CASE REPORT

Systemic inflammatory disease resolution following cosmetic silicone breast implant removal

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SUMMARY

A 37-year-old Caucasian woman presented with subacute, symmetrical inflammatory arthralgia, which was affecting her work. Apart from fatigue, she had no other constitutional symptoms. She had undergone cosmetic bilateral silicone breast implant surgery in 2008. Blood tests revealed erythrocyte sedimentation rate 53 mm/h, weakly positive antinuclear antibodies and IgG cardiolipin antibody, while breast ultrasound revealed a ruptured left silicone implant. The working diagnosis was systemic inflammatory disease of uncertain origin. She decided to have replacement, rather than removal, of her silicone breast implants privately, but her symptoms persisted postoperatively with a new erythema multiforme-like rash despite treatment with methotrexate and moderate dose prednisolone. Following further consultation with a National Health Service breast surgeon, her silicone implants were removed. Within 10 weeks of surgery, all immunomodulatory treatment was discontinued with complete symptom and inflammatory response resolution. This case illustrates that implant silicone can induce clinically significant systemic inflammatory disease and implant removal is essential for disease resolution.

BACKGROUND

Repeated epidemiological meta-analyses have failed to show a significant association between silicone breast implants and rheumatic disease.^{1 2} Furthermore, a UK Department of Health Expert Group concluded on poly implant prostheses (PIP; a particular type of implant with higher rupture rates) that rigorous worldwide chemical and toxicological analysis of a wide variety of PIP has not shown statistically significant risk to human health.³ Yet, some have proposed a silicone implant incompatibility syndrome due to an adjuvant-like immunomediated mechanism.^{4 5} We present a relevant case to illustrate the problem.

CASE PRESENTATION

A 37-year-old Caucasian woman presented to rheumatology in November 2011 with subacute onset, symmetrical arthralgia (predominantly hips and shoulders), causing her to be unable to work. She had significantly elevated inflammatory markers (C reactive protein (CRP) 46 mg/L, erythrocyte sedimentation rate (ESR) 53 mm/h, fibrinogen 4.9 g/dL, IgA 3.4 g/L, C4 complement 2.25 mg/L).

Two weeks before the onset of symptoms the patient had undergone routine hip osteoplasty for femoroacetabular impingement to treat 2 years of mechanical hip pain. She had no symptoms, history

or signs of infection, collagen, vascular or other rheumatic disease and no constitutional symptoms, apart from fatigue. In 2008, she had bilateral cosmetic silicone implants (PIP) breast surgery.

INVESTIGATIONS

Antinuclear antibodies were weakly positive (by immunofluorescence, becoming negative with further dilution, IF pattern not recorded) and IgG cardiolipin antibodies (23 U/mL). Blood cultures, dipstick urinalysis, and shoulder and hip ultrasound were normal, as were the rheumatoid factor, anti-neutrophil cytoplasmic antibodies, extractable nuclear antibodies, lupus anticoagulant, immuno-electrophoresis, serum creatine kinase, serology for parvovirus, hepatitis B and streptococcal antigen, chest X-ray, left hip CT scan, isotope bone scan, and upper and lower gastrointestinal endoscopy.

DIFFERENTIAL DIAGNOSIS

The working diagnosis was of systemic inflammatory disease of uncertain origin.

TREATMENT

While the patient denied any breast symptoms, a consulted National Health Service (NHS) breast surgeon found a tender and slightly swollen left breast. Ultrasonography confirmed a ruptured left breast implant. In January 2012, the patient decided to have the ruptured PIP replaced for cosmetic reasons, privately, with a new silicone implant, rather than removed (as recommended by the NHS breast surgeon).

OUTCOME AND FOLLOW-UP

The patient's symptoms and systemic inflammation persisted postoperatively and she developed a new intermittent erythema multiforme-like rash. There was no sustained improvement on prednisolone (up to 15 mg/day) with methotrexate (up to 15 ng/week orally). Azathioprine was not tolerated by the patient. A further consultation with an NHS breast surgeon resulted in the patient's consent for breast implant removal, with mastopexy performed at the same time. Three days postoperatively there was significant clinical improvement. Ten weeks postoperatively, she had complete resolution of her symptoms, was weaned off steroids and methotrexate, and her inflammatory markers were normalised with a CRP of <3 mg/L and ESR of 7 mm/h (figure 1). She is back to full time employment and running 10 miles a day on a cross-trainer. She is content with the cosmetic result of her second breast surgery.

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Figure 1 CRP (mg/L) and ESR (mm/h) over time in response to therapy and interventions. AZA, azathioprine; CRP, C reactive protein; ESR, erythrocyte sedimentation rate; MTX, methotrexate; Pred, prednisolone.

DISCUSSION

This case illustrates that silicone implant is principally able to induce clinically significant systemic inflammatory disease. The observation that not only removal of the ruptured implant, but removal of any silicone implant was required for complete resolution of symptoms and inflammatory markers, suggests a strong causal relationship between silicone and our patient's inflammatory disease.

Silicone was previously considered to be an inert material but, like other adjuvants, it would appear capable of inducing a pathological inflammatory phenomenon and disease.

Our case is contradictory to the conclusion of epidemiological data that there is no significant association between silicone breast implants and rheumatic disease.¹

This case is consistent with other reports in the literature,^{4 5} where silicone has been linked with inflammatory symptoms and biochemical changes. Shoenfeld and Agmon-Levin⁵ have

suggested preliminary criteria of a new syndrome, termed autoimmune/inflammatory syndrome induced by adjuvants, that our patient fulfils. However, these proposed criteria still await formal validation.

Learning points

- ▶ Silicone implant is principally able to induce clinically significant systemic inflammatory disease.
- ▶ Removal of any silicone implant (ie, not only removal of the ruptured implant) was required for complete resolution of symptoms and inflammatory markers.
- ▶ This case illustrates a convincing causal relationship between silicone and non-specific, systemic inflammatory disease.

Contributors FM and SAC were involved in reviewing the case and drafting the manuscript. SW had essential involvement in the management and discussion of case. RK had clinical responsibility for the case, reviewed the literature and had final input in the submitted version of the manuscript.

Competing interests None.

Patient consent Obtained.

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