

Silicone gel migration masquerading as metastatic breast cancer

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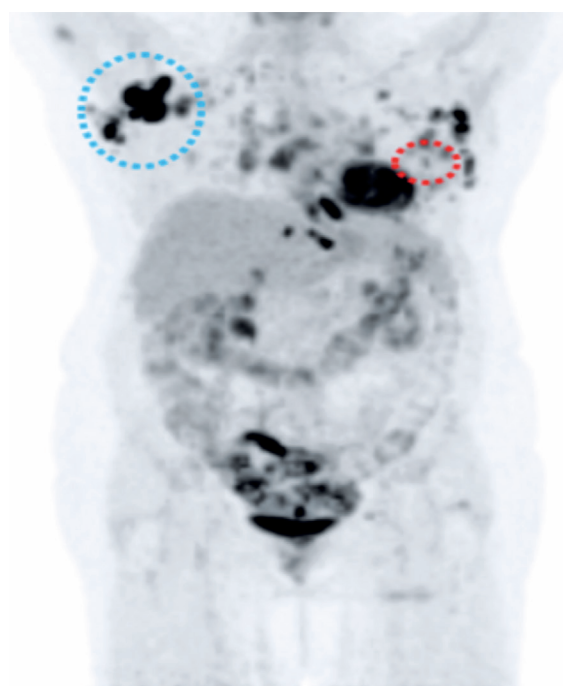


Figure 1. A coronal projection showing multiple suspicious lesions with intense FDG uptake, particularly evident in the right axillary lymphadenopathy and pulmonary nodules

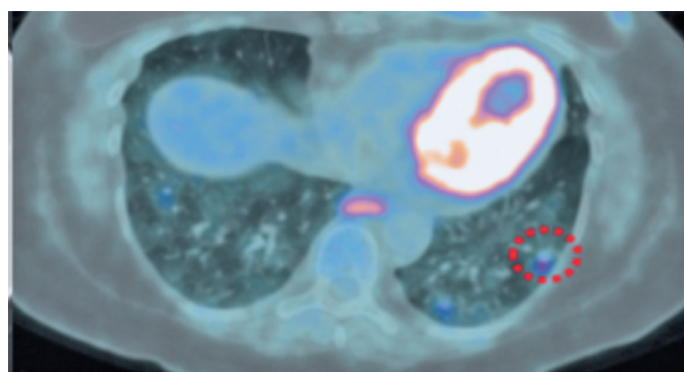


Figure 2. Numerous FDG-avid pulmonary nodules are highlighted by red circles. Despite their small size, these nodules were considered highly suspicious due to a history of high-risk breast cancer, previous images showing no such alterations, and the presence of other suspicious lesions (extrapulmonary)

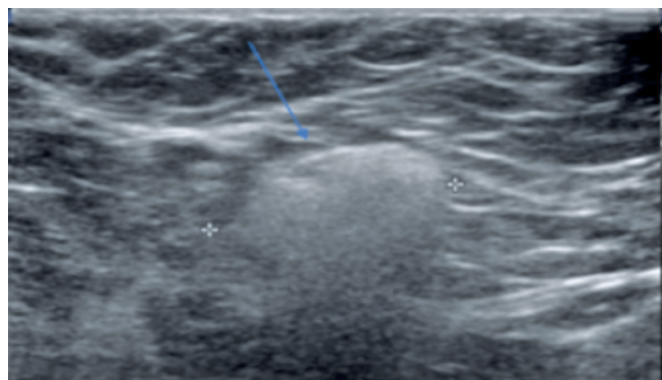


Figure 3. Ultrasonography of the right axilla showing the classic “snowstorm sign,” which represents the presence of free silicone droplets mixed with normal nodal tissue, resulting in a characteristic heterogeneous echogenic appearance with dispersion of the ultrasound beam. This is considered one of the most reliable radiological signs of extracapsular breast implant rupture

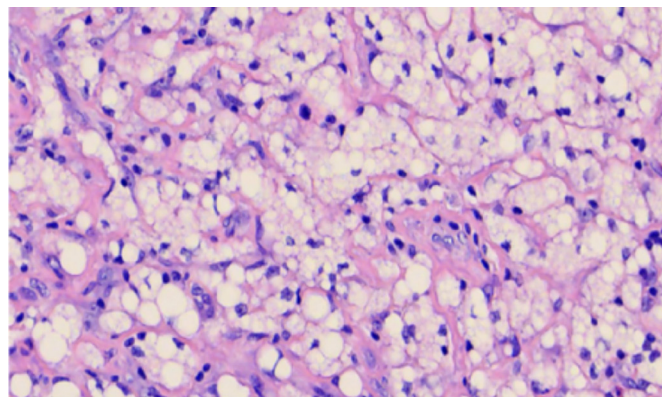


Figure 4. A high-power view of a microscopic image from a pulmonary biopsy showing macrophages with clear, refractile, nonpolarizable material within cytoplasmic vacuoles (HE; 53.6 ×), characteristic of tissue silicone infiltration

We report the case of a 72-year-old patient with stage III breast cancer who presented with multiple pulmonary nodules incidentally detected on computed tomography (CT). Further investigation using positron emission tomography (PET) revealed additional fluorodeoxyglucose-avid (FDG) chest wall lesions and widespread lymphadenopathy (axillary, retropectoral, supraclavicular, pulmonary hilar, and mediastinal), all highly suggestive of recurrent cancer (Figures 1 and 2).

An ultrasound-guided core biopsy of the axillary node was performed to assess potential changes in disease biology. The target lesion showed diffuse hyperechogenicity and the “snowstorm” sign, typically associated with free silicone impregnation (Figure 3), subsequently confirmed by histopathological analysis. To investigate the nature of the pulmonary nodules, which were not present on baseline CT, a CT-guided

biopsy was performed (Figure 4). The breast implants were removed, and after four years of follow-up with the oncology and pneumology teams, the patient showed only subclinical alterations on pulmonary function tests and no evidence of cancer recurrence. Subtle improvements (morphological regression and decreased FDG uptake) were first observed in regional lymphadenopathy, followed by granulomatous pulmonary changes. For years, the differential diagnosis of potential disease recurrence events may be extremely challenging.

The use of silicone implants in breast reconstruction carries a small risk of adverse outcomes such as time-related decay and even rupture.^(1,2) Silicone spread occurs due to its high fat solubility.⁽³⁾ Silicone granuloma (siliconoma), a tissue inflammatory response to free liquid silicone, has been reported to be FDG-avid.^(4,5) In this case, the FDG-PET (but not ultrasound) findings were indistinguishable from widespread cancer recurrence, reinforcing the importance of histopathological confirmation of suspicious lesions in patients with cancer.

AUTHORS' CONTRIBUTION

Felipe Magaldi de Carvalho, Leandro Jonata Carvalho Oliveira, Carlos Shimizu, Felipe de Galiza Barbosa, Leonardo de Abreu Testagrossa and Max Senna Mano: conceptualization, formal analysis, writing - original draft, writing - review & editing.

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REFERENCES

1. Brown SL, Silverman BG, Berg WA. Rupture of silicone-gel breast implants: causes, sequelae, and diagnosis. *Lancet*. 1997;350(9090):1531-7. Review.
2. Brown SL, Parmentier CM, Woo EK, Vishnuvajjala RL, Headrick ML. Silicone gel breast implant adverse event reports to the Food and Drug Administration, 1984-1995. *Public Health Rep*. 1998;113(6):535-43.
3. Winer LH, Sternberg TH, Lehman R, Asheley FL. Tissue Reactions to injected silicone liquids. A report of three cases. *Arch Dermatol*. 1964;90:588-93.
4. Shepherd SM, Makariou E. Silicone granuloma mimicking breast cancer recurrence on PET CT. *Breast J*. 2010;16(5):551-3.
5. Adejolu M, Huo L, Rohren E, Santiago L, Yang WT. False-positive lesions mimicking breast cancer on FDG PET and PET/CT. *AJR Am J Roentgenol*. 2012;198(3):W304-14. Review.