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IMAGE OF THE MONTH

Inflammatory response to the anti PD-L1 drug, atezolizumab, masquerades as breast implant rupture

Marie-Eve Marcotte[1] · François Panet[2] · Etienne Croteau[3] · Marie-Anne Richard[1] · Michel Pavic[2] · Marc-André Levasseur[1]

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This is a 65-year-old woman diagnosed with high-grade bladder urothelial carcinoma involving iliac and retroperitoneal lymph nodes (stage IIIb). A written informed consent was obtained. After six cycles of chemotherapy, a [^{18}F]FDG PET/CT revealed a pararectal recurrence. No surgery was performed, and atezolizumab, an immune checkpoint inhibitor (ICPI) targeting the programmed death ligand-1 (PD-L1), was started. After five cycles of atezolizumab, the [^{18}F]FDG PET/CT showed a symmetric distribution of multiple hypermetabolic lymphadenopathies as well as bilateral hypermetabolic breast peri-implant effusions. The patient was known to have smooth-surface silicone breast implants, in place for 25 years without complication. The implants were normal on the initial [^{18}F]FDG PET/CT.

The symmetrical lymph node involvement was attributed to a sarcoid-like granulomatosis reaction, an immune-related adverse event (irAE) described with some ICPIs, such as atezolizumab [1–4]. In this context, inflammatory peri-implant breast effusions, secondary to an irAE related to atezolizumab, were diagnosed. Ultrasound showed deformation of the breast implants with liquid accumulation in the capsule, which could have led to the erroneous diagnosis of intracapsular implant rupture.

Corticosteroid therapy was initiated with prednisone 25 mg die, then gradually tapered off and discontinued after 6 months. One atezolizumab cycle was skipped at the beginning of the corticosteroid treatment. The [^{18}F]FDG PET/CT performed after eight and 13 cycles of atezolizumab showed clear regression of the lymph nodes and resorption of the hypermetabolic peri-implant effusions. A normal variant of the skeletal muscle uptake was observed on the initial and the last [^{18}F]FDG PET/CTs, and could be related to muscle tension.

To our knowledge, this is the first report of an irAE secondary to an ICPI involving silicone breast implants. This irAE can mimic intracapsular rupture of the implant and can ultimately lead to unnecessary surgery [5]. In the present case, it improved after glucocorticoid and did not require permanent interruption of the immune therapy regimen.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Consent from the patient Written informed consent was obtained from the patient.

References

1. Brahmer JR, Tykodi SS, Chow LQM, Hwu W-J, Topalian SL, Hwu P, et al. Safety and activity of anti-PD-L1 antibody in patients with advanced cancer. N Engl J Med. 2012;366:2455–65.

This article is part of the Topical Collection on Image of the Month.

✉ Marie-Eve Marcotte
marie-eve.marcotte@usherbrooke.ca

[1] Department of Nuclear Medicine and Radiobiology, Faculty of Medicine and Health Sciences, Sherbrooke University, 3001, 12th Avenue North, Sherbrooke, QC J1H 5N4, Canada

[2] Department of Hematology–Oncology, Faculty of Medicine and Health Sciences, Sherbrooke University, 3001, 12th Avenue North, Sherbrooke, QC J1H 5N4, Canada

[3] Sherbrooke Molecular Imaging Center (CIMS), Sherbrooke University Hospital Research Center (CR-CHUS), 3001, 12th Avenue North, Sherbrooke, QC J1H 5N4, Canada

2. Champiat S, Lambotte O, Barreau E, Belkhir R, Berdelou A, Carbonnel F, et al. Management of immune checkpoint blockade dysimmune toxicities: a collaborative position paper. Ann Oncol. 2016;27:559–74.
3. Mitchell MA, Hogan K, Amjadi K. Atezolizumab-induced sarcoid-like granulomatous reaction in a patient with urothelial cell carcinoma. Immunotherapy. 2018;10:1189–92.
4. Chopra A, Nautiyal A, Kalkanis A, Judson MA. Drug-induced sarcoidosis-like reactions. Chest. 2018;154:664–77.
5. Hillard C, Fowler JD, Barta R, Cunningham B. Silicone breast implant rupture: a review. Gland Surg. 2017;6:163–8.