

Silicone-Induced Granulomas of Breast Implant Capsule (SIGBIC)

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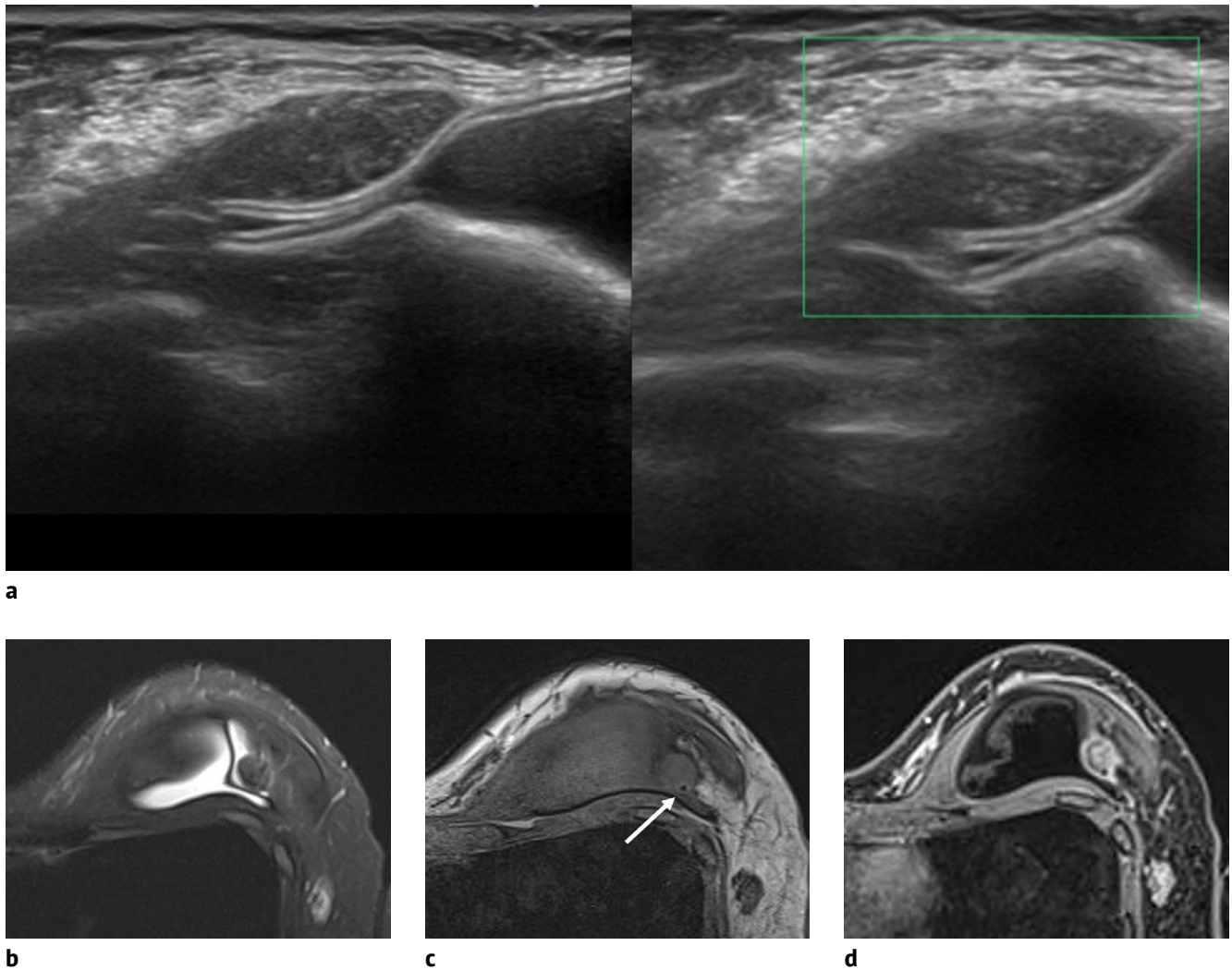


Fig. 1. A 31-year-old woman with palpable lump on her left breast, 8 years after silicone implant augmentation mammoplasty. **a.** Ultrasonography showed an oval-shaped hypoechoic mass abutting on the implant capsule without internal vascularity. **b, c.** Both T2-(**b**) and T1-(**c**) weighted MRI revealed an intracapsular mass with intermediate signal intensity. A minimal fluid collection surrounded the mass on T2-weighted image (**b**), and a tiny black drop signal (arrow) was seen within the mass (**c**). **d.** Delayed (6 minutes after contrast material injection) dynamic contrast enhanced MRI revealed a mass showing heterogeneous delayed enhancement (type I).

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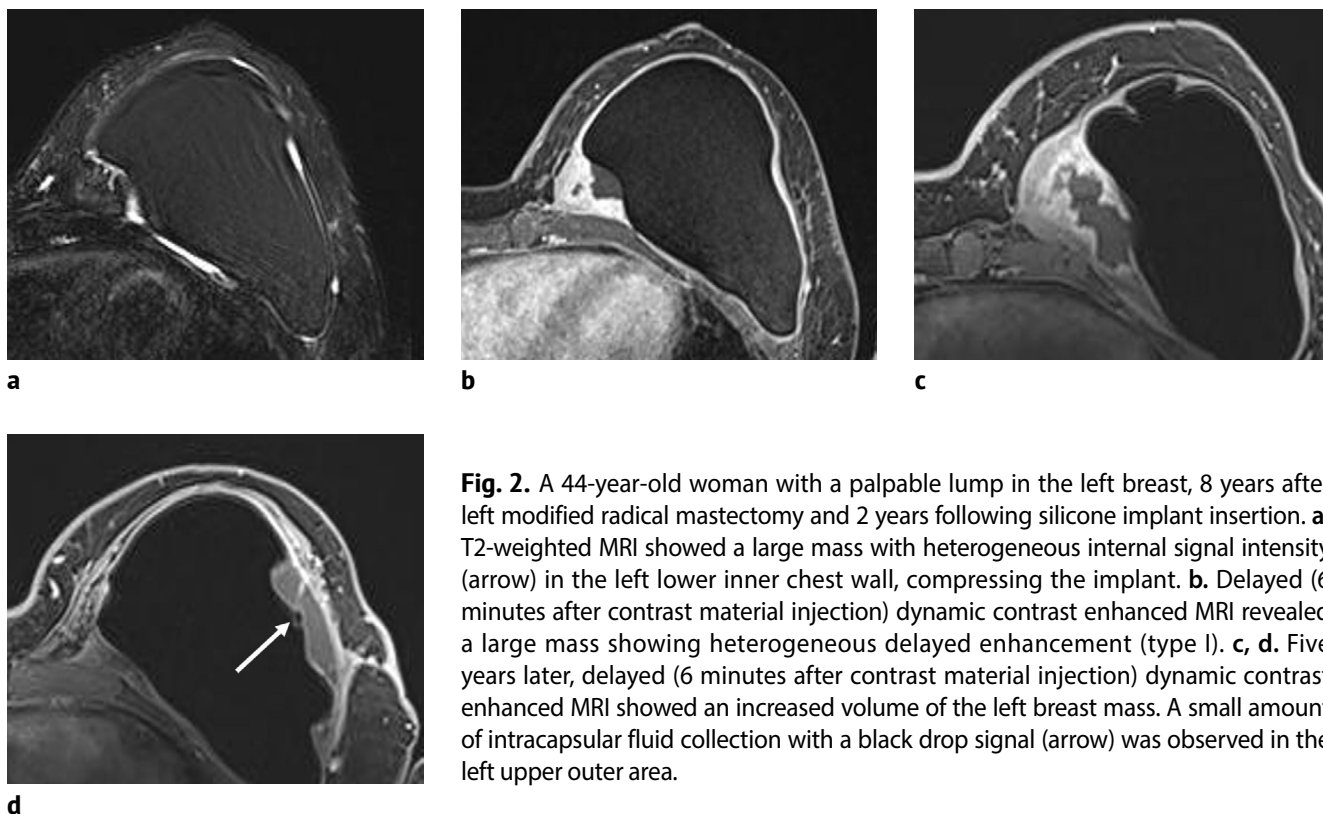


Fig. 2. A 44-year-old woman with a palpable lump in the left breast, 8 years after left modified radical mastectomy and 2 years following silicone implant insertion. **a.** T2-weighted MRI showed a large mass with heterogeneous internal signal intensity (arrow) in the left lower inner chest wall, compressing the implant. **b.** Delayed (6 minutes after contrast material injection) dynamic contrast enhanced MRI revealed a large mass showing heterogeneous delayed enhancement (type I). **c, d.** Five years later, delayed (6 minutes after contrast material injection) dynamic contrast enhanced MRI showed an increased volume of the left breast mass. A small amount of intracapsular fluid collection with a black drop signal (arrow) was observed in the left upper outer area.

Case 1

A 31-year-old woman presented with a palpable lump in the left breast. She underwent silicone implant augmentation mammoplasty 8 years prior. Breast ultrasonography and MRI findings are shown in Figure 1. An ultrasound-guided core needle biopsy revealed synovial metaplasia with chronic inflammation in the implant capsule, with no evidence of malignancy.

Case 2

A 44-year-old woman presented with a palpable lump in the left breast. She underwent a left modified radical mastectomy for breast cancer 8 years prior and delayed breast reconstruction with a silicone implant 2 years later. MRI images are shown in Figure 2. Fine-needle aspiration of the left mass revealed fat necrosis without evidence of

malignancy. Five years later, she presented with an enlarged left breast mass. Follow-up breast MRI showed enlargement of the left breast mass and a newly developed peri-implant fluid collection with a black signal drop.

Based on the clinical history and imaging findings, we suspected silicone-induced granulomas of the breast implant capsule (SIGBIC).

SIGBIC is a granulation tissue formed by an immune reaction between the fibrous capsule of the breast implant and free silicone particles induced by gel bleeding (1). On MRI, SIGBIC presents as slow-growing intracapsular masses with heterogeneous high signal intensity on T2-weighted imaging, low signal intensity on T1-weighted imaging, and delayed contrast enhancement. The black drop signal is characterized by a low-signal focus at the interface between the implant and the granuloma, corresponding to silicone granules (2). Breast implant-associated anaplastic large cell lymphoma

(BIA-ALCL) was the primary differential diagnosis. However, the imaging features of SIGBIC and BIA-ALCL may be similar; therefore, a biopsy should be performed if an intracapsular mass is suspected (3). Histologically, SIGBIC is characterized by a predominant extracapsular silicone with a low aggregate lymphocyte population associated with a chronic foreign body inflammatory reaction. No anaplastic monoclonal T cells were enhanced by CD30 or CD3 immunostaining (4). Further studies are needed to determine the association between SIGBIC and BIA-ALCL.

References

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