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Case Report
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Evaluation of Recurrent Peri-Prosthetic Effusion A Case Report

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Abstract

Peri-implant fluid collections after breast augmentation may arise from mechanical irritation, malposition, hematoma, or infection (including subclinical contamination). A structured diagnostic approach is recommended because clinical features can overlap across benign and serious causes.

Introduction: Peri-implant fluid collections after breast augmentation may arise from mechanical irritation, malposition, hematoma, or infection (including subclinical contamination). A structured diagnostic approach is recommended because clinical features can overlap across benign and serious causes.

Case Presentation: A 38-year-old woman underwent cosmetic breast augmentation. Within weeks she reported deformity on pectoralis contraction and episodes of intense pain responsive to anti-inflammatory therapy. Eight months postoperatively, she developed sudden right breast swelling with pain, skin hyperemia and fever, treated with amoxicillin/clavulanate followed by ceftriaxone (10 days). Ultrasound demonstrated abundant right peri-implant effusion. Symptoms improved, but swelling persisted. Ultrasound-guided aspiration yielded opalescent yellow fluid; cytology was consistent with a reactive inflammatory process without atypia. A further aspiration and anti-inflammatory therapy were followed by temporary improvement. Sixteen months after breast implant placement, she presented with implant displacement, and subsequently developed recurrent mastitis, accompanied by fever and pain, complicated by partial wound necrosis, prompting implant removal. Re-augmentation was performed approximately three months later with anatomical implants (Mentor, 370 cc), followed by areolar symmetry surgery. Residual aesthetic concerns and complications contributed to severe psychological distress requiring psychotherapy.

Conclusion: This case highlights the importance of early structured evaluation of delayed peri-implant effusion within the first postoperative year, with attention to potential mechanical contributors (including inframammary fold integrity and implant position), consideration of occult infection, and clear safety-netting when symptoms recur.

Keywords: Breast implant; Peri-implant effusion; Breast augmentation

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Introduction

Peri-implant fluid collections after breast augmentation can present early or in a delayed fashion and may complicate both management and final aesthetic outcomes. Potential mechanisms include trauma/hematoma, inflammatory responses driven by infection or subclinical contamination, and chronic mechanical irritation related to implant pocket dynamics or Inframammary Fold (IMF) integrity. Because the clinical presentation of inflammation, swelling and pain can be non-specific, clinicians should follow a structured diagnostic pathway integrating targeted imaging and aspiration with appropriate fluid analysis [3-6,9].

In this report we describe a delayed peri-implant effusion within the first postoperative year (eight months after augmentation), followed by recurrence and infective complications culminating in explantation and later re-augmentation. The case provides practical lessons on early evaluation, the potential interplay between mechanical factors and inflammation, and escalation of management when recurrence and infection occur [1-3,6-8].

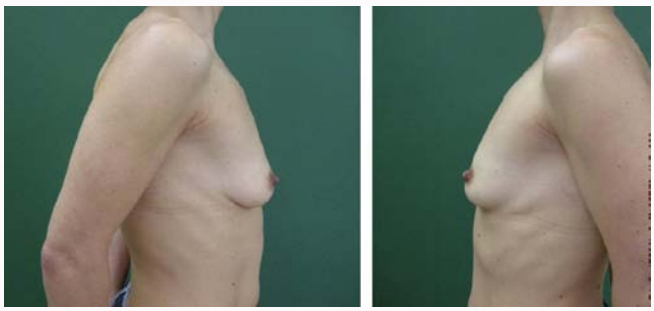

Figure 1: Preoperative photograph, lateral view.

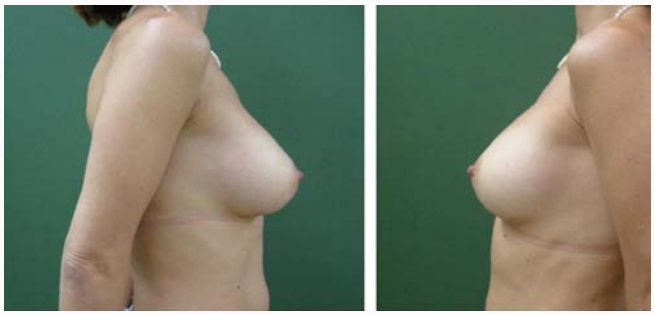

Figure 2: Post-operative photograph 3 months lateral view. The implant in the right breast appears to be positioned lower than that in the left breast with an initial double-bubble appearance.

Patient Information

A 38-year-old woman underwent cosmetic breast augmentation surgery (Figure1). The initial volume of the implant was 290 ml; the implant is described as a smooth silicone implant. A dual-plane implant technique was used. A potentially critical factor was the position of the incision on the right side, which was higher and two centimeters away from the inframammary fold with an initial double-bubble appearance (Figure 2).

Clinical Findings

Within weeks after surgery, the patient reported deformity of the right breast during pectoralis contraction and episodic intense pain that improved with anti-inflammatory therapy. Approximately seven months after augmentation, she developed sudden swelling of the right breast with pain, skin hyperemia and fever (Figure 3). Initial treatment consisted of antibiotics, with improvement of systemic symptoms; however, the breast swelling persisted and recurred over subsequent months.

Timeline

The Table 1 illustrates the various events that led to the need for breast implant removal, and demonstrates how a different clinical approach could have resolved the problem more quickly.

Diagnostic Assessment

Ultrasound during the acute episode demonstrated a significant right peri-implant fluid collection. The persistence/recurrence of swelling prompted ultrasound-guided aspiration. The aspirated fluid was described as opalescent yellow. Cytological examination was consistent with a reactive inflammatory process without reported atypia [9]. A repeat aspiration (30 mL) was performed one month later.

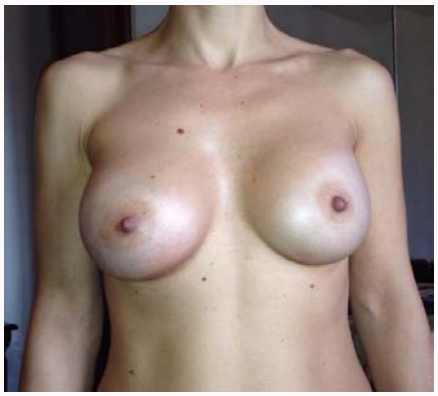

Figure 3: 8 months post operative photograph with evidence of redness on the lower pole right breast and breast enlargement.

Table 1: Illustrates the stages that influenced the patient's clinical evolution.

Time (Relative to augmentation)	Event and management
Post-operative weeks	Dynamic deformity with pectoralis contraction and episodic pain responsive to anti-inflammatory therapy.
8 months	Acute right breast swelling with pain, hyperaemia and fever. Antibiotic therapy given; ultrasound: abundant peri-implant effusion.
Following weeks–months	Persistent swelling despite clinical improvement. Reassessment; ultrasound-guided aspiration performed.
Aspiration	Opalescent yellow fluid obtained; cytology consistent with reactive inflammatory process without atypia.
1 month later	Repeat aspiration (30 mL) and anti-inflammatory therapy with temporary improvement.
Several months later	Recurrent mastitis with fever/pain, complicated by partial wound necrosis → implant removal.
~3 months after explant	Re-augmentation with anatomical implants (Mentor, 370 cc); subsequent areolar symmetry procedure.
Follow-up	Residual aesthetic concerns (areolar asymmetry; left double-bubble reported) and severe psychological distress requiring psychotherapy.

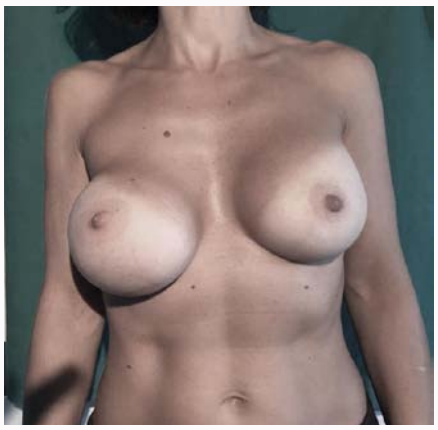

Figure 4: 16 months postoperative photographe. With the muscle relaxed.

Clinically, the leading considerations were inflammatory/infective processes (given fever and later recurrent mastitis) and potential mechanical contributors related to implant pocket dynamics/IMF integrity (given early dynamic deformity and recurrent symptoms).

Consensus guidance for delayed peri-implant fluid collections emphasizes imaging and aspiration with appropriate evaluation when fluid persists or recurs [3,4,9].

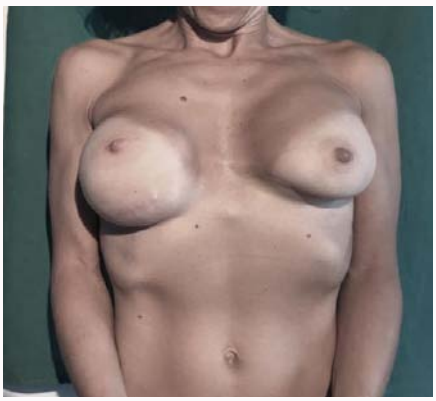

Figure 5: 16 months postoperative photographe, the Patient contracts the muscle Due to continuous inflammation and the restricted muscle coverage of the implant's position, the prosthesis moves down excessively during muscle contraction. This suggests that the pocket designed to accommodate the prosthesis is too small.

Therapeutic Intervention

Initial management of the delayed peri-implant effusion included antibiotic therapy, followed by aspiration for persistent symptoms. Anti-inflammatory therapy was prescribed and a repeat aspiration was undertaken one month later. Several months later, recurrent mastitis with partial wound necrosis prompted explantation. Re-augmentation was performed approximately three months after explantation, followed by a procedure aiming to improve areolar symmetry [1,2].

Follow-up and Outcomes

After re-augmentation, the postoperative course was described as uncomplicated. Nevertheless, the patient reported ongoing aesthetic concerns, including areolar asymmetry and a left-sided double-bubble deformity. The overall experience and repeated interventions contributed to severe psychological distress requiring psychotherapy.

Discussion

This case illustrates a delayed peri-implant effusion occurring within the first postoperative year and complicated by recurrent inflammation/infection and wound necrosis. Consensus recommendations for delayed peri-implant fluid collections support a structured evaluation pathway whenever symptoms persist or recur [3,4,9].

Diagnostic approach. Ultrasound is a pragmatic first-line investigation to confirm and characterize peri-implant fluid. Aspiration can provide symptomatic relief and diagnostic material; cytology helps distinguish reactive inflammatory effusions from atypical or suspicious patterns [3,4,9]. In this case, cytology supported a reactive inflammatory process without atypia. Given the overlap of clinical features between infection and non-infective inflammation, cultures (where available) and careful follow-up are important, particularly when symptoms recur. [1,2,5].

Mechanical contributors and IMF integrity. Early dynamic deformity during pectoral contraction suggests insufficient muscle release, which may lead to mechanical irritation and predispose the implant pocket to deformity. IMF-related problems (including double-bubble and malposition) are recognized causes of revision surgery and may create chronic friction or micromotion at the implant scar interface, increasing local inflammation and promoting serous fluid exudation [6-8]. While the case data do not allow definitive attribution, the pattern supports considering mechanical factors alongside infection when planning early management and follow-up (Figure 4 and 5).

Escalation and outcomes. The patient later developed recurrent mastitis with partial wound necrosis, necessitating explantation, an outcome with substantial aesthetic and psychological impact. Evidence syntheses suggest that milder peri-prosthetic infections may respond to antimicrobial therapy alone, whereas more severe infection or tissue compromise often requires surgical intervention and may culminate in explantation [1,2]. After initial improvement, explicit safety-netting is essential: patients should be counselled to re-present promptly if swelling recurs, systemic symptoms develop, or local signs of infection emerge. A defined escalation plan repeat imaging, repeat aspiration with analysis, and consideration that a quick surgical reintervention is necessary when it is clear that waiting will not lead to a definitive solution, as in this case. When recurrence persists may increase morbidity and the likelihood of more invasive salvage procedures [1-4].

Conclusion

Delayed peri-implant effusion within the first year after surgery should prompt a structured evaluation involving imaging, and where necessary, aspiration for fluid analysis. In this case, a reactive inflammatory effusion preceded the recurrence of infective complications, which culminated in explantation and subsequent re-augmentation. Early attention to potential mechanical contributors (including IMF integrity and implant position), consideration of occult infection and clear safety measures for recurrence may help to prevent escalation to explantation and reduce patient morbidity [1,2,6-8]. We present the case of a patient who underwent prosthetic implant placement and subsequently developed a fluid collection around the prosthesis seven months later. She was treated with antibiotics, which partially resolved the effusion. However, it persisted and was aspirated twice in the following months, resulting in a reactive effusion.

The prosthesis was inserted through an incision near the inframammary fold. Careful assessment and management of the prosthesis are essential for achieving optimal surgical and aesthetic results while minimizing complications. In specific cases, it can be difficult to determine whether the effusion was caused by a narrow periprosthetic pocket putting pressure on the prosthesis, or by an incision that was not properly positioned in the inframammary fold, resulting in excessive stress and a local tissue reaction. Alternatively, it could be caused or facilitated by prosthesis contamination. In all cases, verification of the prosthesis's correct position after the first episode seems to have been lacking. This would have enabled the patient to undergo immediate reoperation, eliminating the need for subsequent intervention to remove the extruded breast prosthesis.

Therefore, surgeons must carefully evaluate the reasons that may have caused periprosthetic effusion in patients who have undergone surgery and act quickly to counteract them.

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