Rare disease

Silicon granuloma mimicking lung cancer

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Summary

Silicon granuloma is one of the benign complications of breast implant failure but this is rarely reported. We report a 66-year-old lady presented to respiratory department with history of weight loss and a chest x-ray was highly suggestive of a lung malignancy. Further investigation including CT thorax and breast ultrasound suggested siliconoma that was later on confirmed on tissue biopsy.

BACKGROUND

A silicon granuloma is a tissue reaction elicited by silicon.¹ Silicon is considered to be non-biodegradable and is used very commonly in augmentation of breast after mastectomy.² This wide application of implanted silicone prostheses is due to its biological stability and physical properties, combined with minimal tissue reaction and lack of immunogenicity.³ Silicon granulomas of this sort have not attained a great deal of attention in the scientific literature since their first description in 1964.⁴

CASE PRESENTATION

This 66-year-old lady was referred to respiratory physicians with history of lethargy, anorexia and weight loss over several months. She has had a predominately dry cough with some amount of sputum for 2 months and also noticed some central and left chest discomfort. She feels a little short of breath and slightly wheezy. She has been vomiting after breakfast for several months. She denied symptoms of haemoptysis and hoarseness of voice. She also noticed a lump in the left breast for many years.

Previously, she had bilateral breast augmentation surgery at the age of 36 and she had the implants removed after 14 years. She was on a proton pump inhibitors for acid peptic disease. She did not have any drug allergy.

She quit smoking 30 years ago and had a 25-pack years smoking history. She lives alone and was nulliparous. There was no history of tuberculosis contact.

On examination, she was not clubbed and had no cervical or axillary lymphadenopathy. She had 3×2 cm firm mass fixed to the muscle in the outer quadrant of the left breast not involving the overlying skin which was suspicious of a carcinoma. Examination of chest and abdomen was unremarkable.

INVESTIGATIONS

She had chest x-ray which showed a mass in the left lower zone, highly suspicious of lung malignancy (figure 1).

She had CT thorax which showed that there was a 35 mm mass within outer half of the left breast and mass was closely applied to the chest wall. There were second 21 mm lesions within the lower quadrant of the left breast (figure 2). These findings were consistent with the diagnosis of silicon granuloma but difficult to exclude breast malignancy.

Figure 1 Chest x-ray, rounded opacity left lower zone.

Figure 2 CT thorax, two masses in left breast, each of 35 mm and 21 mm in size.

Figure 3 Ultrasound breast: well-defined cystic lesion in breast have the typical appearance of silicon granuloma.

Ultrasound of the left breast showed that both lesions in the breast had the typical appearance of a silicon granuloma. There was also silicon in the left axillary lymph node (figure 3).

She had a mammogram which showed very dense spiculated 41 mm mass in the left breast that could be either silicon granuloma or malignancy (figure 4).

An ultrasound-guided core biopsy showed the typical appearance of silicon granuloma with no microcalcification or breast tissue (figure 5).

She also had upper gastrointestinal tract endoscopy for symptoms of vomiting, which was unremarkable.

DIFFERENTIAL DIAGNOSIS

Considering the history, examination and chest x-ray, the possibilities of lung neoplasm, breast cancer and silicon granuloma were considered. The ct thorax excluded the lung cancer but ultrasound breast and mammogram were suggestive of silicon granuloma. However, core biopsy excluded the possibility of breast cancer and confirmed silicon granuloma.

TREATMENT

Patient was discussed the option of surgical removal of granuloma but she declined for further intervention.

Figure 4 Speculated mass in the left breast.

Figure 5 Histological appearance of silicon granuloma.

OUTCOME AND FOLLOW-UP

The patient was reassured that nodule in the left breast was a granuloma related to her previous silicone implants and she was discharged.

DISCUSSION

Silicone implants are very commonly used for breast augmentation. These silicone implants may rupture and produce local symptoms such as pain and tenderness.⁵ This may also result in various late complications that include benign granuloma formation, local lymphadenopathy and invasive papillary carcinoma.⁶

Silicon granuloma is the result of a chronic inflammatory response that may occur many years after breast reconstruction with silicone implants,³ or even after the implants are removed. They may present with clinical features mimicking lung cancer, which may include weight loss, chest discomfort and mass on the chest x-ray.

These masses may also be suspicious of breast malignancy if they are subcutaneous rather intrapulmonary,^{6,7} and cannot be easily differentiated on a chest x-ray. A CT chest can help to differentiate between an intrapulmonary and extrapulmonary lesion but a biopsy is required to determine if it is a benign cutaneous granuloma or a lung or breast malignancy. Even with availability of new imaging technique such as positron emission tomography, it is difficult to rule out breast malignancy because a silicon granuloma may also show significant fluorodeoxyglucose uptake similar to that of a malignant lesion.¹

Biopsy of silicon granuloma shows subcutaneous tissue surrounded by discrete infiltrates with rare multinucleate giant cells. The outer layer consists of lymphocytes, plasma cells, histiocytes and few foreign body giant cells.

Surgical resection of granuloma is mandatory in the case of symptomatic failure,⁷ but there are chances of recurrence in the case of peripheral siliconomas but local reoccurrences in the breast is very unlikely.⁸

Learning points

- Silicone granulomas can manifest as masses with suspicious of malignancy on examination and chest x-ray. It simulates the possibilities of lung and breast malignancy. The presence of silicone implants and awareness of the possibility of a rupture and formation of silicone granulomas may help in facilitating a correct diagnosis.

Competing interests None.

Patient consent Obtained.

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