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# Silicone nipple discharge: A case report of an unusual presentation of breast implant rupture

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## ABSTRACT

**INTRODUCTION:** Breast implant rupture is a well-documented complication of breast implant surgery. Diagnosis of ruptured silicone implants can be difficult due to the lack of overt symptoms. This is the first reported case of a patient with silicone breast implant rupture presenting with clear nipple discharge and is presented in line with SCARCE 2018 Guidelines [1].

**PRESENTATION OF CASE:** A 45-year-old-female was referred to a breast surgeon with viscous clear nipple discharge, on a background of bilateral mastopexy-augmentation surgery 10 years prior. Imaging revealed extensive intraductal and free silicone causing significant stromal deformity secondary to breast implant rupture. Cytology of the nipple discharge was consistent with silicone gel. The patient was also found to have fibroadenoma without atypia in the right breast. She underwent an oncoplastic excision of free silicone and change of bilateral breast implants by a team of breast and plastic surgeons.

**DISCUSSION:** With breast implants being an increasingly common procedure worldwide, we can expect an increase in these unusual presentations. Clinicians and patients need to be aware of these in order to avoid an unnecessary delay in diagnosis.

**CONCLUSION:** Silicone implant rupture is a well-known complication and the rate of rupture increases over the life of the implant. Diagnosis of ruptured silicone implants is rare on clinical examination however remains an essential component of a doctor's examination of the patient and nipple discharge must be considered a symptom of rupture.

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## 1. Introduction

Breast implants are a common surgical procedure for both aesthetic and oncological indications. Worldwide, approximately 1.7 million breast implant surgeries are performed each year [2]. Breast implant rupture is one of the main concerns of patients. Consequences of implant rupture include pain, inflammation, infection risk and poor cosmesis. Rupture rates of 3–5% at 3 years and 7–10% at 10 years respectively, have been reported after insertion of saline breast implants. Reported rates of silicone breast implant rupture however, vary between manufacturers and method of patient evaluation. A Danish study evaluated women with intact silicone implants using MRI's at 3-year intervals. They found a rupture-free survival of 98% at 5 years and 85% at 10 years, thus concluding that silicone breast implants are durable for only 6–8 years [3].

Patients with implant rupture may complain of breast pain, capsular contracture with altered breast contour, poor cosmesis, and breast or axillary masses. Upon rupture of a saline breast implant, it rapidly deflates and is detected by the patient as a contour change, therefore is easily diagnosed leading to fewer complications. By contrast, most silicone breast implant ruptures do not manifest with overt clinical signs or symptoms, and are classified as being “silent” ruptures. There are multiple diagnostic modalities that may be used to evaluate implant rupture including MRI, ultrasound, mammography and CT [4]. Occasionally ruptured implants can be detected by physical exam including change in breast shape, size or firmness, capsular contracture and palpable lumps or breast tenderness [5]. We report an unusual case of ruptured silicone implant presenting as silicone nipple discharge, with extensive changes on her breast imaging. This symptom has never before been reported and is important for clinicians and patient to be aware of. This case report is presented in line with SCARCE 2018 Guidelines [1].

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**Fig. 1.** Pre-operative image showing markings and silicone nipple discharge.

## 2. Patient information

A fit and well 45-year-old caucasian female was referred by her family physician to a breast surgeon with a 2-month history of right mastalgia, lumpy breast tissue and viscous clear nipple discharge (Fig. 1). She had no features of systemic infection. This is on a background of bilateral sub-pectoral mastopexy-augmentation and insertion of breast implants (200cc, smooth, round, high profile, Mentor silicone) ten years prior in another country. She has no other relevant personal or family medical history.

On examination, she had a palpable lateralised right implant and viscous right nipple discharge, without axillary lymphadenopathy. The nipple discharge was observed to originate from multiple nipple ducts, and was sent for cytology.

## 3. Diagnostic assessment

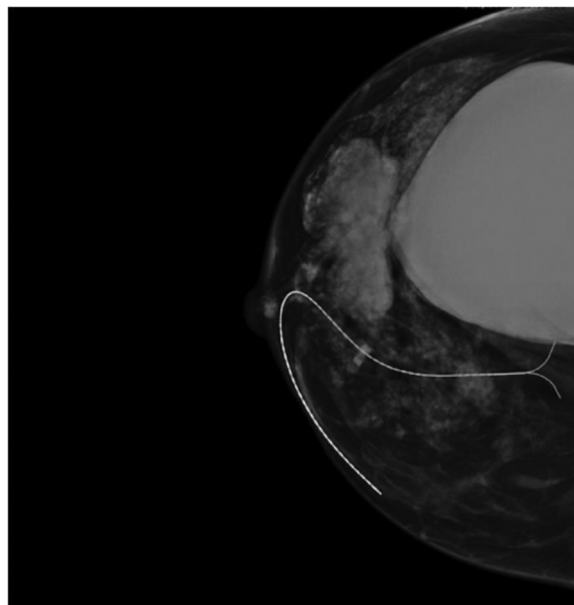
The patient was investigated with bilateral breast ultrasound that demonstrated a right 13 mm 6 o'clock irregular hypoechoic mass, and right silicone implant rupture with snowstorm appearance in the upper, central and medial breast. This was in keeping with free silicone extracapsular/intraductal rupture. The patient also had a mammogram with tomosynthesis. There was right lateral breast stromal distortion and microcalcification at the lateral margin of the implant (Fig. 2). The left breast showed no abnormality.

Cytology of the nipple discharge was consistent with silicone gel. She proceeded to US-guided core biopsy of the right 6 o'clock irregular mass, which was reported as a fibroadenoma without atypia.

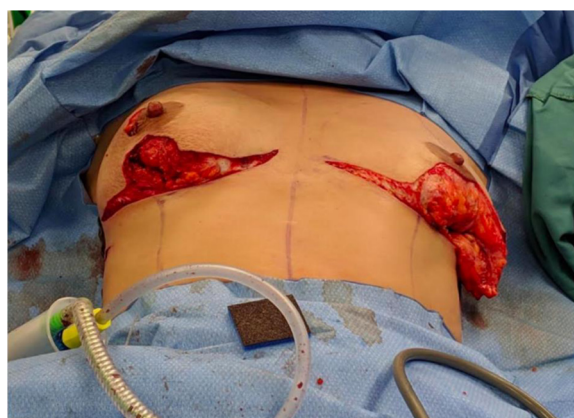
The presence of extensive silicone in the nipple discharge, clinically and on cytology, suggests that the rupture extended into multiple lactiferous ducts. This was also borne out on her breast imaging, where the silicone passage could be tracked from the ruptured implant to the nipple ducts. It is unclear how the free silicone communicated with the breast ducts. We hypothesise that the ducts were eroded secondary to trauma and inflammation associated with the rupture.

## 4. Therapeutic intervention

The patient had extensive free and intraductal silicone within the right superior, central and medial breast, and significant deformity secondary to the implant rupture. She was therefore referred to a plastic reconstructive surgeon for additional assessment and joint surgical management. A review of the current literature was



**Fig. 2.** Mammogram of right breast showing ruptured implant.



**Fig. 3.** Intra-operative image post bilateral breast implant removal.

undertaken by the surgeons, but there were no reported cases found of surgical or medical management for intraductal silicone rupture with silicone nipple discharge. As such, she was discussed between a multidisciplinary team and then consented for an elective right oncoplastic excision of free silicone and change of bilateral breast implants with nipple preservation. This was undertaken as a joint case with the breast and plastic consultant specialist surgeons in a private hospital.

The patient was positioned supine, had a general anaesthetic and was prepped using aqueous chlorhexidine. The first stage of the procedure undertaken by a breast surgeon was a right reduction mammoplasty via a Wise-pattern, with the nipple based on a superior-medial pedicle. Given her previous mastopexy-augmentation surgery, the full thickness incisions and breast silicosis excision were carefully planned and placed to maintain adequate blood supply to the nipple areolar complex, and skin flaps. The breast mass was located in the lower pole within the field of silicone and was included in the excision for histology. The implant shell was extracted and a total capsulectomy was performed. The fibroadenoma was also excised. A reduction mammoplasty via a Wise-pattern was then completed on the left breast. The second stage of the procedure was then undertaken by a plastic surgeon

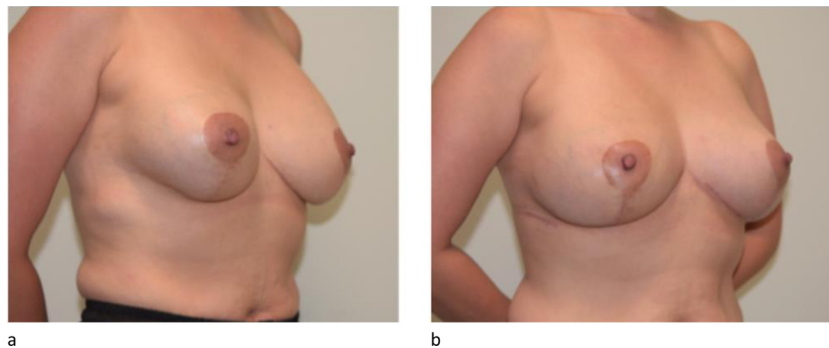


Fig. 4. Pre (a) and post-op (b) images.

who inserted new bilateral silicone breast implants in the subpectoral plane (Fig. 3).

### 5. Outcome and follow-up

The patient had an uncomplicated post-operative recovery and was discharged from hospital Day 1 post-operatively. She was followed up again via face-to-face clinical review at 1 week, 1 month and 6 months post-operatively by both the Plastic and Breast Surgeons. The patient will continue to have annual breast examination and mammogram as part of general breast screening guidelines for the Australian population. The patient was very happy with the cosmetic outcome (Fig. 4a–b).

### 6. Discussion

Silicone implant rupture is a well-known complication associated with both cosmetic augmentation and breast reconstruction, and the rate of rupture increases over the life of the implant [5]. The strength of this case lies in its identification of an unusual presentation of silicone implant rupture that patients and clinicians need to be aware of. If rupture is diagnosed, patients are usually offered the option of observation or surgery. The current recommended surgical management is a complete capsulectomy and removal of any free silicone. If the rupture is extra-capsular, there is added resection of any visible or palpable granulomas present in the breast parenchyma [6].

The U.S Food and Drug administration recommends that all women with silicone gel implants should undergo breast implant imaging 3 years after implant placement and then every 2 years thereafter [5]. MRI with a dedicated breast implant protocol is the most sensitive and specific imaging modality [9]. However the utility of this recommendation is questionable since MRI is expensive and difficult to access.

Saline breast implants, when ruptured, are usually easier to diagnose due to the presence of an obvious deformity in the breast. In contrast, silicone breast implant rupture is rare to diagnose of physical exam. The silicone is usually contained within the fibrous capsule around the implant due to its viscosity [8]. In a study comparing physical exam for implant rupture to MRI, the sensitivity of the clinical examination for diagnosing rupture was 30 % and the specificity 88 %. The positive predictive value of a clinical diagnosis of rupture was 75 %, and the negative predictive value was 49 %. In this study, physical examination to identify implant rupture has a low sensitivity and specificity [9]. Despite this, clinicians will continue to take a history from, and examine their patients. As such, it is important that clinicians are fully informed of the array of symptoms that a patient with breast implant rupture may present with. In addition to this, patients should be educated on symptoms they may experience which now includes silicone nipple discharge [8].

### 7. Conclusion

Breast implants are a common surgical procedure for both aesthetic and oncological indications. Silicone implant rupture is a well-known complication and the rate of rupture increases over the life of the implant. Although diagnosis of ruptured silicone implants is rare on clinical examination, it is important for patients and clinicians to be aware of the different signs and symptoms that patients may present with. This is essential to avoid an unnecessary delay in diagnosis. In this patient, the presenting complaint was nipple discharge of silicone implant material which has never before been documented.

### Declaration of Competing Interest

Nil conflicts of interest.

### Sources of funding

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### Ethical approval

No ethics required for this case report. An ethics approval from the institution is exempt.

### Consent

Consent has been obtained.

### Author contribution

**Jessica Rahme:** Conceptualization, Data curation, Formal analysis, Writing of original draft, Funding acquisition.

**David Liu:** Investigation, Methodology, Project administration, Resources, Review & editing.

**Grace Chew:** Supervision, Validation, Visualization, Review & editing.

**Richard Zinn:** Supervision, Validation, Visualization, Review & editing.

### Registration of research studies

- 1 Name of the registry:
- 2 Unique identifying number or registration ID:
- 3 Hyperlink to your specific registration (must be publicly accessible and will be checked): Not applicable to this study which is a case report.

**Guarantor**

Dr Jessica Rahme.

**Provenance and peer review**

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