



## A Giant Phyllodes Tumor of the Breast: A Case Report in Pregnancy

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### Abstract

Phyllodes Tumors (PTs) of the breast are rare biphasic fibro epithelial tumor. They account for less than 1% of primary breast tumors. They typically grow rapidly and clinically appears as breast lump in woman within a median age of 45 years. PTs are characterized by an enhanced intra canicular structure with leaf-like projections into dilated lumens. In the 70% of cases, these tumors constitute benign unilateral lesions of the female breast. Less common are the malignant phyllodes, characterized by stromal pleomorphism and over growth, frequent mitosis and infiltrative borders. PTs, rarely, occur in pregnancy. Here, we present a case of 37 years old women with a giant malignant PT in her left breast, with a maximum diameter of about 24 cm, the largest reported in literature. It grew over 7 months, during pregnancy. The histological examination of the resected tumor specimen, after its wide excision, revealed predominance of stromal hyper cellularity with a few altered epithelial component and a focal area showing a leaf-like pattern, consisting with a large malignant phyllodes tumor.

### Introduction

Phyllodes tumors (PTs) of the breast are a rare and complex group of biphasic fibro-epithelial neoplasms [1]. They represent less than 1% of primary breast neoplasms. PTs usually present as breast lump and they are diagnosed in all age groups with a median age of presentation of 45 years. Rarely are diagnosed during pregnancy [2,3]. These tumors are often clinically benign and are characterized by a rapid growth, with an increased intra canicular growth pattern with leaf-like projections. Malignant PTs are rare and exhibit an enhanced stromal pleomorphism and over growth, frequent mitosis and infiltrative borders. Currently, biopsy is the tool used for diagnosing phyllodes tumors. The treatment is surgery, by wide local excision with sufficient margin of normal breast tissue or mastectomy.

Here, we presented a case of a 37 years old women with a large breast left mass of about 24 cm diameter. The mass was surgically removed by wide local excision and the histological examination demonstrated the presence of a biphasic fibro epithelial neoplasm. The stromal component exhibited an enhanced intra canicular pattern and leaf like projections, accompanied by hyper cellularity and moderate nuclear atypia. Stromal over growth was observed. The epithelial component also showed alterations, consisting of marked adenosis areas, accompanied sometimes in lactation like epithelial changes. Furthermore, areas of malignant degeneration were detected. All together these changes were consistent with a giant malignant phyllodes tumor.

### Case Presentation

A 37 years old Italian women presented in our hospital, in the first three month period of pregnancy, with a small lump on the left breast above the nipple, measuring about 1.2 cm. Her only significant past medical history was adenoids. She referred to have a miscarriage at 36 years old, and to be under hormonal therapy. She never smoked. She had thrombophilia and she was under anticoagulant medication. She was an allergic individual to antibiotics, belonging to the cephalosporin and penicillin class. She had not family history of breast or ovarian cancer. Ultra sound examination demonstrated an odular formation on the left breast contained liquid, consistent with a suspicious BI-RADS 4 tumor, according to the BI-RADS classification [4,5]. Successive examination, by core-needle biopsy, revealed a biphasic fibro epithelial neoplasm. The epithelial components showed areas

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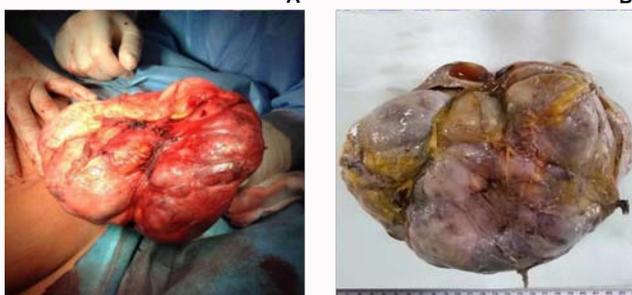
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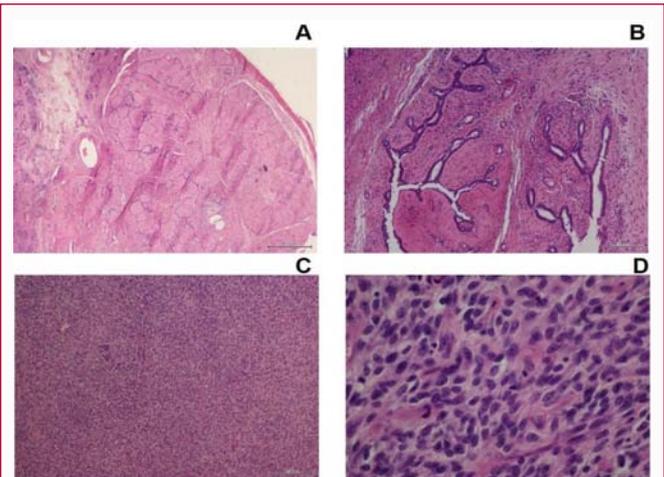
**Figure 1:** Enlarged patient's left breast.



**Figure 2:** (A) Operative findings: wide local excision (B) The excised tumor mass, 24 cm x 16 cm x 4 cm in size.

of slight hyperplasia, while the stromal one presented spindle cells with moderate hypercellularity, leaf-like projections, without atypia and mitosis, suggesting a doubtful benign phyllodes tumor. After she gave birth, she came back to our hospital. She was breast feeding. At that time, physical examination showed a massively enlarged left breast mass, measuring about 24 cm in maximum diameter (Figure 1). She stated that it was not painful. In particular, mammography revealed that the left mammary gland body was entirely replaced from a polylobed nodular growth. The patient right breast and the rest of clinical examination were normal. Examination by ultrasound breast with repeat revealed a large heterogeneous solid mass with internal vascularity, replacing all normal left breast tissue. No suspicious findings in the left lymph node as well as in the right breast and in the right axilla were detected.

Further examination with a chest and abdomen ultrasound was performed, which showed no evidence of metastatic lesion. The patient underwent to a wide local excision with sufficient surgical margin resection (Figure 2A). The resected tumor specimen measured 24 x 16 x 4 cm (Figure 2B). Histological examination demonstrated a fibroepithelial architecture with an exaggerated intracanalicular pattern (Figure 3A) with leaf-like fronds (Figure 3B), accompanied by stromal hypercellularity (Figure 3C), and moderate nuclear atypia (Figure 3D). Alterations of the epithelial component were demonstrated, consisting of marked adenosis areas, accompanied sometimes in lactation-like epithelial changes. Stromal overgrowth (defined as the presence of stroma without epithelium in at least one low-power field as observed with a  $\times 4$  microscope objective) was observed. Amitotic



**Figure 3:** Histo pathological findings: histological analysis of the surgical specimen demonstrated a diffuse fibro-epithelial lesion showing a few elongated epithelium lined clefts with stromal mounds by low magnification (A) A leaf-like pattern typical of phyllodes tumor was demonstrated at higher magnification (B) Marked stromal hypercellularity was observed (C) with moderate nuclear atypia with alteration in nuclear size and irregular nuclear membranes (D) All the tissue sections were stained by hematoxylin and eosin. 100  $\mu$ m bar was reported.

activity of 11/10 high-power fields (HPFs) was measured in an area of stromal hypercellularity. The tumors showed well defined borders. The histological examination was consistent with a giant phyllodes tumor, showing area of malignant degeneration.

## Discussion

PTs of the breast are rare fibroepithelial neoplasms, which can occur in all age groups, but predominantly occur in middle-aged women, with the average of 45 year old [6,7]. On clinical examination, these tumors usually present as painless mass with an average size of 4-5 cm [8,9]. They are classified into benign, border line and malignant grade categories on the basis of their histological properties, i.e. the degree of stromal cellularity and atypia, stromal overgrowth, mitotic activity and the nature of their tumor borders [1]. However, it is still difficult, not only, accurate and reproducible grading classification of these tumors but also the discrimination between benign phyllodes tumors and cellular fibroadenoma as well as between the malignant phyllodes tumors and primary breast carcinoma or spindle cell metaplastic carcinoma in all this spectrum of the PTs. This is due to overlapping microscopic features among these tumors. In addition to add more complexity to the PTs diagnosis and categorization is their intra-tumoral heterogeneity. It is in fact not uncommon that these tumors show benign lesions in some area and characteristics of border line and malignant lesions in other areas [10].

In our case, we observed a small lump (1.2 cm) on the left breast consisting of a biphasic fibroepithelial neoplasm, in the first trimester of pregnancy in 37 years Old Italian women. Only two cases are reported in literature of phyllodes tumors diagnosed during the first trimester of pregnancy [2,11]. Our case was not immediately treated but after the patient gave the birth. She experienced rapid growth during pregnancy, leading the left breast mass to a dimension of about 24 cm, the largest phyllodes tumor reported in literature. Rapid growth is one of the features of PTs and seven cases are reported in literature with this property, suggesting that the growth is more enhanced during pregnancy [12]. Further, this finding

supports the idea that these tumors may be hormonally sensitive, although this concept is highly debated [3]. In this case, our patient referred a miscarriage at 36 years old, and to be under hormonal therapy. Interesting, in 10 reported cases of PTs during pregnancy, six presented a history of a previous breast mass [2,3,11,13-15]. Our patient did not report any previous breast mass. Furthermore, she had no family history of breast and ovarian cancer.

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