

# Multinucleated giant cells in enlarged axillary lymph nodes

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## Abstract

Routine preoperative ultrasound examination of axillary lymph nodes in patients with breast cancer will identify enlarged lymph nodes. This enlargement may be due to metastatic breast cancer or it may be due to unrelated causes. These enlarged lymph nodes are likely to be sampled by needle core biopsy and submitted for histopathology examination. This paper reports two cases where the enlargement was not related to breast cancer. In both cases multinucleated giant cells were a prominent feature of the histopathology. In one case these cells were macrophage-derived multinucleate giant cells formed as a reaction to a ruptured breast implant, in the other they were megakaryocytes in a patient with an undisclosed myeloproliferative disorder.

**Keywords** axilla; breast cancer; lymph node; megakaryocytes; multinucleate giant cells

## Introduction

### Case 1

A woman presented with an enlarged axillary lymph node. She had a past history of bilateral breast augmentation with silicone gel implants. She had capsule formation around the implants

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and they had ruptured. An operation was performed to remove the implants and their surrounding fibrous capsule and at the same time the enlarged lymph node was excised. The haematoxylin and eosin (H&E) appearances of the specimen are shown in [Figure 1](#). There were numerous foreign body multinucleate giant cells throughout the cortical area of the lymph node in a background of numerous foamy macrophages. The appearances were typical of those seen in axillary lymph nodes when silicone breast implants have ruptured.<sup>1-4</sup> The material in the foamy macrophages and giant cells was silicone gel from the implant. No refractile material was identified; this may sometimes be present when particles from the outer covering of the implant are carried to the lymph node.

### Important clinical points demonstrated by this case

- Ruptured breast implants often cause enlargement of axillary lymph nodes due to a foamy macrophage/giant cell reaction.
- Foamy macrophages and foreign body type giant cells are highly suggestive of a reaction to some fatty/lipoid material be it exogenous (ruptured implants) or endogenous (extensive fat necrosis).

### Case 2

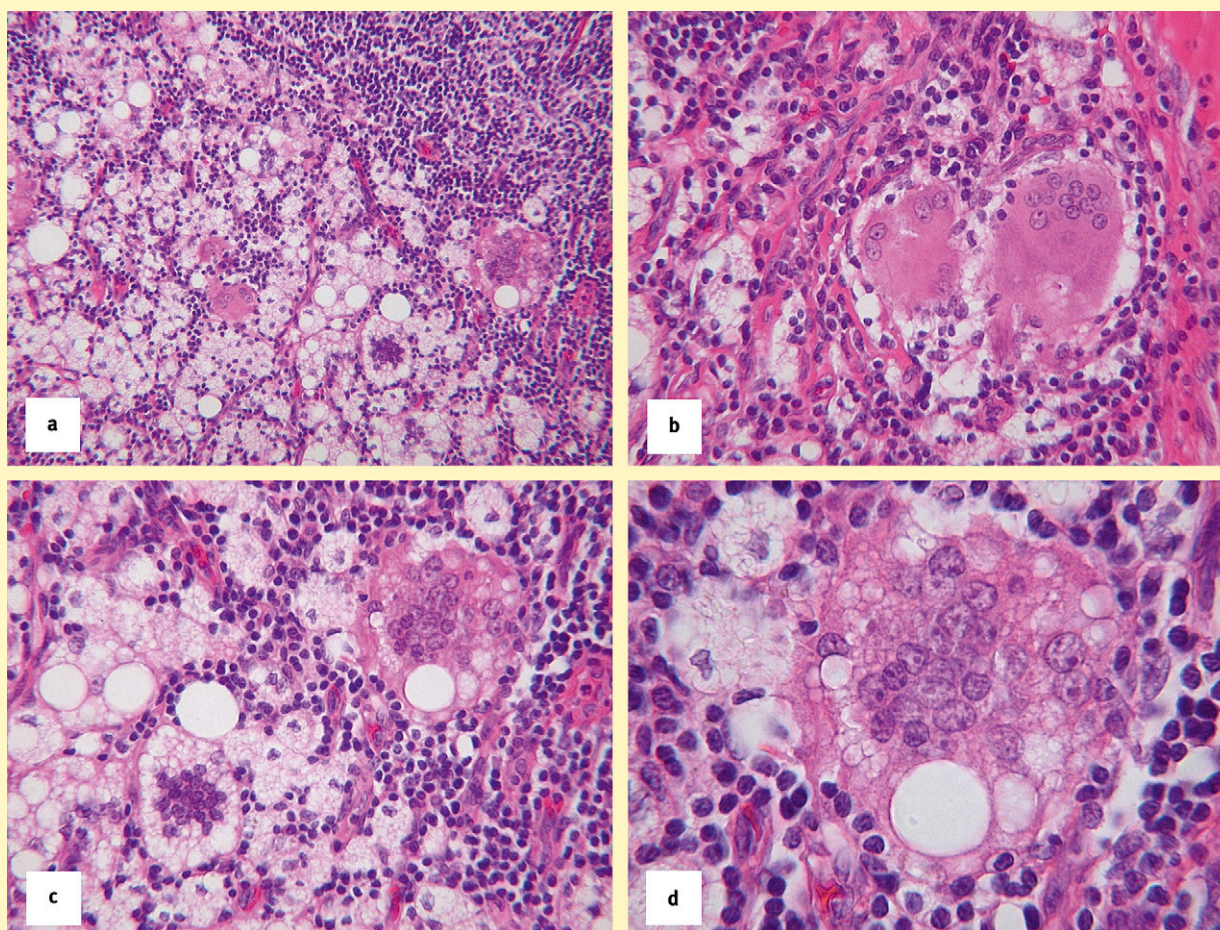
A woman presented with a suspicious abnormality on a routine screening mammogram. A needle core biopsy of that lesion showed invasive mammary carcinoma. At ultrasound examination at the time of biopsy one of the axillary lymph nodes was noted to be enlarged and this enlargement appeared to be due to cortical expansion. A needle core biopsy was taken from this lymph node to investigate whether it contained metastatic breast cancer. The histological appearances of this specimen are shown in [Figures 2 and 3](#). On the initial H&E appearance, the differential diagnosis included a giant cell reaction to antigens from the breast cancer or reaction to extensive fat necrosis or a ruptured implant but no foamy macrophages were present. A panel of immunohistochemical stains was performed. The multinucleated cells were positive for CD61 (synonyms – beta 3 integrin, platelet glycoprotein IIIa), CD31 (synonym – platelet endothelial cell adhesion molecule, PECAM-1) and factor VIII but negative for CD45 (synonym – leukocyte common antigen). This set of immuno-reactivities suggested that these cells were megakaryocytes. Further clinical history showed that the patient had a known myeloproliferative disorder that would produce a migration of megakaryocytes outside the normal bone marrow environment.

### Important clinical points demonstrated by this case

- Enlarged axillary lymph nodes identified at ultrasound examination at the same time as a breast cancer is identified may be enlarged due to causes unrelated to the breast cancer.
- Megakaryocytes should be included in the differential diagnosis of multinucleated giant cells identified with lymph nodes.

## Discussion

Ultrasound examination of axillary lymph nodes is now a defined part of preoperative assessment of breast cancer in the UK ([Figure 4](#)).<sup>5</sup> Identification of axillary lymph nodes containing metastatic cancer preoperatively (by ultrasound-guided needle



Haematoxylin and eosin stained sections from case 1. **a** Low power view of the cortical area of the lymph node, a few giant cells are visible at this magnification together with numerous single nuclei foamy macrophages. **b** Higher magnification showing two multinucleate giant cells and some foamy macrophages. The nuclei of the giant cells are polarised at one end of the cell, a feature that is often seen in foreign body type giant cells. **c** A different area of the lymph node at similar magnification to **b**. More foamy macrophages are present and the giant cell in the left lower part of the image has foamy cytoplasm. **d** Higher magnification view of a giant cell that contains numerous vacuoles in its cytoplasm.

**Figure 1**

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