CASE REPORT

Cholesterol granuloma of the breast mimicking malignancy

Roobina Khan, Varsha Narula, Anshu Jain, Veena Maheshwari

Department of Pathology,
JN Medical College, Aligarh,
Uttar Pradesh, India

Correspondence to

Dr Anshu Jain,
vians.jain@gmail.com

SUMMARY

Cholesterol granuloma of the breast is an unusual non-neoplastic condition which frequently resembles malignancy clinically as well as radiologically. We herein report a case of a 28-year-old woman who presented with a lump in the upper outer quadrant of right breast. Physical examination and ultrasonography strongly suggested a carcinomatous lesion, but histopathological examination confirmed the diagnosis to be cholesterol granulomas. This article highlights the perplexing clinical presentation of cholesterol granulomas and affirms the role of histopathological examination in diagnosing these lesions correctly.

BACKGROUND

Cholesterol granuloma in the breast is a rare benign condition which frequently mimics carcinoma.¹ It actually represents an unusual development in the advanced stage of mammary duct ectasia.² The identification of this entity is thus very important to avoid overdiagnosis and prevent unnecessary surgical intervention.

CASE PRESENTATION

A 28-year-old woman presented with a lump in the upper outer quadrant of her right breast for 3 months duration with associated pain, oedema and minimal nipple retraction.

INVESTIGATIONS

A cytological examination of a fine-needle aspiration specimen was inconclusive because of the paucity of epithelial cells. Ultrasonography showed an ill-defined, circumscribed heterogenous, wider than taller, hypoechoic mass in the outer lower quadrant. An excisional biopsy of the lump was performed to rule out malignancy.

Gross examination revealed globular tissue piece measuring 4×2×1 cm. The mass was firm in consistency, homogenous white in colour with an area of necrosis and haemorrhage. Microscopy showed mainly stromal connective tissue along with few distorted slit-like glands. Multiple cholesterol crystals arranged in irregular, parallel arrays surrounded by histiocytes and giant cells (figures 1 and 2) were also seen along with the areas of microcalcification (figure 3), thus rendering the diagnosis of cholesterol granuloma.

DIFFERENTIAL DIAGNOSIS

Cholesterol granuloma should always be considered in the differential diagnosis of breast carcinoma due to their frequent clinical and radiological

Figure 1 Multiple cholesterol crystals arranged in irregular parallel arrays (H&E 40×).

resemblance. Other granulomatous lesions to be ruled out are tuberculosis, fungal infections, sarcoidosis, fat necrosis, granulomatous mastitis and foreign body reaction to suture material, sponge used during surgery, silicone, paraffin, gunpowder or carbon particles.³

OUTCOME AND FOLLOW-UP

The patient was followed up by a repeat mammography to see for any residual disease and has been doing well for 6 months now.

DISCUSSION

Cholesterol granulomas are unusual non neoplastic lesions occurring in various sites in the human body such as ear, gallbladder, kidney, testis, peritoneum, parotid gland, liver and spleen and very rarely in breast. Most commonly, they are seen in association with cholesteatoma in the middle ear.⁴

Figure 2 Cholesterol crystals surrounded by histiocytes and giant cells (H&E ×100).

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Figure 3 Areas of microcalcification (H&E ×100).

In the breast, cholesterol granuloma represents an unusual development in the advanced stage of mammary duct ectasia.² Leakage of cholesterol crystals from the ectatic ducts leads to a foreign body-type giant cell reaction leading to granuloma formation.⁵

The literature reports very few cases of cholesterol granuloma in breast with varying clinical presentation. No consistent mammographic appearance has been documented in these cases. Suspicious calcification and dominant mass has been described as seen in the present case.^{2–5} Ultrasonography can also reveal heterogeneity in lesions, thus leading to a suspicion of malignancy in most of the cases.

Histologically, these granulomas consist of fibrous granulation tissue containing cholesterol crystals and foreign body-type giant cells.⁶ In cases which appear suspicious of malignancy clinically as well as on imaging, an excisional biopsy is advised for the confirmation of diagnosis and to avoid further extensive surgery.⁷

The present case reports an unusual perplexing presentation of cholesterol granuloma in breast in a young female which was clinically and radiologically suspected to be a carcinoma and

affirms the role of histopathological examination in clinching the correct diagnosis.

Learning points

- ▶ Cholesterol granuloma in breast is a rare benign condition which frequently mimics carcinoma both clinically and radiologically.
- ▶ It actually represents an unusual development in the advanced stage of mammary duct ectasia.
- ▶ Histologically, these granulomas consist of fibrous granulation tissue containing cholesterol crystals and foreign body-type giant cells.
- ▶ In cases which appear suspicious of malignancy clinically as well as on imaging, an excisional biopsy is advised for the confirmation of diagnosis and to avoid further extensive surgery.

Competing interests None.

Patient consent Obtained.

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