Learning objectives

To show mammographic and sonographic findings of phyllodes tumors and fibroadenomas of the breast.
To evidentiate the features of phyllodes tumors and fibroadenomas which may overlap and to point out those who can differentiate them.

Background

Although phyllodes tumors are relatively rare, they have an important impact in the management of the patient because of their potential to become or be malign in contrast with fibroadenoma. Therefore we consider that an accurate diagnostic evaluation and a careful analysis of their radiological features may help in distinguishing these two pathological entities. Phyllodes tumors may develop de novo or from existing fibroadenomas [1]. Fibroadenomas and phyllodes tumors are both fibroepithelial tumors of the breast and in the same class as low-grade periductal sarcoma and mammary hamartoma. Fibroadenoma is an entirely benign neoplasm while the phyllodes tumor may have a wide spectrum of morphology and behavior and are categorized as benign, borderline or malignant based on histologic and cytologic features such as tumor margin (pushing vs infiltrative), degree of stroma overgrowth, stromal cellularity, tumor necrosis, pleomorphism, and the number of mitosis per high-power field. [1]
Because phyllodes tumors have a high risk of recurrence and metastasis (usually hematogenously to the lungs or bones) they require a radical excision with wide margins or simple mastectomy[2] which is opposed with the management of fibroadenomas who are treated conservatively or by simple enucleation [3]. Overall 5-year survival of patients with phyllodes tumors is about 90% [4] but, in the case of highgrade phyllodes tumors, the 5-year survival is only 65% [5]. Prognosis is poor for lesions containing sarcomatous elements as they tend to follow the behavior of sarcomas [6].

In middle-aged and older women, phyllodes tumors are most likely whereas in adolescent and young women, we should consider giant fibroadenoma although they are very hard to differentiate them from a phyllodes tumor. In postmenopausal women enlarging fibroadenomas are very uncommon, though they may appear in women using menopausal hormone therapy [6].

Imaging findings OR Procedure details
The imaging findings of phyllodes tumors and fibroadenomas of the breast will be discussed. This review will emphasize on the echogenicity, structure, margins, shape, Doppler signal and growth rate of the tumors. The patient age and medical history should always be taken into account.

Mammography alone is not very useful in differentiating fibroadenoma from phyllodes tumor, but a mass of higher density surrounding fibroglandular breast tissue (Fig 4), with loss of definition on margins or lobulated appearance of margins (Fig 5), is more likely to be associated with phyllodes tumor [7,8]. The tumor may manifest initially as a large mass or may show a rapid increase in size. Imaging features overlap between benign and malignant lesions, but tumors with a maximal diameter greater than 3 cm should arouse suspicion about their possible malignancy [9,10]. When detected at a screening examination, the appearance may mimic a fibroadenoma [6,11].

At mammography, fibroadenomas appear as well-defined round, oval, or lobulated masses. The masses may be calcified (fig 1, 2 and 3), with the most common pattern of calcification being initial small peripheral dots that coalesce over time into coarser popcorn-shaped features. In the presence of a calcified fibroadenoma, further work-up, including US imaging or biopsy, is not needed because this entity is characteristically benign [12].

Ultrasonographic features of phyllodes tumor include lobulation (Fig 6), heterogeneous hypoechoic internal echo pattern with absence of calcifications, posterior acoustic enhancement, or cystic changes (Fig 7) [7,8, 13]. Although there is considerable overlap of these features between fibroadenomas and phyllodes tumors [9, 13] a lobulated shape, heterogeneous internal echo pattern and absence of microcalcification are much more characteristic to phyllodes tumors [13]. Sonography cannot reliably distinguish between malignant, borderline, and benign phyllodes tumors [8, 13] although malignant and borderline phyllodes tumors may exhibit increased intratumor microvessel density compared with benign phyllodes tumors [14,15]. The number of vessels does not differ significantly between the benign and malignant phyllodes tumors [15]. If sonographic features suggest phyllodes tumors, excisional biopsy should be performed to establish an accurate diagnosis [13].

At MRI large phyllodes breast tumors may have a typical morphology with smooth margins, internal cysts, septations, and hemorrhage or perifocal or unilateral edema, but a reliable differentiation of phyllodes tumors and fibroadenomas is not possible [16].

Images for this section:
Fig. 2
Fig. 3
Conclusion

Phyllodes tumors and breast fibroadenomas cannot be precisely differentiated on mammography or ultrasonography because considerable overlap of their characteristics, but if we take into account the patient's age and clinical course we could indicate the correct diagnosis. We must not forget that a definitive diagnosis is usually based on histological results.

Personal Information

References

16. Wurdinger, S; Herzog, AB; Fischer, DR; Marx, C; Raabe, G; Schneider, A; Kaiser, WA; Differentiation of phyllodes breast tumors from fibroadenomas on MRI. AJR 2005; 185:1317-1321