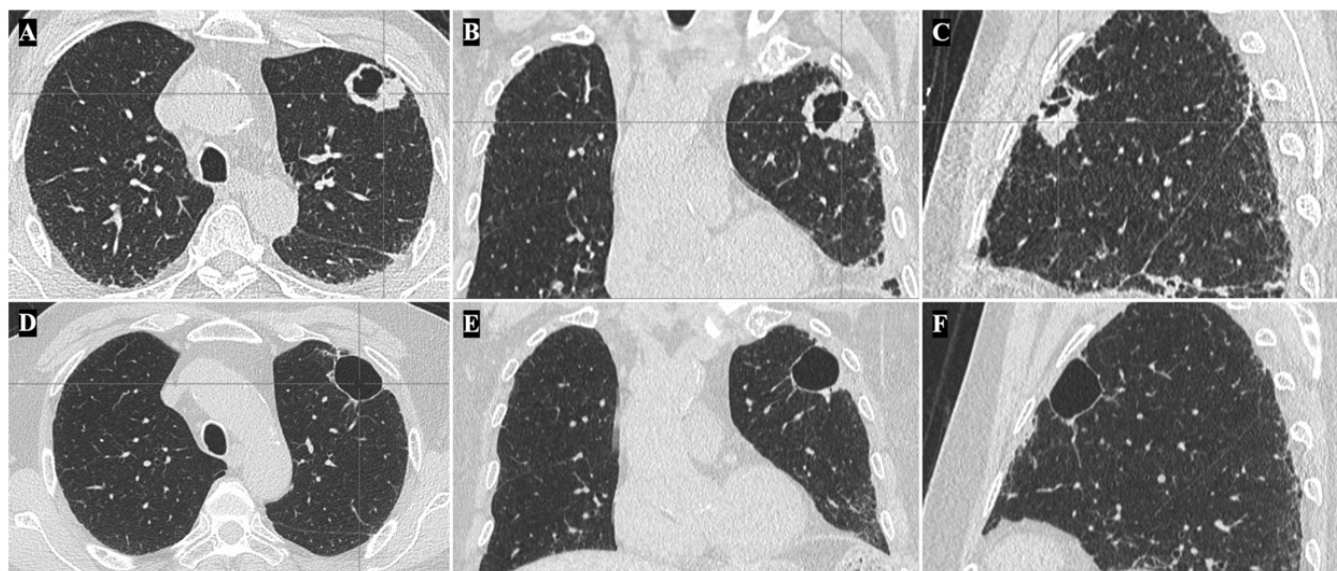
In conclusion, our case illustrates that tocilizumab can serve as a promising dual-purpose intervention in the highly complex overlap of AAV and lung cancer. This outcome highlights the importance of innovative immunomodulatory tactics and underscores the potential for IL-6 blockade to offer both disease control and oncologic stability.

Y.-D. ZOU<sup>1</sup>, MD  
Q.-Y. HUANG<sup>2</sup>, BMed  
Q. GUO<sup>1</sup>, MD  
H. GAO<sup>1</sup>, MD  
J. ZHANG<sup>1</sup>, MD  
S.-G. LI<sup>1</sup>, MD

<sup>1</sup>Department of Rheumatology and Immunology, Peking University International Hospital, Beijing; <sup>2</sup>Peking University, Beijing, China.

Please address correspondence to:

Sheng-Guang Li  
Department of Rheumatology and Immunology, Peking University International Hospital, no. 1, Life Science Park, Zhongguancun, Changping District, 102206 Beijing, China.  
E-mail: lishengguang@vip.sina.com



**Fig. 1.** Chest CT images before (A-C) and after (D-F) tocilizumab treatment.

(A) Axial, (B) coronal and (C) sagittal views showing a 3.4 cm thick-walled cavity in the anterior segment of the left upper lobe. (D-F) Corresponding post-treatment scans demonstrating near-complete resolution of pulmonary nodules and a thin-walled residual cavity (axial, coronal, and sagittal views, respectively).

*Funding: this work was supported by the Capital Medical Development Research Fund (Shoufa2020-4-8023) and the Internal Medical Research Fund of Peking University International Hospital (YN2019QN02).*

*Competing interests: none declared.*

© Copyright CLINICAL AND EXPERIMENTAL RHEUMATOLOGY 2025.

## References

1. SUPPIAH R, ROBSON JC, GRAYSON PC *et al.*: 2022 American College of Rheumatology/European Alliance of Associations for Rheumatology classification criteria for microscopic polyangiitis. *Ann Rheum Dis* 2022; 81(3): 321-6. <https://doi.org/10.1136/annrheumdis-2021-221796>
2. HELLMICH B, SANCHEZ-ALAMO B, SCHIRMER JH *et al.*: EULAR recommendations for the management of ANCA-associated vasculitis: 2022 update. *Ann Rheum Dis* 2024; 83(1): 30-47. <https://doi.org/10.1136/ard-2022-223764>
3. CAI Q, HUO GW, ZHU FY, YUE P, YUAN DQ, CHEN P: Safety and efficacy of immune checkpoint inhibitors in advanced cancer patients with autoimmune disease: A meta-analysis. *Hum Vaccin Immunother* 2022; 18(7): 2145102. <https://doi.org/10.1080/21645515.2022.2145102>
4. VAN DAALEN EE, RIZZO R, KRONBICHLER A *et al.*: Effect of rituximab on malignancy risk in patients with ANCA-associated vasculitis. *Ann Rheum Dis* 2017; 76(6): 1064-9. <https://doi.org/10.1136/annrheumdis-2016-209925>
5. MAHR A, HEIJL C, LE GUENNO G, FAURSCHOU M: ANCA-associated vasculitis and malignancy: current evidence for cause and consequence relationships. *Best Pract Res Clin Rheumatol* 2013; 27(1): 45-56. <https://doi.org/10.1016/j.berh.2012.12.003>
6. CHOI ST, AHN SV, LEE PH, MOON CM: The cancer risk according to three subtypes of ANCA-associated vasculitis: A propensity score-matched analysis of a nationwide study. *Semin Arthritis Rheum* 2021; 51(4): 692-9. <https://doi.org/10.1016/j.semarthrit.2021.03.014>
7. TAKENAKA K, OHBA T, SUHARA K, SATO Y, NAGASAKA K: Successful treatment of refractory aortitis in antineutrophil cytoplasmic antibody-associated vasculitis using tocilizumab. *Clin Rheumatol* 2013; 33(2): 287-9. <https://doi.org/10.1007/s10067-013-2457-2>
8. SAKAI R, KONDO T, KURASAWA T *et al.*: Current clinical evidence of tocilizumab for the treatment of ANCA-associated vasculitis: a prospective case series for microscopic polyangiitis in a combination with corticosteroids and literature review. *Clin Rheumatol* 2017; 36(10): 2383-92. <https://doi.org/10.1007/s10067-017-3752-0>
9. KIM NH, KIM SK, KIM DS *et al.*: Anti-proliferative action of IL-6R-targeted antibody tocilizumab for non-small cell lung cancer cells. *Oncol Lett* 2015; 9(5): 2283-88. <https://doi.org/10.3892/ol.2015.3019>
10. LI L, TENG J, KOU N, YUE Y, WANG H: ANCA-associated vasculitis and lung cancer: an immunological perspective. *Clin Exp Med* 2024; 24(1): 208. <https://doi.org/10.1007/s10238-024-01475-0>