


Abatacept-associated panniculitis in a patient with rheumatoid arthritis

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DESCRIPTION

A man in his late 70s presented to the outpatient department of our hospital with a 5-day history of fever. He had rheumatoid arthritis, treated with prednisolone, salazosulfapyridine and tacrolimus. His other medical history included chronic obstructive lung disease, hypertension and diabetes mellitus, and he was taking tiotropium bromide inhalant, amlodipine and mitiglinide for a long time. Six weeks prior to presentation, he had received an abatacept injection for the first time. The succeeding doses had been administered weekly. On physical examination, the patient had a temperature of 38°C, and poorly demarcated erythematous lesions, measuring less than 5 cm, were noted on his chest and back ([figure 1](#)). Laboratory examination showed a whitecell count of $15.5 \times 10^9/L$ and a C reactive protein level of 22.3 mg/dL. The tests for anti-nuclear, anti-SS-A, anti-SS-B and anti-double-stranded DNA antibodies yielded negative results. Two sets of blood cultures did not grow any bacteria. Ultrasonography revealed hyperechoic areas in the subcutaneous adipose tissue underlying the erythematous region ([figure 2](#)). A skin biopsy of the erythematous lesions revealed diffuse inflammatory infiltrates, composed mainly of neutrophils, in the lobules of the adipose tissue. The elastic fibres of the vessels were preserved ([figure 3](#)). These findings indicated panniculitis without vasculitis. The cultures of the specimens yielded no bacterial growth. The abatacept injections were discontinued and administration of colchicine 1.5 mg/day was initiated. Three days later, the fever and erythema resolved. The patient was treated with colchicine for 14 days, and abatacept treatment was not resumed. Based on the clinical and histological findings, we made a diagnosis of abatacept-associated panniculitis. The patient's Naranjo Adverse Drug Reaction Probability Scale registered at 7 points, which indicated a probable relationship between his symptoms and adverse drug reactions to abatacept.¹

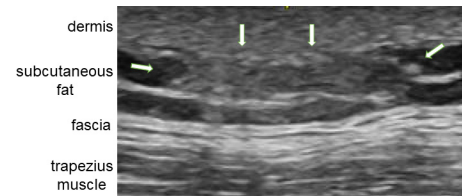


Figure 2 Ultrasonography revealing hyperechoic areas in the subcutaneous adipose tissue (white arrows) underlying the erythema.

Abatacept is used worldwide to treat patients with rheumatoid arthritis. The agent improves patients' pain and joint inflammation through the modulation of costimulatory signals necessary for T-cell activation. Abatacept can cause various adverse cutaneous reactions including cutaneous eruptions, urticaria and psoriasis; however, only a few cases of abatacept-associated panniculitis have been reported.^{2,3} The histological pattern showed lupus erythematosus panniculitis² or panniculitis with necrobiosis lipoidica-like features³; however, this case demonstrated lobular panniculitis accompanied by neutrophil infiltration without vasculitis. This histological pattern has been observed in pancreatic panniculitis,⁴ alpha-1 antitrypsin deficiency panniculitis,⁵ traumatic panniculitis⁶ and infectious panniculitis,⁷ which are not compatible with this patient's clinical course. Ultrasonography for subcutaneous panniculitis often revealed thickening of the subcutaneous fat tissue and hyperechoic areas with poorly defined margin in the fat tissue⁸; however, these findings are non-specific and cannot differentiate panniculitis from other diseases. Drug-induced panniculitis is typically associated with oral contraceptives, nonsteroidal anti-inflammatory drugs, antibiotics and leukotriene-modifying agents. Although panniculitis is rarely related to biologics, the present case demonstrated that abatacept can be associated with panniculitis. Clinicians should



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Figure 1 Physical examination findings of the patient. Poorly demarcated and painful erythema on the back.

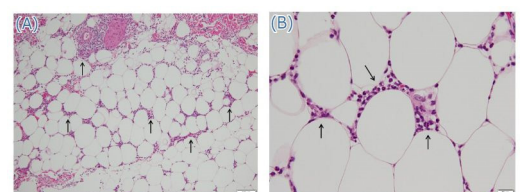


Figure 3 The skin biopsy specimen showing erythema of the left shoulder. Diffuse inflammatory infiltrates, composed mainly of neutrophils, are observed in the lobules of the fatty tissue on H&E staining (black arrows). (A) low-power field, (B) high-power field.

consider panniculitis in the differential diagnosis in patients developing fever and erythema after receiving abatacept.

Learning points

- ▶ Abatacept can cause panniculitis as an adverse cutaneous reaction, although panniculitis is rarely related to biologics.
- ▶ The histological pattern of abatacept-associated panniculitis is still inconclusive and accumulation of the cases is necessary.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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REFERENCES

- 1 Naranjo CA, Busto U, Sellers EM, *et al.* A method for estimating the probability of adverse drug reactions. *Clin Pharmacol Ther* 1981;30:239–45.
- 2 Mong C, Tsai M, Gharavi NM, *et al.* Abatacept-induced lupus erythematosus panniculitis in a patient with rheumatoid arthritis. *Proceedings of UCLA Healthcare*; 2012:16
- 3 Mahlberg S, Pham T, DeClerck B, *et al.* Abatacept-induced panniculitis with necrobiosis lipoidica-like features in a patient with rheumatoid arthritis. *Cureus* 2021;13:e13460.
- 4 García-Romero D, Vanaclocha F. Pancreatic panniculitis. *Dermatol Clin* 2008;26:465–70.
- 5 Blanco I, Lipsker D, Lara B, *et al.* Neutrophilic panniculitis associated with alpha-1-antitrypsin deficiency: an update. *Br J Dermatol* 2016;174:753–62.
- 6 Lee JH, Jung KE, Kim HS, *et al.* Traumatic panniculitis with localized hypertrichosis: two new cases and considerations. *J Dermatol* 2013;40:139–41.
- 7 Delgado-Jimenez Y, Fraga J, García-Díez A. Infective panniculitis. *Dermatol Clin* 2008;26:471–80.
- 8 Potapova A, Egorova O, Alekseeva O, *et al.* Pos1388 ultrasound for panniculitis. *Ann Rheum Dis* 2021;80:977.

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