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Case Report

Liquid silicone filler migration following illicit gluteal augmentation ☆,☆☆

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ABSTRACT

The illicit use of fillers has significantly increased, especially among transgender women (transwomen) attempting to fulfill unmet gender affirmation needs. We present a case of liquid silicone filler migration to the distal lateral thigh, multiple years following an illicit gluteal augmentation, and mimicking a neoplasm. Initial clinical and imaging findings were inconclusive necessitating advanced imaging, an orthopedic oncology surgical consultation, and finally an ultrasound-guided biopsy. Knowledge of the increasing use of fillers, their complications, and imaging findings is critical as these patients commonly choose not to disclose this history. A radiologist suggesting this diagnosis may assist the clinician, who is often unaware of this history which could help prevent unnecessary imaging and invasive procedures.

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Introduction

The use of “fillers,” commonly liquid silicone, in cosmetic procedures has significantly increased [1–6]. Although banned by the United States Food and Drug Administration for large-scale enhancement, the illicit use of fillers, especially among transgender women (transwomen) has increased [1,3,4]. Patients are at risk of multiple serious complications including multisystem failure, pulmonary emboli, and even death [1–3,5,7,8]. Inferior migration of the filler from the initial injection

site can occur, even multiple years later, and can cause a painful soft tissue reaction or even mimic a mass [1–3,5,7,8]. We present a unique case of liquid silicone filler migration following illicit gluteal augmentation, presenting as a suspected neoplasm secondary to patient withheld history. Knowledge of the use of illicit fillers, their complications, and imaging findings is critical as these patients commonly choose not to disclose this history. A radiologist suggesting this diagnosis may assist the clinician, who is often unaware of this history, could help prevent unnecessary imaging and invasive procedures [4,5,9].

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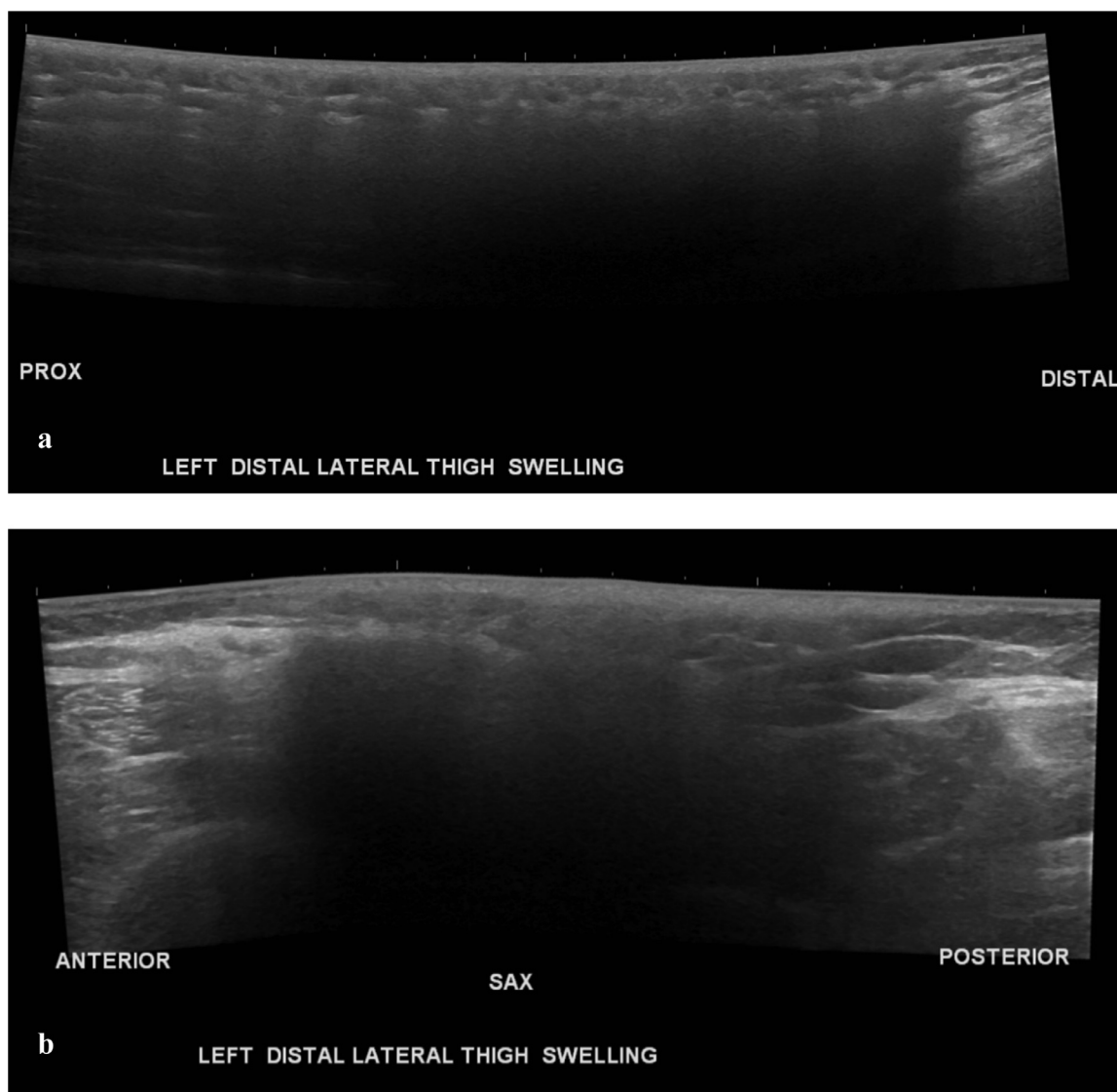


Fig. 1 – Ultrasound images of the area of concern at the distal lateral left thigh. (a) Long-axis and (b) short-axis (SAX) panoramic sonographic images demonstrating a “snowstorm” appearance with irregular hyperechoic shadowing, obscuring the underlying anatomy.

Case Report

A 35-year-old transwoman presented to her family physician with a 6-month history of progressively increasing left distal lateral thigh pain and a hard mass. The patient denied any history of trauma to that area or any weakness. She also denied fevers and chills. She had been attempting to self-treat with alternating ice and heat with no significant improvement. She works as a waitress and remains active but has not engaged in any new recent activities. Additionally, she stated that over-the-counter topical analgesics and oral nonsteroidal anti-inflammatory medications only partially relieved the pain. She initially denied any pertinent medical or surgical history.

On physical examination, there was induration with localized tenderness and swelling to the distal left lateral thigh.

There was normal range of motion and normal strength tests. There were no open wounds or ulcerations. The area was hard to palpation but no discrete mass could be palpated. There was no fever. The primary care physician suspected an infection or ill-defined mass.

The patient was then referred to radiology for a musculoskeletal ultrasound (US) to further evaluate. The US (Fig. 1) demonstrated a “snowstorm” appearance with irregular hyperechoic shadowing, obscuring the underlying anatomy. There was no associated hyperemia by power Doppler or any significant adjacent subcutaneous edema. No focal fluid collection or solid mass was identified. The examination was interpreted with a differential diagnosis of fat necrosis or heterotopic ossification. Subsequently, an MRI with contrast was recommended.

On MRI (Fig. 2), there was an elliptical-shaped area of iso- to-hypointense signal on both T1- and T2-weighted images

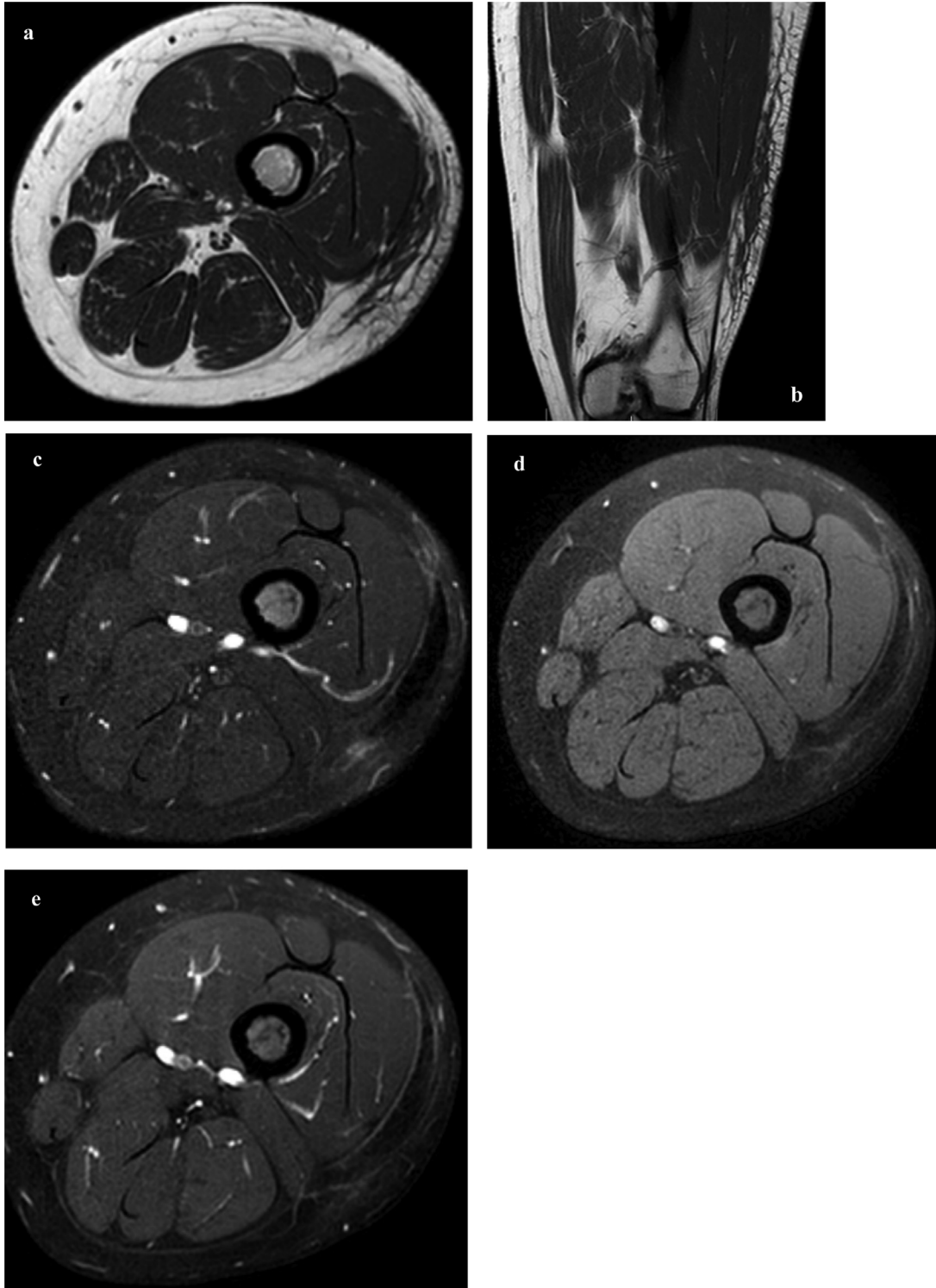


Fig. 2 – MR images of the distal left thigh. (a) Axial and (b) coronal T1W TSE, (c) fat-suppressed axial T2W FSE, fat-suppressed axial T1W (d) pre- and (e) post-contrast. Images show an elliptical-shaped area of iso-to-hypointense signal on both T1- and T2-weighted images in the subcutaneous fat at the distal lateral thigh with no significant enhancement and with mild surrounding subcutaneous edema.

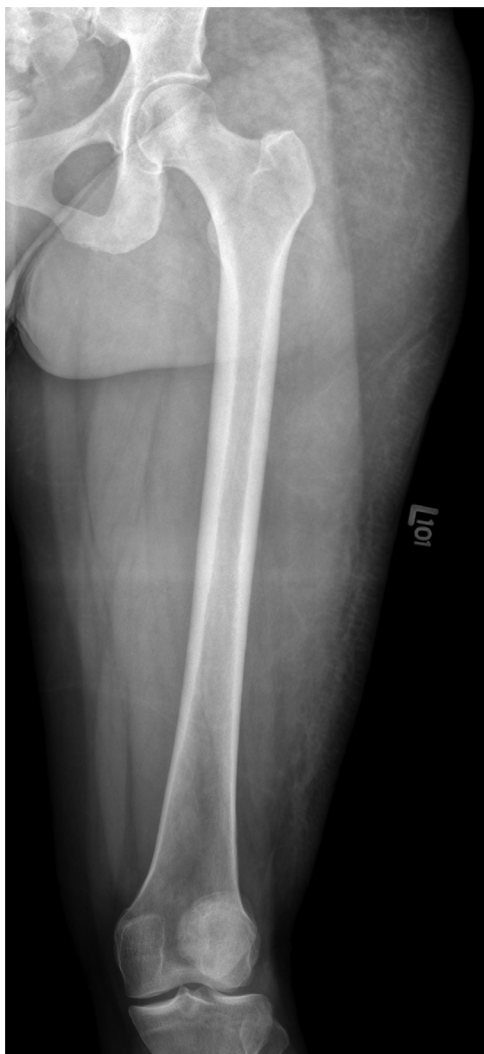


Fig. 3 – Anteroposterior radiograph of the left thigh demonstrated mild distal lateral thigh soft tissue prominence without a soft tissue calcification or ossification. Note the foci of increased soft tissue densities in the left gluteal region.

with no significant enhancement and mild surrounding subcutaneous edema. A differential diagnosis of fat necrosis, heterotopic ossification, or other calcified mass was offered and a referral to an orthopedic oncologic surgeon was recommended.

The orthopedic oncologic surgeon ordered a radiograph and a CT with contrast. The radiograph (Fig. 3) was interpreted as mild distal lateral soft tissue prominence corresponding to the US but without an acute osseous abnormality. No calcific or ossific masses were identified. The CT (Fig. 4) also demonstrated the area of induration, skin thickening, and mild subcutaneous edema with mild inflammatory stranding. There was no definite enhancing mass, abscess, soft tissue gas, or any associated calcifications or ossifications. Both the radiographs and CT showed no fracture, dislocation, periosteal reaction, or suspicious osseous lesion. Due to the inconclusive

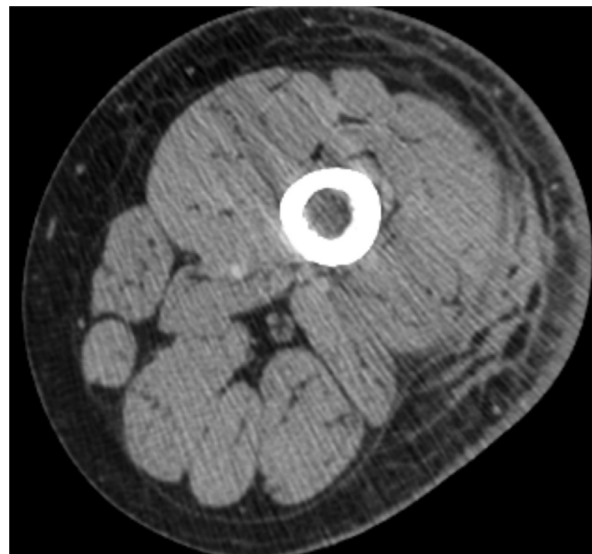


Fig. 4 – Axial CT image, in soft tissue windows, of the distal left thigh following the administration of intravenous contrast reveals the area of induration, skin thickening, and mild subcutaneous edema with mild inflammatory stranding. No definite enhancement.

imaging and clinical findings, an ultrasound-guided biopsy was then requested.

Pathology results of the biopsied “soft tissue mass, left thigh,” reported “features consistent with exogenous foreign body reaction. The biopsy demonstrates fibrous and adipose tissue with mild chronic inflammation and enlarged cystic spaces surrounded by foamy histiocytes. Additionally, many histiocytes have numerous cytoplasmic microvacuoles. These features would be consistent with an exogenous foreign body reaction.”

Only following the biopsy pathology results, did the patient volunteer a history of an “after-market” gluteal injection in 2010, in a hotel room. In retrospect, the radiograph (Fig. 3) demonstrated the foci of the initial site of injected silicone as increased soft tissue densities in the left gluteal region. Subsequently, dedicated MR imaging of the left hip (Fig. 5) was obtained and demonstrated multiple iso-to-hypointense T1 and T2 foci in the subcutaneous fat compatible with the injected liquid silicone.

Discussion

The use of “fillers” in cosmetic procedures has significantly increased [1–5]. Fillers are subcutaneous injections, commonly liquid silicone, to enhance cosmetic appearances [1,2]. The United States Food and Drug Administration banned the use of injectable silicone for large-scale enhancement such as gluteal or breast augmentation [1,3,5]. However, illicit use of fillers has increased, especially among transwomen attempting to fulfill unmet gender affirmation needs [1,3,4]. The use of fillers is highest among those with socioeconomic and

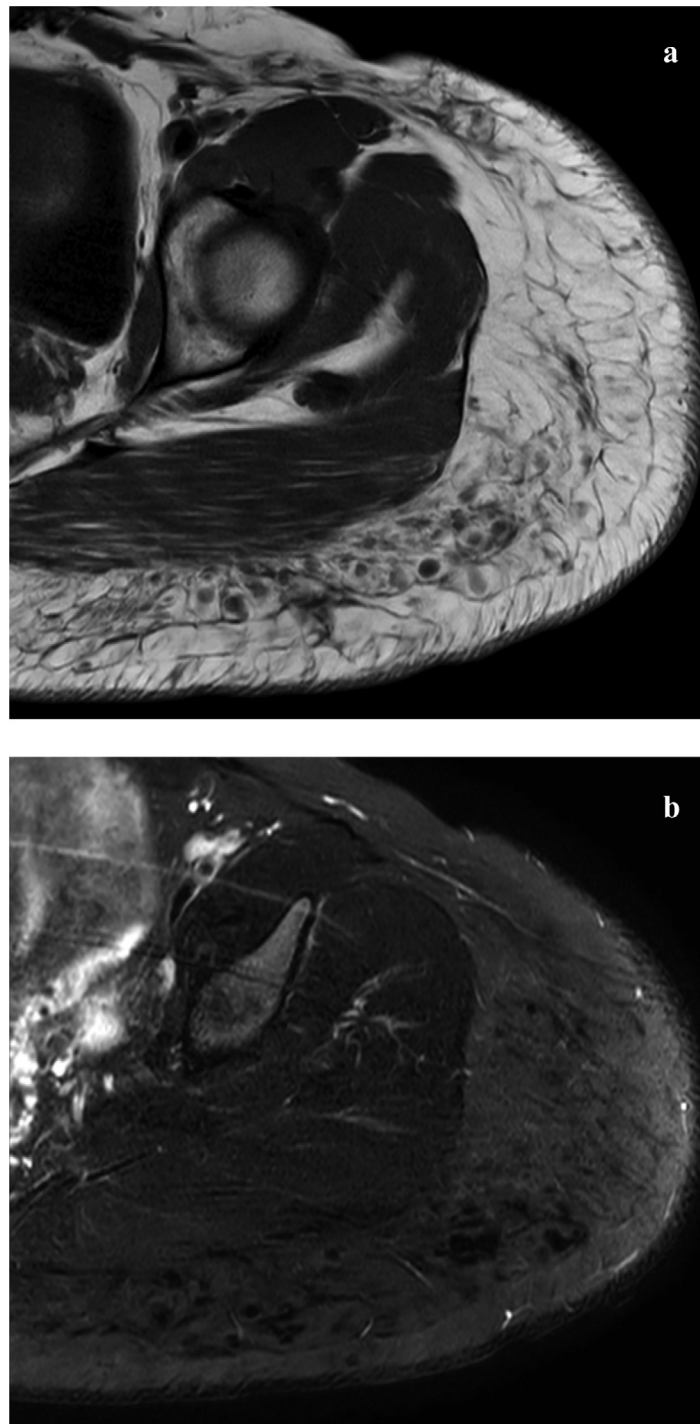


Fig. 5 – Subsequently obtained (a) T1 and (b) fat-suppressed T2 axial MR images of the left hip/gluteal region demonstrating the site of injected foci of subcutaneous liquid silicone as iso-to-hypointense signal on both T1 and T2 sequences.

political vulnerabilities whom illicit fillers may be the only choice due to the cost of legal procedures [1,3,4]. Furthermore, many transwomen suffer from discomfort in public settings and have experienced discrimination in the medical system. Transwomen look to fillers as an inexpensive and easy alternative [3]. The cost of using illicit fillers for gluteal augmentation is approximately 10%-30% that of a legally obtained buttock implant procedure [3]. The typical scenario is the

injection of materials, alleged to be medical-grade silicone, into transwomen at “pumping parties” by so-called “pumpers” [1,3,6].

Patients are at risk of multiple serious health complications [1–3,5,7,8]. Inferior migration of the filler from the initial site can occur following a lengthy lag period (5-30 years) and can induce painful soft tissue reactive changes at the new site, mimicking cellulitis or a neoplasm [1–3,5,7,8]. Pa-

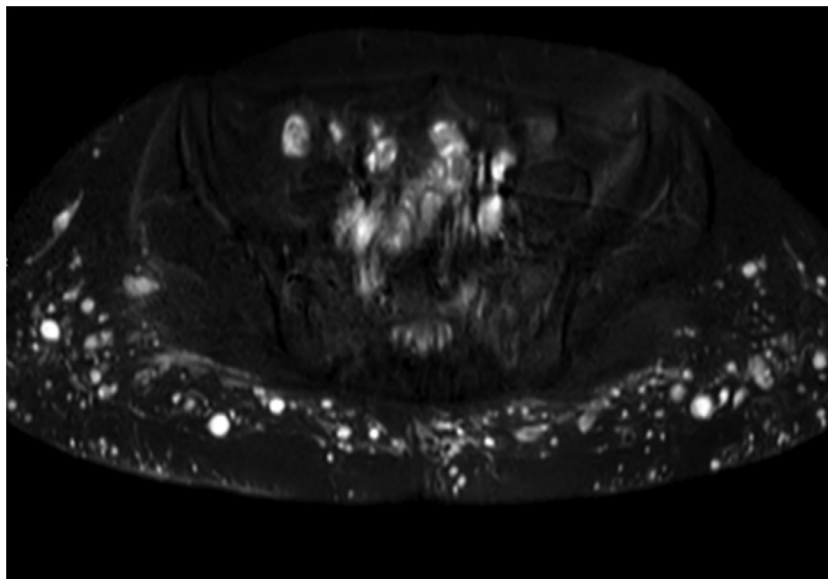


Fig. 6 – An example of a silicone selective (“silicon-only”) axial MR image of the pelvis revealing the subcutaneously injected liquid silicone as multiple hyperintense foci.

tients may not realize this “mass” is related to their prior injection which is usually both remote in site and time. There are also documented cases of multisystem failure, pulmonary emboli, acute pneumonitis, acute pulmonary hemorrhage, diffuse alveolar damage, and even death [1–3,5,8].

On ultrasound, liquid silicone will often demonstrate a “snowstorm” appearance with irregular hyperechoic shadowing, obscuring underlying anatomy [4,7] (Fig. 1). On MR, depending on viscosity and purity, liquid silicone typically has iso-to-hypointense signal on both T1- and T2-weighted sequences [5,7,9] (Figs. 2 and 5). However, low-viscosity silicone can sometimes appear hyperintense on T2 and on dedicated silicone selective imaging (a “silicon-only” sequence) which consists of STIR-type fat suppression with selective water signal suppression [5,7,10] (Fig. 6). Liquid silicone will appear as soft-tissue density or slightly hyperdense on CT, often with adjacent subcutaneous edema, soft-tissue stranding and skin thickening [4,7,9] (Fig. 4).

The illicit use of liquid silicone injections is increasing and knowledge of its use, complications, and imaging findings is critical as these patients commonly choose not to disclose this history. A radiologist suggesting this diagnosis may assist the clinician, who is often unaware of this history, which could help prevent unnecessary imaging and invasive procedures [4,5,9].

Compliance with ethical standards

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Institutional review board protocol

review was exempt per our institutional review board policies for this type of manuscript and since these examinations were clinically indicated. Our study complied with the Health Insurance Portability and Accountability Act.

Patient consent

Informed consent was obtained from the subject described in this report.

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