

Short reports

Calcium oxalate crystals (Weddellite) within the secretions of ductal carcinoma in situ—a rare phenomenon

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Abstract

A case is described in which calcium oxalate (Weddellite) crystals were identified in an area of ductal carcinoma in situ of the breast. Seventy other cases were examined but no evidence of Weddellite was detected. This is evidently a rare phenomenon in carcinoma in situ.

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Keywords: Weddellite; breast; ductal carcinoma in situ

Mammographically detected microcalcifications of the breast are of two types. The more common type consist of amorphous calcium phosphate or hydroxyapatite which represents a dystrophic form of calcification. These deposits are readily recognised histologically as basophilic deposits within various benign and malignant conditions.^{1–4} The less common form of microcalcification consists of calcium oxalate crystals or Weddellite, which appear as faint amber crystals (which are often fractured) in routine haematoxylin and eosin stained sections and which are most easily

detected by examination under cross polarised light.^{4–6}

Calcium oxalate deposits are a secretory product of breast epithelium^{2,4} and are most often seen in benign cysts, especially those with apocrine metaplasia and within dilated ducts. While Weddellite has been noted in association with invasive carcinoma and lobular carcinoma in situ, it has generally been localised in areas of associated benign cystic change or else considered to have represented benign changes overrun by the carcinoma.^{2,6} To our knowledge, there have been no previous well documented cases with Weddellite occurring directly in association with ductal carcinoma in situ.

Case report

A right sided wire localisation breast biopsy was performed following the mammographic detection of microcalcifications in a 63 year old female. The specimen *x* ray showed a small mass lesion with microcalcification corresponding to a 6 mm nodule. Histological examination of this showed an area of intermediate grade papillary ductal carcinoma in situ. No usual type calcification was evident on light microscopy, but examination with polarised light showed Weddellite crystals within the luminal secretions within the area of ductal carcinoma in situ (fig 1).

To investigate the incidence of Weddellite within carcinoma in situ, a further 70 cases of various types of carcinoma in situ, both ductal and lobular, of varying growth patterns and cytological grades were examined using polarised microscopy. Weddellite was found within benign breast tissue adjacent to one case of lobular carcinoma in situ and one case of invasive ductal carcinoma with high grade ductal carcinoma in situ. In neither of these cases was the Weddellite associated directly with in situ or invasive carcinoma.

Discussion

Weddellite crystals which are secondary to secretory activity are known to be associated with benign changes in the breast. When

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Figure 1 Breast duct showing involvement by intermediate grade papillary ductal carcinoma in situ with a crystalline deposit of calcium oxalate within the secretions (arrow). The inset shows the birefringent nature of the Weddellite.

reported with a malignancy, they have generally been present within benign breast tissue closely associated with the tumours.²⁻⁶ There have been reports of Weddellite in association with and within areas of lobular carcinoma in situ.⁴⁻⁷ We report a rare phenomenon of Weddellite within the luminal secretion of a papillary ductal carcinoma in situ. Subsequent detailed examination of 70 cases of in situ carcinoma showed no further examples of Weddellite, supporting the view that a direct association between Weddellite calcifications and malignancy is rare. We do not believe it possible to provide an adequate explanation of the relation between the Weddellite and the ductal carcinoma in situ in this case. Although Weddellite may be directly related to oxalate directly secreted by the neoplastic cells, it may

also be a “bystander,” related to secretions from benign ductal or lobular epithelial cells in continuity with the focus of carcinoma in situ.

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