Breast augmentation using injectable materials

Olayinka Gbolahan, Sonal Halai, Steven Goh

ABSTRACT

Introduction: Breast augmentation using injectable materials are widely used around the world. Most commonly used materials include collagen and silicone. These materials are associated with detrimental effects and although this method of augmentation is banned in UK, due to medical tourism and immigration we still encounter such patients in our practice. It is hence important to understand how best to manage the complications associated with these practices. We discuss three of such cases.

Case Series: A 30-year-old female presented with bilateral painful breasts with history of previous augmentation with silicone injections in Thailand. A 57-year-old female recall from breast screening due to presence of bilateral multifocal nodular densities with history of previous bilateral collagen augmentation. A 41-year-old female presented with lump in right breast with previous history of silicone injection in Dubai.

Conclusion: Awareness of potential imaging complications in this group of patients with ensure safe practice in their management.

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Keywords: Breast augmentation, Collagen, Injectable materials, Silicone

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INTRODUCTION

Breast augmentation by means of injectable materials such as collagen and silicone are widely used around the world, particularly in Asian countries. The minimally invasive nature of injectable materials makes it appealing to patients. Collagen, either bovine or recombinant human, is a widely used filler substance since 1977 [1] with cosmetic effects are thought to last 6–22 months depending on the product. Collagen is also not histologically detected six months following injection [2]. Liquid silicone has been used since 1940; its involvement into the tissue varies. Complications following the injection of liquid silicone on average are thought to occur nine years following injections with extensive breast tissue involvement [3, 4]. Both materials are associated with detrimental effects. However, not all patients present with complications. Liquid silicone is displayed on mammography as either multiple cystic lesions or large areas of opacity [4]. Symptomatic presentation following such procedures is rare in the UK, we discuss three such cases.

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CASE SERIES

Case 1

A 30-year-old Thai female presented with bilateral painful breast lumps. She had undergone bilateral breast augmentation with silicone injections in Thailand six years prior to presentation. On examination she had extensive bilateral breast nodularities and induration. Ultrasound and MRI (Figure 1) scan confirmed widespread silicone granulomata. Patient was discussed in the MDT and subsequently referred to plastic surgeons for consideration for piecemeal excision of the silicone deposits with possible augmentation, or mastectomy and reconstruction, if skin continued to have significant inflammation. The patient was seen over a four-month period prior to subsequent referral.

Case 2

A 57-year-old Asian female was recalled from breast screening following the presence of bilateral multifocal nodular densities. In 2007, the female had undergone breast augmentation in Dubai with three sessions of collagen injections into the breast parenchyma. She was asymptomatic and clinical examination revealed no suspicious features. Mammography images (Figure 2) were difficult to interpret and will consequently make future screening challenging. Following an MDT discussion routine clinical examination should be used to screen the patient. It was also subsequently decided by the local breast screening director that mammographic screening would not be useful and the patient should present to clinic if symptomatic. The patient was seen over a two-year period prior to this decision being made.

Case 3

A 41-year-old female presented with lump in right breast with a previous history of silicone injection in Dubai in 2012. On examination she was found to have an indeterminate lump in the medial aspect of right breast. Mammogram showed unusual appearance (Figure 3) with well-defined opacity seen medial to right nipple

Figure 2: Right breast mammography post collagen injections to breast parenchyma.

Figure 3: Bilateral mammography showing well defined opacities in both breasts.

Figure 1: Bilateral magnetic resonance imaging breast showing widespread silicone granulomata.

and deep to left nipple. Ultrasound imaging was severely impaired by the silicone. MDT discussion concluded that MRI would not be useful and FNA was advised which showed silicone reaction. The patient was seen over a two-month period, re-assured and discharged.

DISCUSSION

There are some studies describing the long-term effects of injectable materials such as collagen and silicone with one case report of a patient undergoing total excision of the injected material, affected skin, pectoralis major and breast parenchyma with immediate reconstruction using rectus abdominis muscle [5]. Augmentation with injectable materials poses a challenge to the interpretation of mammograms and thus can reduce the effectiveness of screening. MRI scan has been shown to be a more useful imaging modality in these patients [6] although as in Case 3, FNA is most conclusive in solitary nodules. This, therefore, makes effective screening in these patients time consuming and costly. As in Case 2, patients may have to forfeit their mammographic screening rights and may have to self-present if symptomatic. Awareness of potential complications and the presence of these fillers in the breast parenchyma rendering mammography ineffective will ensure safe practice during breast screening of these patients.

CONCLUSION

Although breast augmentation using injectable material is currently banned in the UK with increased immigration of individuals, it is important to understand how to deal with local complications that may arise. The cases described give some potential solutions to these complications including patients forfeiting routine mammographic screening and self-presenting when symptomatic.

Author Contributions

Olayinka Gbolahan – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Sonal Halai – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Steven Goh – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for

important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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