

CASE REPORT



Missed diagnosis of phyllodes tumor and its implications: A case report

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Abstract

Phyllodes tumor, a fibroepithelial neoplasm, is rare and accounts for <1% of breast tumors. It is often underdiagnosed by the pathologists and undertreated by the surgeons. The pathologist has a definite role in the pre-operative diagnosis of phyllodes which is essential for planning of surgery. A consistent differentiation of phyllodes tumor from cellular fibroadenoma is often difficult. Pre-operative diagnosis by fine-needle aspiration cytology or core needle biopsy is very important to avoid reoperation because of inadequate excision or to prevent unwarranted surgery. Its heterogeneity makes phyllodes tumor, a challenge for the pathologist and the clinician. We present the case of 45-year-old female with clinical differential diagnoses of phyllodes tumor or carcinoma of right breast lump. The lack of correlation between clinical and cytological diagnosis warranted a core biopsy which was not helpful. Intraoperative frozen section was requested on the subsequent lumpectomy. Grossly, a multicystic lesion with fronds projecting into them and cysts with mucinous material was seen. Cellular imprint smears and frozen and routine histopathology sections confirmed the diagnosis of phyllodes tumor. This case aptly describes the saga of a missed pre-operative diagnosis of phyllodes tumor.

Introduction

Phyllodes tumors of the breast are an uncommon, yet interesting group of fibroepithelial neoplasms that have a morphological resemblance at the benign end to the intracanalicular fibroadenoma albeit with increased stromal cellularity and leaf-like architecture.^[1] They account for <1% of all breast tumors.^[2] The proposed World Health Organization classification of phyllodes tumor into benign, borderline, and malignant is based on a combination of histologic features, such as cellularity of stroma, nuclear atypia, mitosis, overgrowth of stroma, and infiltrative or pushing tumor margin.^[3] The common argument in phyllodes tumor is pathologists' hesitate to diagnose it and surgeons do incomplete treatment. Hence, a diagnosis of phyllodes tumor before surgery is needed for planning the treatment. The phyllodes tumor has to be identified from the common benign fibroadenoma, which is its nemesis and a clinical, radiological, and morphological mimicker.^[4]

A correct surgical planning with wide local excision and at least 1 cm margin is the needed treatment to avoid relook operation in cases of phyllodes.^[5]

The triple assessment is the desired approach for breast lumps, which combines the results of clinical examination, radiological imaging, fine-needle aspiration cytology (FNAC), and/or core needle biopsy, to ensure diagnostic accuracy in breast disease before surgery. The efficacy of these components on their own and in combination remains poor for the diagnosis as phyllodes tumor features overlap with benign disease in all three categories.^[2] Frozen section is useful to know the status of the margin intraoperatively because inadequate margins are often the cause for high recurrence associated with phyllodes.

Case Report

A 45-year-old female came to the surgical outpatient in our hospital with the complaint of lump in the right breast of 5-month duration and increasing in size during the past 2 months. Local examination of the right breast revealed an irregular nodular lump measuring 10 cm × 8 cm × 8 cm, firm and freely mobile occupying the entire breast with an overlying stretched skin. There was no axillary lymphadenopathy. She was clinically

diagnosed to have carcinoma or phyllodes tumor of the right breast, and FNAC was advised.

FNAC of right breast mass was performed under aseptic precautions. Smears showed benign epithelial cells arranged in cohesive clusters with few foamy macrophages and blood [Figure 1a]. No malignant cells were seen. FNAC was reported as negative for malignancy with possibility of fibrocystic disease. The lack of correlation between clinical and cytological diagnosis warranted a core biopsy. The patient underwent core needle biopsy of the lump, fragments of which showed few ducts surrounded by hyalinized stroma, mildly cellular loose textured stroma, and adipocytes [Figure 1b]. Cytological features were reported as negative for malignancy.

Due to inconclusive report on both FNAC and core needle biopsy, the patient underwent lumpectomy and intraoperative frozen section analysis for a diagnosis and tumor margins.

Gross findings

The mass measured grossly 10 cm × 8 cm × 8 cm. On cut surface, it was variegated with solid frond-like areas and numerous cystic spaces filled with mucin [Figure 1c]. Areas of hemorrhage and necrosis were absent. Imprint smears were made and were stained with Hematoxylin and Eosin (H and E), Giemsa, and Papanicolaou stain. Representative areas were sampled for frozen section. Remaining tissue was fixed in formalin and processed for routine paraffin-embedded sections.

Microscopic findings

Imprint smears were stained with Giemsa, H and E, and Papanicolaou stain. Smears revealed hypercellular stromal fragments and scattered benign appearing spindle cells with few epithelial sheets in honeycomb pattern [Figure 1d].

Microscopy from frozen sections showed a tumor composed of leaf-like fronds lined by epithelium and cellular stroma of spindle cells with areas of edema and hyalinization [Figure 1e]. Occasional mitosis was seen. Diagnosis of benign phyllodes tumor was rendered.

Routine histological examination showed biphasic tumor growth composed of two components, a bland epithelial part that formed glandular structures and variable stroma from hypercellularity to myxoid to hyalinized areas. Stromal cells were round-to-oval cells that showed minimal degree of pleomorphism and mitosis ranged from 3 to 5/10 high-power fields (HPF). The final diagnosis was borderline phyllodes tumor of the right breast [Figure 1f].

Discussion

Phyllodes tumors of breast comprising of both stromal and epithelial elements are rare tumors. The phyllodes tumor was described by Johannes Muller, who named it as cystosarcoma phyllodes because of the tumor's fleshy appearance and tendency to contain cystic spaces. This term is, however, a misnomer as they are usually benign.

Classically, phyllodes tumor presents as a painless firm mobile, well-delineated lobulated mass. The mammographic or ultrasonography features are not specific for phyllodes.^[5] Hence, early diagnosis of phyllodes tumor is crucial so that it is possible to be removed with adequate margin.

Pre-operative probable diagnosis can be achieved by FNAC or core biopsy. The FNAC has limited success of around 12% in establishing a pre-operative diagnosis, limitation factor being the common cytological features with fibroadenoma.^[6] Both the tumors have a dimorphic pattern with epithelial and stromal components. However, for the diagnosis of benign phyllodes tumor, at least two large stromal fragments which are hypercellular and moderate-to-large number of dissociated stromal cells are essential.^[7] Core biopsy is preferred for establishing the diagnosis before the surgical treatment.

An adequate and representative sample determines the accuracy of FNAC. The hypercellular fragments may be missing because of the heterogeneous nature and if sampled from relatively hypocellular, myxoid, or hyalinized areas of stroma. FNAC has a high false-negative rate and only 63% overall accuracy.^[6]

In our case, cytology smears on FNAC showed no stromal fragments and the cellularity was limited to epithelial cells in sheets. Failure of diagnosing phyllodes tumor on FNAC could be due to aspiration from cystic non-representative areas which were evident in the resected specimen.

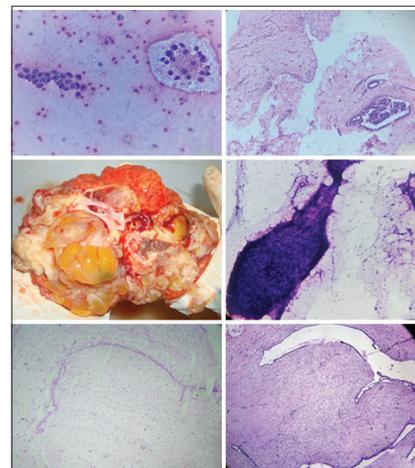


Figure 1: (a) Smears showed benign epithelial cells arranged in cohesive clusters with multinucleated foamy macrophage (Giemsa ×40). (b) Core biopsy shows fragments with few ducts surrounded by hyalinized stroma and mildly cellular loose textured stroma Hematoxylin and Eosin (H and E ×40). (c) Cut surface of fresh lumpectomy specimen for frozen was variegated with solid frond-like areas and cystic spaces filled with mucin. (d) Imprint smears revealed hypercellular stromal fragments and scattered benign appearing spindle cells (H and E ×40). (e) Frozen section showed leaf-like fronds lined by epithelium and cellular stroma of spindle cells (H and E ×40). (f) Hypercellular stromal overgrowth of spindle cells in borderline phyllodes (H and E ×40)

In our case, core biopsy showed epithelial and stromal components with mild cellularity lacking mitosis, nuclear atypia, and stromal overgrowth. The absence of more representative areas from a heterogenous tumor deterred a more definite opinion.

Intraoperative examination remains a diagnostic method when the mammographic screening, FNAC, and core needle biopsy fail to make a preoperative diagnosis. In our case, due to inconclusive report on both FNAC and core needle biopsy and high clinical suspicion of phyllodes tumor or malignancy, lumpectomy was done and intraoperative frozen section requested for. On sampling, the mass and H and E stained smears showed a tumor composed of leaf-like fronds lined by epithelium and cellular stroma of spindle cells with a minimal degree of pleomorphism and mitosis ranged from 3 to 5/10 HPF. Final diagnosis rendered was a borderline phyllodes tumor of the right breast. The patient underwent simple mastectomy and on regular follow-up has not had recurrence to date.

Histopathologically, phyllodes tumors are classified as benign, borderline, and malignant tumor based on features such as tumor margin (pushing vs. infiltrative), degree of stromal overgrowth, stromal cellularity, tumor necrosis, pleomorphism, and the number of mitosis per HPF.^[8] A benign tumor has 0–4 mitosis/10 HPF, predominantly pushing margins with no or mild stromal atypia. Borderline tumors are identified by 5–9 mitosis/10 HPF, pushing or infiltrative margin, and moderate stromal atypia. Malignant phyllodes are characterized by 10 or more mitosis/10 HPF, predominantly infiltrating margins with high-grade stromal atypia.^[6] In our case, features of borderline phyllodes tumor were noted on resected lump.

Surgery is the treatment of choice for benign phyllodes with wide local excision allowing 1–2 cm of clear margins in all directions. Mastectomy is performed in malignant phyllodes tumor and in tumors larger than 5 cm. The role of radiotherapy and chemotherapy is not certain.^[9]

Conclusion

The role of cytology is inconclusive in phyllodes tumor sometimes as in this case. Early and correct diagnosis of this

tumor is needed because of different treatment modalities. Pathologists can provide a more useful guidance to clinicians if they attempt to differentiate between various fibroepithelial lesions.

References

1. Tan BY, Acs G, Apple SK, Badve S, Bleiweiss IJ, Brogi E, *et al.* Phyllodes tumours of the breast: A consensus review. *Histopathology* 2016;68:5-21.
2. Jacklin RK, Ridgway PF, Ziprin P, Healy V, Hadjiminas D, Darzi A. Optimising preoperative diagnosis in phyllodes tumor of the breast. *J Clin Pathol* 2006;59:454-9.
3. Zhang Y, Kleer CG. Phyllodes tumor of the breast: Histopathologic features, differential diagnosis, and molecular/genetic updates. *Arch Pathol Lab Med* 2016;140:665-71.
4. Bandyopadhyay R, Nag D, Mondal S, Mukhopadhyay S, Roy S, Sinha S. Distinction of phyllodes tumor from fibroadenoma: Cytologists' perspective. *J Cytol* 2010;27:59-62.
5. Nikumbh BD, Dravid VN, Kanthikar NS, Patil T, Surana A. Giant borderline phyllodes tumor of the breast: A cytohistopathological correlation with brief review of literature. *Int J Med Health Sci* 2014;3:230-4.
6. Machado NO. Recurrent giant phyllodes tumor of the breast: pathological consideration and management approach for recurrence and metastasis. *Surg Sci* 2012;3:220-5.
7. Jayaram G, Sthaneshwar P. Fine needle aspiration cytology of phyllodes tumors. *Diagn Cytopathol* 2002;26:222-7.
8. El Hag IA, Aodah A, Kollur SM, Attallah A, Mohamed AA, Al-Hussaini H. Cytological clues in the distinction between phyllodes tumor and fibroadenoma. *Cancer Cytopathol* 2010;118:33-40.
9. Hassouna JB, Damak T, Gamoudi A, Chargui R, Khomsi F, Mahjoub S, *et al.* Phyllodes tumors of the breast: A case series of 106 patients. *Am J Surg* 2006;192:141-47.

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