Giant phyllodes tumor of the breast

Anca Zgură[1,2], Laurenția Galeș[1,2], Elvira Brătilă[3], Rodica Anghel[1,2]

1. "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

2. "Prof. Dr. Alexandru Trestioreanu" Institute of Oncology, Bucharest, Romania

3. "Prof. Dr. Panait Sîrbu" Clinical Hospital of Obstetrics and Gynecology, Bucharest, Romania

Corresponding author:
Anca Zgură
E-mail: medicanca@gmail.com

Abstract

The phyllodes tumors are rarely found, accounting for up to 1% of cases. Phyllodes tumors tend to grow quickly, but they rarely spread outside the breast. In 2003, the World Health Organization classified the phyllodes tumors into three subtypes (benign, borderline and malignant), according to various clinicopathological characteristics, including the degree of stromal cell atypia and stromal overgrowth, tumor necrosis, the status of mitosis and the tumor margin. In this paper we present a case of giant phyllodes tumor of the breast in a young woman, with its clinicopathological particularities and the different treatment options.

Keywords: *phyllodes tumors, borderline, radiotherapy, chemotherapy*

Rezumat

Tumorile phyllodes sunt tumori rare, reprezentând doar 1% din toate cazurile de tumori ale sânului. Acestea au tendința de a crește rapid, diseminând foarte rar în afara sânului. În 2003, Organizația Mondială a Sănătății a clasificat tumorile phyllodes în trei subtipuri (benigne, borderline și maligne), în funcție de diferitele caracteristici clinicopatologice, incluzând gradul de atipie celulară stromală, gradul de necroză tumorală, numărul mitozelor și prezența invaziei marginilor de rezecție. În această lucrare prezentăm cazul unei paciente tinere cu tumoră phyllodes, cu particularitățile clinicopatologice pe care le prezintă și opțiunile diferite de tratament.

Cuvinte-cheie: *tumoră phyllodes, borderline, radioterapie, chimioterapie*

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Tumoră phyllodes gigantică

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Introduction

Phyllodes tumors are rather rare entities, accounting for only 1% of all breast tumors[1]. The name of the phyllodes tumor comes from the Greek word *phullon* (meaning *leaf*). Phyllodes tumors have been described for the first time by Cumin and Chilius in 1827, and in 1838 Muller called them "cystosarcome phylode". Phyllodes tumors tend to grow quickly, but they rarely spread outside the breast. Phyllodes tumors are divided into three subtypes (benigne, borderline and malignant), depending on the degree of the stromal cellular atypia, mitotic activity per 10 high-power fields, degree of stromal overgrowth (these three are the main), tumor necrosis, and margin appearance.

Borderline tumors have the greatest tendency for local recurrence[2,3]. All forms of phyllodes tumors have malignant potential and can behave like sarcomas, with metastases to various organs, commonly the lungs, bone and abdominal viscera[4]. The majority of phyllodes tumors have been described as benign (35% to 64%), with the remainder divided between borderline and malignant subtypes. A five-year survival rate was observed in almost 100% of the patients with benign tumors – 98% with borderline, and about 88% with malignant tumors[5]. The only treatment option for these tumors is the surgical removal.

Case report

A 48-year-old female presented to our department in December 2018, with a lump in the left breast that had been gradually increasing for three months. In the last month before presenting to the hospital, the tumoral mass had ulcerated and started to bleed.

Laboratory and imaging findings

The hemoglobin level was 7 g/dl and all other biological investigations were within normal limits. The CEA and CA15-3 were in normal limits. A biopsy showed a phyllodes tumor. Computed tomography scanning for chest, abdomen and pelvis revealed: voluminous tissue formation (approximately 12/20 cm) with lobular contour that almost completely occupied the left breast, left axillary pathological adenopathies (between 1.2 and 1.7 cm), nodular imaging (approximately 1.5/2.5 cm), iodophyll in the inferior right breast. The patient perfomed total mastectomy without axillary dissection.

Macroscopic findings

A breast tissue measuring 20×18×13 cm in dimensions was resected (Figure 2 and Figure 3). Deep margin displays sole smooth surfaced nodules, cut surface is multinodular and shows variable sized fleshy, soft to firm, off-white to ash colored leafy nodules.

Microscopic findings

Mammary gland left tumor transforming histopathologically, showing a nodular tumor proliferation well delimited to the surrounding tissue with biphasic aspect, with intracanalicular growth pattern; the stromal component has moderate cellularity, presents limited

Figure 1. *Large left breast mass on the clinical examination*

areas with increased cellularity, moderate cyto-nuclear pleomorphism and relatively numerous mitosis (mitotic index = 9 mitoses/10 HPF); areas sclerohialinization and laxa, mixedomas; the epithelial component consists of variable ductile dots, some dilated epithelial and myoepithelial cell wall with areas of ductal epithelial hyperplasia; focal, dilated duct structures, some with cystic appearance, epithelial wallpaper with squamous metaplasia and keratotic; focal, in the periphery of the structures ductal proliferation of lobular mucosal epithelial structures, smooth contours and myoepithelial cell skin, relatively monoorphic epithelial cells with rare mitoses (adenose zones); cell columnar hyperplasia. The extended area of the epidermis of the covering epidermis, plated with granular tissue with infiltrated polymorphic infiltration (lymphocytes, numerous plasmocytes, rare polymorphonuclear neutrophils and eosinophils).

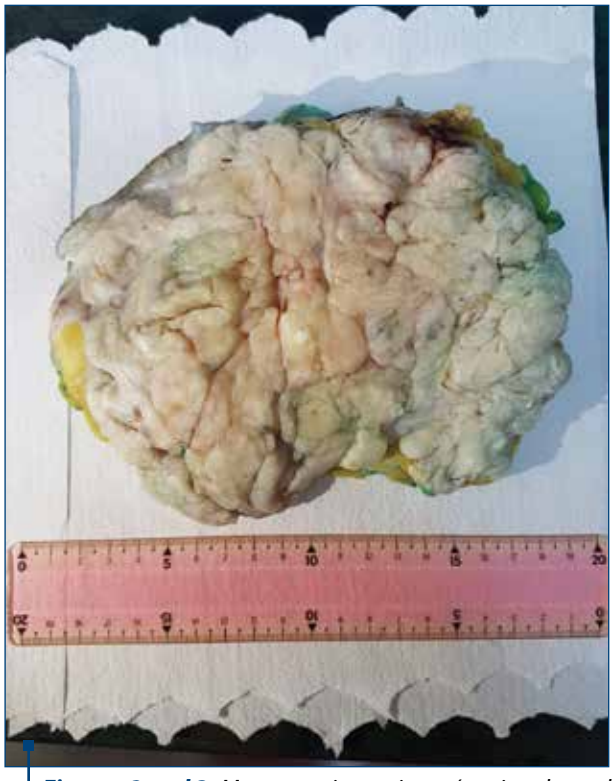
There are no areas of necrosis, sarcomatoid areas, marked cellular pleomorphism or infiltrative areas in the peritumoral tissue; the maximum number of mitoses was <10/10 HPF.

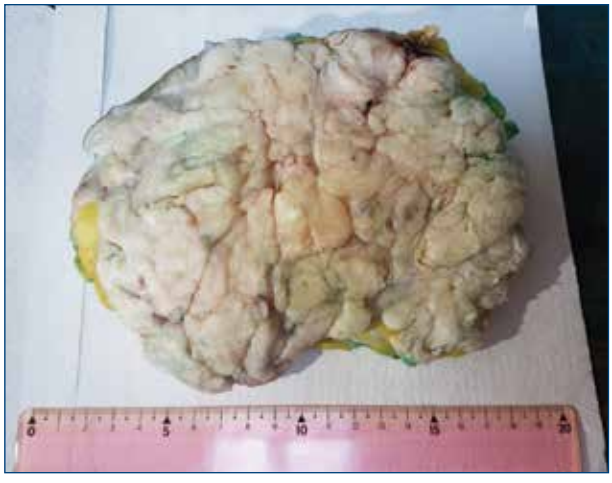
The patient was evaluated gynecologically because of uterine changes that showed the presence of multiple uterine fibroids, and at the level of bone system, by bone scintigraphy, that did not show the presence of bone metastases.

Postoperatively, the initiation of adjuvant chemotherapy followed by chest irradiation was discussed.

Discussion

Phyllodes tumors are rather rare entities, accounting for only 1% of all breast tumors[1]. In 2003, the World Health Organization classified phyllodes tumors into three subtypes – benign, borderline and malignant –, according to various clinicopathological characteristics, including the degree of stromal cell atypia and stromal overgrowth, tumor necrosis, the status of mitosis and the tumor margin[7-9]. However, the histologic classification does not always predict the outcome. The therapeutic decision is difficult to take due





Figures 2 and 3. *Macroscopic specimen (section through the excision track)*

to the lack of predictive factors. Different studies have shown that infiltration of resection margins, elevated mitosis rates, and rapid stromal growth are important prognostic and predictive factors[10]. Not all patients with positive margins develop recurrence. Malignant phyllodes tumors can cause metastases in 33% of cases despite radical mastectomy with negative margins[11]. KI67 is an important prognostic marker. In the case of benign and borderline tumors when the KI67 index is grater than 10%, it is necessary to treat the patient and follow him up properly to avoid recurrence and malignant transformation[12].

Another tumor prognostic factor was considered the tumoral size, which was found to positively correlate with distant metastasis, and it was also observed that women with distant metastases tended to present with larger tumors[13].

Several authors found radiotherapy to reduce the local recurrence rates, but unlike with the usual invasive breast cancers, radiation did not improve the survival in malignant phyllodes[14]. Local recurrences still developed in patients who received radiation, but few studies demonstrated that these women had large tumors and involved surgical margins, which rendered them at high risk of recurrence regardless. Tan and colleagues developed a nomogram to predict recurrence-free survival, based on stromal atypia, mitoses, stromal overgrowth and surgical margins[15]. Even though the nomogram was not developed specifically for distant metastasis, it is likely still relevant, since recurrences are more often systemic, rather than isolated local recurrences, in malignant phyllodes.

Conclusions

Phyllodes tumors are a heterogeneous tumor group whose prognosis is difficult to define. The prognosis depends on the histological and biological characteristics of the tumors. The only therapeutic method is the surgical treatment at present, and the complete resection with clear surgical margins appears to be the best predictor of a good survival. In case of phyllodes benign and borderline tumors, post-resection follow-up remains the method of choice, although adjuvant chemotherapy and radiotherapy are discussed in borderline tumors. Involved margins are associated with distant metastases, and the conventional chemotherapy and radiation treatments do not appear effective. ■

Conflict of interests: The authors declare no conflict of interests.

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