Case 15270

A large benign phyllodes tumour in a 56-year-old woman: a case report
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Section: Breast imaging
Area of Interest: Breast
Procedure: Diagnostic procedure
Procedure: Biopsy
Imaging Technique: Mammography
Imaging Technique: Ultrasound
Imaging Technique: Ultrasound-Power Doppler
Imaging Technique: CT
Imaging Technique: MR
Special Focus: Neoplasia Case Type: Clinical Cases
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Patient: 56 years, female

Clinical History:
A 56-year-old woman presented to our hospital with a 6-month history of an enlarging right breast palpable lump. The clinical examination confirmed the presence of a large lobulated well circumscribed mass. There was no associated nipple discharge or skin change. The patient underwent a core biopsy and subsequently a surgery which revealed the diagnosis.

Imaging Findings:
The patient reported no previous mammography or breast ultrasound examination. She was initially given a mammography which revealed a large encapsulated, lobulated, mixed-mainly isodense lesion seen at the right upper central region (Fig.1). Breast ultrasound showed a well-defined oval shaped heterogeneous mass with mild cystic changes, 9.6cm in its maximum direction (Fig.2). The contralateral breast was normal. No suspicious looking axilla lymph nodes were found. The core biopsy of the mass showed a cellular fibro epithelial lesion with mild increase in stromal cellularity. No stromal atypia or mitoses were seen. Her preoperative diagnostic workup also included a computed tomography examination (CT) and magnetic resonance imaging (MRI) of the lung and abdomen to exclude the presence of metastastic lesions or lemphadenopathy. No suspicious looking lesions were found. CT showed an enhancing lobulated mass, adjacent to the thoracic wall (Fig.3). MRI showed a septated mass with enhancing-solid and cystic parts (Fig.4). The patient underwent a right simple mastectomy and has not had any relapse.

Discussion:
Phyllodes tumour is a rare fibroepithelial neoplasm accounting for less than 1% of breast tumours [1]. Most of the tumours occur in females of a median age 42-45 [2, 3, 4], with higher grade tumours more common in the elderly [5].
The term "phyllodes" is derived from the Greek word "phyllion" meaning leaf and refers to papillary projections that are seen on microscopic examination [6, 7]. Although phyllodes tumour and fibroadenoma have similar radiologic and histopathologic features, they have to be distinguished, due to their different clinical course [8]. Approximately 20-30% of phyllodes tumours are malignant and thus cannot be safely followed or simply enucleated. The malignancy grade is categorised as benign, borderline and malignant based on tumour margins, stromal cellularity and overgrowth stromal cell atypia and mitotic activity. Even benign tumours recur (20%) and they may be accompanied by a change to a more malignant status [9]. Regarding the mammographic appearance, phyllodes tumours are usually larger than fibroadenomas. Both tumours present as well circumscribed, oval or lobulated masses, but phyllodes are reported to have a higher density [10]. Small tumours tend to have more smooth edges, while the greater ones are more irregular and lobulated [11]. Ill-defined borders may be due to invasion of surrounding breast tissue. Even malignant phyllodes are usually non-spiculated. Very large size and rapid growth are in favor of phyllodes rather than fibroadenoma [12].

Ultrasound, the modality of choice for the diagnosis, reveals well-circumscribed, lobulated masses with heterogeneous internal echogenicity, including solid and cystic components [11]. There are several imaging features that are more frequently encountered in phyllodes tumours than fibroadenomas. These are lobulations, heterogeneous internal texture, cystic components, horizontal linear clefts, rich vascularisation and irregular margins [13]. Posterior enhancement has also been reported to represent a commonly detected feature in phyllodes tumours, at rates between 50 and 77% in different studies [8, 14]. MRI, in correspondence with US, depicts well-defined lobulated masses with cystic components, either due to degeneration or necrosis, which tend to have a cleft-like shape. The presence of internal cystic areas was significantly different between phyllodes tumours and fibroadenomas [8]. The latter are more commonly associated with septations. Solid parts are iso- to high signal on T2WI, but also foci of dark signal can appear, representing areas of haemorrhage or calcification. Breast phyllodes tumour is of low-signal intensity on plain scan T1WI and of higher signal intensity on T2WI [11]. Previous studies described slowly enhancing (type 1) and suspiciously enhancing (types 2 and 3) phyllodes tumours. Wurdinger et al. reported that one-third of phyllodes tumours showed a typical malignant enhancement pattern [15].

**Differential Diagnosis List:** Benign phyllodes tumour, Borderline phyllodes tumour, Malignant phyllodes tumour, Fibroadenoma, Primary sarcoma of the breast

**Final Diagnosis:** Benign phyllodes tumour

**References:**


Dr Ian Bickle, A.Prof Frank Gaillard. Phyllodes tumour. Radiopaedia (https://radiopaedia.org/articles/phyllodes-tumour)


Description: Mediolateral oblique mammographic projection (MLO) showing a large encapsulated, lobulated, mixed but mainly isodense lesion, seen at the upper region of the right breast. Origin: Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece
**Description:** Craniocaudal mammographic projection (CC) showing a large encapsulated, lobulated, mixed but mainly isodense lesion, seen at the centre region of the right breast. **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece
Figure 2

a

**Description:** Ultrasound imaging showing a lobulated heterogeneous lesion with mild cystic changes, well-defined margins and posterior acoustic enhancement. **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece

b

**Description:** Doppler ultrasound imaging showing a large heterogeneous lesion with internal vascularity. **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece
**Description:** Biopsy needle traversing the mass. **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece
Figure 3

a

Description: Computed tomography image showing a large enhancing lobulated, heterogeneous mass with prominent septae. **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece.

b

Description: Computed tomography image showing cystic spaces within the mass representing regeneration or necrosis. **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece.
**Figure 4**

**a**

*Description:* T2-weighted image showing a large lobulated heterogeneous mass. The solid components appear with intermediate signal, while the cystic spaces are hyperintense. *Origin:* Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece

**b**

*Description:* Fat suppressed T2-weighted image demonstrating better the cystic spaces. The dark foci represent areas of haemorrhage. *Origin:* Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece
Description: Gadolinium enhanced T1-weighted image showing enhancement of the solid parts and prominent septae. Origin: Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece