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Mucinous Cystic Carcinoma of the Breast after Collagen Injection

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Abstract

Introduction: Breast augmentation using injectable material is now banned in most of the developed countries but is still practiced legally and illegally in Asian countries. Since these methods have shown to have detrimental effects over time, it is important to know how to manage these patients. We discuss one such complication here.

Case report: 55-year-old patient presented with breast swelling 10 years after collagen injection. FNA and mammography were inconclusive. MRI showed features indicating malignancy. The lesion was excised.

Conclusion: Awareness of potential complications in these patients is important to manage these patients accordingly.

Keywords: Breast augmentation; Collagen; Injectable materials; Mucinous carcinoma;

Introduction

Breast augmentation using injectable material is now banned in most of the developed countries but is still practiced legally and illegally in Asian countries. Injectable materials commonly used are collagen and silicon. Injectable materials are minimally invasive and hence are more appealing to patients. The filler substance collagen, either bovine or recombinant, is popularly used since 1977. The cosmetic effects of the substance were thought to last for 6-22 months [1, 2]. Injectable silicone used since 1940 was found to develop complications after nine years of injection. Though every patient did not develop complications, both the injectable materials were found to have detrimental effects. They interfered with mammography making breast screening of these patients difficult [3, 4].

Case Report

55-year-old patient presented with rapid swelling of left breast. She gave a history of collagen injection into both breasts 10 years back. Clinically suspected to be granulomatous reaction, fine needle aspiration was inconclusive. Mammogram showed features that were difficult to interpret. MRI showed abnormal findings indicating malignancy. The lesion was excised.

Gross examination of the excised left breast lesion revealed multiple, unoriented, fragments of breast tissue, the largest had a measurement of 160x110x40mm. On the anterior surface, a smooth, greyish white, cyst was noticed. In relation to the same posteriorly, a large, irregular cystic cavity, the inner surface of which shows small, greyish pink, ill-defined, and necrotic material adherent is noted. Cyst wall focally shows adherent mucinous material on the inner surface with minimum circumferential measurement of more than 50mm. The rest of the cyst wall shows indurated, fibrotic element only [Figure 1]. Adjacent areas showed small cystic areas. The resected margins were free of the lesion. Serial slicing of the rest of the breast tissue showed yellowish appearance with small ill-defined cystic spaces.

Figure 1: Indurated cyst wall

Multiple representative sections from the lesion and adjacent breast tissue were studied in detail. Sections from lesions showed classical changes of foreign body granulomatous reaction displaying small, medium sized and large cyst-like spaces, without lining epithelium, surrounded by foamy histiocytes, mononuclear cells and foreign body giant cells in variable proportion. Focal areas of fibrosis with fibrocystic changes also noticed. However, sections taken from the mucinous area of the cyst wall in the larger cystic lesion showed extensive mucinous pools, suspended within which well to moderately differentiated malignant ductal cells are seen dispersed at random [Figure 2]. Individual neoplastic cells, closely packed together exhibiting hyperchromatic or vesicular nuclei with occasional prominent nucleoli are seen throughout

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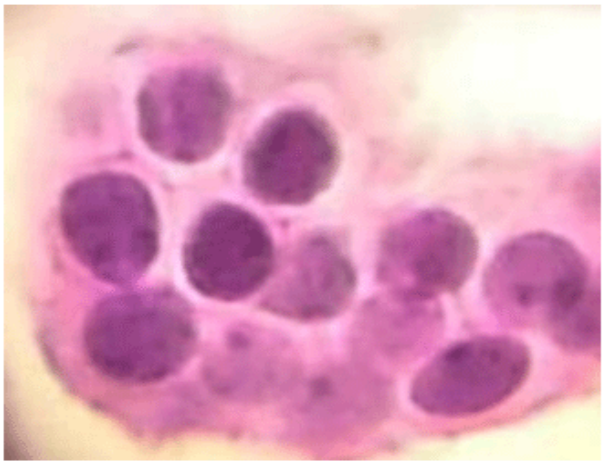

Figure 2: Malignant ductal cells

the mucinous cystic lesion, the wall of which appears fibrotic and hyalinized in nature. The resected out margin is located 3 mm away. Surrounding this mucinous cystic carcinoma (grade II), granulomatous reaction (collagen granuloma) is observed. Modified Bloom and Richardson's grading of the tumor was 5/9 (Glandular grade 2/3, nuclear grade 2/3 and mitotic activity 1/3).

Discussion

There are studies reporting long-term complications of injectable silicone and collagen. Connective tissue disorders including a range of other immunologic disorders and other chronic diseases including cancer have been reported. Even though breast cancers have been reported, epidemiologically the incidence of breast cancers after implants might be slightly lower than the ordinary population. Because of the rarity of the observed breast cancers following breast augmentation, epidemiologic studies may not have enough statistical power to prove a significant difference of its incidence compared to control populations [5, 6, and 7]. Meanwhile ALK-negative anaplastic large cell lymphoma associated with breast implant (i-ALCL) has been recognized as a distinct entity associated with silicone implants [8, 9].Interpretation of mammograms in these patients is a challenge due to the interference of the injected materials reducing the effectiveness of screening. MRI scan is the next option to diagnose these patients making screening of these patients expensive and time consuming [10]. Hence it is very important to be aware of the complications of these injectable materials to ensure safety.

Conclusion

Therefore it is important to understand how to deal with local complications that may arise, not forgetting to look for potential breast carcinomas although more studies are needed to confirm cancer as a possible complication.

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