

# Cancer Association of South Africa (CANSA)



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## CANSA Fact Sheet on Phyllodes Tumours

### Introduction

Phyllodes tumours also known as cystosarcoma phyllodes, cystosarcoma phylloides, serocystic disease of Brodie and phylloides tumour, are typically large, fast-growing masses that form from the periductal stromal cells of the breast. It accounts for less than 1% of all breast neoplasms.

[Picture Credit: Phyllodes Tumour]



Phyllodes tumours are a fibro-epithelial tumour composed of an epithelial and a cellular stromal component. They may be considered benign, borderline, or also malignant, depending on histologic features including stromal cellularity, infiltration at the tumour's edge, and mitotic activity (having to do with the presence of dividing or proliferating cells). Cancer tissue generally has more mitotic activity than normal tissues. All forms of phyllodes tumours are regarded as having malignant potential. They are also known. Phyllodes tumours rarely spread outside the breast.

**Alkushi, A., Arabi, H., Al-Riyees, L., Aldakheel, A.M., Al Zarah, R., Alhussein, F., Altamimi, A.M., Alsulaiman, Y.A. & Omair, A. 2021.**

**Background:** Phyllodes tumor (PT) accounts for <1% of all breast tumors worldwide. Based on their microscopic features, these tumors are classified into benign, borderline, and malignant. This study aimed at evaluating the clinical experience and the clinicopathologic features of PT.

**Methods:** A retrospective cohort study of 46 female patients with histologically diagnosed PT. Data collection and evaluation was done on patient demographics, preoperative radiological assessment and pathology, surgical procedure, post-surgery pathological evaluation, radiation therapy (RT), and follow-up.

**Results:** The median age at diagnosis was 42 years and young premenopausal patients (median age 35 years) had malignant PT. Forty-five patients underwent core needle biopsy (CNB) with high sensitivity and the positive predictive value (82.2% and 97.4% respectively). Thirty-nine patients (86.7%) underwent conservative surgery and 6 (13.3%) had a mastectomy. Twenty-seven (58.6%)

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were classified as benign, 11 (23.9%) as borderline and only 8 (17.4%) as malignant PT. Malignant PT had the greatest median tumor size (13 cm). Mortality and recurrence rates were 4.3% and 2.2% respectively. RT was administered in 6 patients (13.0%), 5 having malignant and 1 borderline PT. The metastatic rate was found to be 6.5%.

**Conclusion:** PT are rare breast tumors with variable biologic behavior and heterogeneous clinicopathological findings. Young, premenopausal women with large tumors may have malignant PT with a risk of recurrence and metastasis. Core needle biopsy is a reliable tool for diagnosis of PT with strict follow-up recommended for large tumors diagnosed as fibroadenoma on CNB. Surgical management must ensure a tumor-free margin on excision to reduce recurrence.

### **Phyllodes Tumour**

Although most phyllodes tumours are benign (not cancerous), some are malignant (cancerous) and some are borderline (in between non-cancerous and cancerous with a tendency to probably become cancerous). All three kinds of phyllodes tumours tend to grow quickly, and they require surgery to reduce the risk of a phyllodes tumour coming back in the breast (local recurrence).

Phyllodes tumours can occur at any age, but they tend to develop when a woman is in her 40s. Benign phyllodes tumours are usually diagnosed at a younger age than malignant phyllodes tumours. Phyllodes tumours are extremely rare in men.

The three main types of phyllodes tumour:

- Non-cancerous (benign) tumours – these make up about 50–60% of phyllodes tumours.
- Borderline tumours – these are not yet malignant (cancerous) but are more likely to turn malignant.
- Cancerous (malignant) tumours – these make up about 20–25% of all phyllodes tumours.

**Limaïem, F/ & Kashyap, S.** 2021. Phyllodes tumor of the breast.

*In:* StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan. 2021 Jul 20.

“Phyllodes tumor of the breast is an infrequently encountered fibroepithelial neoplasm, which accounts for 0.3% to 1% of all tumors. Phyllodes tumor presents a morphologic continuum from benign to malignant. Based on histologic features, including nuclear atypia, stromal cellularity, mitotic activity, tumor margin appearance, and stromal overgrowth, the World Health Organization (WHO) classifies Phyllodes tumors benign, borderline, and malignant. Phyllodes tumors have an inherent recurrence and/or metastatic potential, which varies based on histologic grade. Their diagnosis is mainly established based on histopathological examination. However, the differential diagnosis between benign phyllodes tumors and fibroadenoma remains challenging, especially on core biopsy specimens.”

### **Tumour Grade and Tumour Stage**

Tumour grade and stage are terms used to describe the severity of a tumour, while tumour grade describes the appearance of cancerous cells in the tissue by examining them under a microscope.

Tumour stage encompasses:

- The location of the tumour.
- The size and/or extent of the original tumour.
- Whether cancer cells have spread to lymph nodes or anywhere else in the body.

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- The number of tumours present.

Doctors use tumour grade, cancer stage, and a patient's age and general health to decide the course of treatment for the patient and determine prognosis. Prognosis describes all factors including the disease course, cure rate, chances of survival, and risk of recurrence of cancer.

#### What are the cancer stages?

Different systems of cancer staging are used to describe the types of cancer. Below is a common method in which stages are ranged from 0 to IV.

- Stage 0: The tumour is confined to its place of origin (in situ) and has not spread to nearby tissue.
- Stage I: The tumour is located only in the original organ, is small, and has not spread.
- Stage II: The size of the tumour is large but has not spread.
- Stage III: The tumour has become larger and may have spread to surrounding tissues and/or lymph nodes.
- Stage IV: The tumour has spread to other distant organs of the body, which is known as the metastasis stage.

#### TNM staging

Another common staging method used for cancer is the TNM system, which stands for tumour, node (which means spread of the tumour to lymph nodes), and metastasis. When a patient's cancer is staged using the TNM system, a number will be present along with the letter. This number signifies the extent of the disease in each category - tumour, node, and metastases.

Another system of cancer staging divides cancer into five stages, which include:

- In situ: Abnormal cells are present but have not spread to nearby tissue.
- Localized: Cancer is located only in the original organ and shows no sign of its spread.
- Regional: Cancer has spread to nearby lymph nodes, tissues, or organs.
- Distant: Cancer has spread to distant parts of the body.
- Unknown: The stage cannot be figured out due to a lack of enough information.

#### What are the cancer grades?

Cancer grades are based on examination of the suspected tissue sample under a microscope. This involves surgically removing a piece of the suspected cancerous tissue and sending it to the lab for analysis. The entire procedure is known as a biopsy.

A doctor who specializes in diagnostic tests (pathologist) examines the cells of the tissue and determines whether they are harmless (benign or noncancerous) or harmful (malignant or cancerous). They describe the microscopic appearance of the cells and assign a numerical "grade" to most cancers.

Generally, a lower grade indicates slow-growing cancer and a higher grade indicates fast-growing cancer.

The most commonly used grading system is as follows:

- Grade I: Cancer cells that look like normal cells but are not growing rapidly.

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- Grade II: Cancer cells that don't look like normal cells with their growth being faster than normal cells.
- Grade III: Cancer cells that look abnormal and have the potential to grow rapidly or spread more aggressively.

Sometimes, the following system can be used:

- GX: Grade cannot be assessed (undetermined grade)
- G1: Well-differentiated (low grade)
- G2: Moderately differentiated (intermediate grade)
- G3: Poorly differentiated (high grade)
- G4: Undifferentiated (high grade)

### Incidence of Malignant Phyllodes Tumour in South Africa

The outdated National Cancer Registry (2019) known for under reporting, does not reflect the incidence of Phyllodes Tumour. However, according to the National Cancer Registry (2019) the following cases of histologically diagnosed breast cancer among South Africa among women was as follows. Histologically diagnosed means that a tissue sample (biopsy) was forwarded to an approved laboratory where a specially trained pathologist confirmed the diagnosis of cancer:

Group	Actual Number of Cases	Estimated Lifetime Risk	Percentage of All Cancers
2019			
All females	10 174	1 : 27	23,22%
Asian females	528	1 : 18	38,63%
Black females	4 412	1 : 47	21,90%
Coloured females	1 398	1 : 20	28,43%
White females	3 836	1 : 11	21,14%

### Frequency of Histologically Diagnosed Cases of Breast Cancer

According to the National Cancer Registry (2019), the frequency of histologically diagnosed cases of breast cancer in women in South Africa is as follow:

Group	0 to 19 Years	20 to 29 Years	30 to 39 Years	40 to 49 Years	50 to 59 Years	60 to 69 Years	70 to 79 Years	80 + Years
2019								
All females	1	154	965	2 055	2 420	2 358	1 579	642
Asian females	0	5	36	101	125	137	101	23
Black females	0	107	615	1 122	1 089	829	436	214
Coloured females	1	16	116	259	386	348	203	69
White females	0	26	198	573	820	1 044	839	336

### Signs and Symptoms of Phyllodes Tumour

These tumours will usually present as a smooth lump felt beneath the skin. The breast may become red or warm to the touch. These tumours can grow very fast, so it is important to have them evaluated as soon as possible. Symptoms can also mimic those of other types of breast cancer.

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## Differential Diagnosis of Phyllodes Tumour

The differential diagnosis of Phyllodes Tumour include:

<u>Juvenile Fibroadenoma</u>	<u>Low Grade Phyllodes Tumour</u>
No leaf-like architecture	Prominent leaf-like architecture
No condensation around ducts	Stromal condensation around ducts
Does not infiltrate	May infiltrate surrounding breast

The histologic border between these two is not always sharp

<u>Juvenile Fibroadenoma</u>	<u>High Grade Phyllodes Tumour</u>
No stromal atypia	Atypical stroma
Stromal mitotic rate < 3/10 hpf	Elevated stromal mitotic rate
No stromal overgrowth	Stromal overgrowth
Does not infiltrate	May infiltrate surrounding breast

Stromal overgrowth defined as at least one low power field (40x total magnification) composed entirely of stroma

<u>Fibroadenoma</u>	<u>Low Grade Phyllodes Tumour</u>
Lacks significant stromal hypercellularity	Hypercellular stroma is prominent
No stromal overgrowth	May have stromal overgrowth
No leaf-like architecture	Prominent leaf-like architecture
No condensation around ducts	Stromal condensation around ducts
Does not infiltrate	May infiltrate surrounding breast

The histologic border between these two is not always sharp

<u>Metaplastic Carcinoma</u>	<u>Phyllodes Tumour</u>
Spindled component may be positive for high molecular weight keratin or p63	Stromal component negative for high molecular weight keratin and p63
Epithelial component is malignant	Epithelial component is benign
Squamous differentiation may be present	No squamous differentiation

### Pure Sarcoma of the Breast

- Very rare
- The presence of an epithelial component defines phyllodes tumour

### Fibromatosis

- Bland spindle cells
- Stellate configuration
- Absence of intrinsic epithelial component
  - May entrap normal breast lobules

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## Myofibroblastoma

- Resembles solitary fibrous tumour
- Lacks intrinsic epithelial component

## Diagnosis of Phyllodes Tumour

Phyllodes Tumour is diagnosed as follows:

Like other less common types of breast tumours, phyllodes tumours can be difficult to diagnose because doctors do not encounter them all that often. A phyllodes tumour also can look like a more common type of benign breast growth called a fibroadenoma. A fibroadenoma is a solid, growing lump of normal breast cells that is the most common kind of breast mass, especially in younger women.

Diagnosing phyllodes tumours usually involves a combination of steps:

- A physical (clinical) examination of the breasts. The doctor may be able to feel the lump in the breast, or a patient may feel it herself during a breast self-examination
- A mammogram to obtain X-ray images of the breast and locate the tumour. On a mammogram, a phyllodes tumour appears as a large round or oval mass with well-defined edges. Sometimes the tumour might look like it has rounded lobes inside it. Calcifications can show up as well. Calcifications are tiny flecks of calcium - like grains of salt - in the soft tissue of the breast. The doctor likely will need to do additional testing to confirm that the lump is a phyllodes tumour
- Ultrasound to obtain sound-wave images of the breast. The images form as the sound waves are 'echoed back' by the tissue. On ultrasound, phyllodes tumours look like well-defined masses with some cysts inside of them
- MRI to obtain additional images of the tumour and help in planning surgery
- Biopsy to take samples of the tumour for examination under a microscope. Although imaging tests are useful, biopsy is the only way to tell if the growth is a phyllodes tumour. The doctor can perform one of two procedures:
  - core needle biopsy, which uses a special hollow needle to take samples of the tumour through the skin
  - excisional biopsy, which removes the entire tumour

Some experts believe it is better to use excisional biopsy if a phyllodes tumour is suspected. Examining the whole tumour is often necessary to make the right diagnosis. The smaller tissue samples taken during core needle biopsy may not be enough to confirm that a lump is a phyllodes tumour. A pathologist then examines the tumour tissue under a microscope to make the diagnosis. He or she also classifies the phyllodes tumour as benign, borderline, or malignant. In a benign tumour:

- the edges are well-defined
- the cells are not dividing rapidly
- the stromal cells (connective tissue cells) still look somewhat like normal cells

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- there is not an 'overgrowth' of stromal cells - there are epithelial cells (the types of cells that line the ducts and lobules) as well

In a malignant tumour:

- the edges are not well-defined
- the cells are dividing rapidly
- the stromal cells have an abnormal appearance
- there is an overgrowth of stromal cells, sometimes with no epithelial cells present at all

### **Treatment of Benign Phyllodes Tumour**

Phyllodes tumours are always treated with surgery. This may be a wide local excision. or a mastectomy, depending on the size. The specialist will discuss with the patient the type of surgery she needs.

The aim of the surgery is to remove all of the tumour and an area of healthy tissue around it, known as clear margin (border). This is because it is important to have a clear margin of healthy tissue when the lump is removed to reduce the risk of it coming back. If a clear margin was not achieved by the initial surgery further surgery is usually recommended.

### **Treatment of Malignant (Cancerous) Phyllodes Tumour**

Malignant phyllodes tumours are treated by removing them along with a wider margin of normal tissue, or by mastectomy (removing the entire breast) if needed. Malignant phyllodes tumours are different from the more common types of breast cancer. They do not respond to hormone therapy and are less likely than most breast cancers to respond to radiation therapy or the chemotherapy drugs normally used for breast cancer. Phyllodes tumours that have spread to distant areas are often treated more like sarcomas (soft-tissue cancers) than breast cancers.

**Fede, Â.B.S., Pereira Souza, R., Doi, M., De Brot, M., Aparecida Bueno de Toledo Osorio, C., Rocha Melo Gondim, G., Casali-da-Rocha, J.C., Jbili, R., Bitencourt, A.G.V., Alves de Souza, J., Caparica Bitton, R., Baroni Alves Makdissi, F. & Moraes Sanches, S. 2021.**

**Introduction:** Phyllodes tumor (PT) of the breast, particularly malignant phyllodes tumor (mPT), is a rare fibroepithelial neoplasm. A complex diagnosis is based on pathologic, radiologic, and clinical findings, with controversies about what is the best therapeutic strategy.

**Objective:** Our objective was to provide an overview of the clinical, pathologic, and therapeutic aspects of this rare tumor.

**Conclusions:** mPT is a rare presentation of breast cancer and a challenge in clinical practice. A multidisciplinary approach should take into account some aspects like pathogenic mutations and hereditary syndromes. Oncologic surgery is the fundamental approach, and the use of adjuvant therapies is still controversial due to the lack of clinical trials. Treatment recommendations should be individualized according to patient risk and preferences. Prospective studies are fundamental to clarifying the best treatment for these tumors.

**Lohmeyer, J.A., Huster, N., Lühr, C., Lindner, C., Wittig, K.S. & Keck, M.K. 2020.**

"Phyllodes tumours (PTs) of the breast are classified as benign, borderline and malignant based on the constellation of defined histological parameters. Surgical excision is the primary therapy, but the

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need to maintain certain safety margins is still controversially discussed for all three categories. This paper aims to provide a critical opinion on the existing recommendation on safety margins for resection. In our breast centre, all patients with phyllodes tumours were identified retrospectively on the basis of the histopathological documentation from 1999 to 2018. The cases were evaluated, in particular, with a view to recurrences and the occurrence of multicentricity. A total of 66 patients were diagnosed with a PT. In 38 cases, the tumours were benign, in 15 borderline and in 13 malignant. Local recurrences were observed in one benign PT, 7 borderline and 5 malignant PTs. Two PTs that were initially classified as borderline tumours progressed to malignant PTs. Multicentricity occurred in about 20 % of borderline and malignant PTs but only in 5 % of benign PTs. The resection margins for phyllodes tumours should be chosen depending on dignity and recurrence. The key question to be challenged is whether or not there is a need to maintain a certain safety margin in benign PTs. In case of recurrence of borderline or malignant PTs, a mastectomy should be considered early.”

### **About Clinical Trials**

Clinical trials are research studies that involve people. They are conducted under controlled conditions. Only about 10% of all drugs started in human clinical trials become an approved drug.

Clinical trials include:

- Trials to test effectiveness of new treatments
- Trials to test new ways of using current treatments
- Tests new interventions that may lower the risk of developing certain types of cancers
- Tests to find new ways of screening for cancer

The [South African National Clinical Trials Register](#) provides the public with updated information on clinical trials on human participants being conducted in South Africa. The Register provides information on the purpose of the clinical trial; who can participate, where the trial is located, and contact details.

For additional information, please visit: [www.sanctr.gov.za/](http://www.sanctr.gov.za/)

### **Medical Disclaimer**

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## Sources and References Consulted or Utilised

Alkushi, A., Arabi, H., Al-Riyees, L., Aldakheel, A.M., Al Zarah, R., Alhussein, F., Altamimi, A.M., Alsulaiman, Y.A. & Omair, A. 2021. Phyllodes tumor of the breast, clinical experience, and outcomes: a retrospective cohort tertiary hospital experience. *Ann Diagn Pathol.* 2021 Apr;51:151702.

### American Cancer Society

<http://www.cancer.org/healthy/findcancerearly/womenshealth/non-cancerousbreastconditions/non-cancerous-breast-conditions-phyllodes-tumors>

### BreastCancer.org

<http://www.breastcancer.org/symptoms/types/phyllodes>  
<http://www.breastcancer.org/symptoms/types/phyllodes/diagnosis>

### Breast Cancer Care

<http://www.breastcancercare.org.uk/breast-cancer-information/breast-awareness/benign-breast-conditions/phyllodes%2%A0tumour>

Fede, Â.B.S., Pereira Souza, R., Doi, M., De Brot, M., Aparecida Bueno de Toledo Osorio, C., Rocha Melo Gondim, G., Casali-da-Rocha, J.C., Jbili, R., Bitencourt, A.G.V., Alves de Souza, J., Caparica Bitton, R., Baroni Alves Makdissi, F. & Moraes Sanches, S. 2021. Malignant phyllodes tumor of the breast: a practice review. *Clin Pract.* 2021 Apr 6;11(2):205-215.

### Female Breast

<http://www.howbreastcancer.com/what-is-breast-cancer/>

Hamdy, O., Saleh, G.A., Raafat, S., Shebl, A.M. & Denewer, A. 2019. Male breast huge malignant phyllodes. *Chirurgia (Bucur).* Jul-Aug 2019;114(4):512-517. doi: 10.21614/chirurgia.114.4.514.

### Johns Hopkins Medicine

[http://www.hopkinsmedicine.org/avon\\_foundation\\_breast\\_center/breast\\_cancers\\_other\\_conditions/phyllodes\\_tumors.html](http://www.hopkinsmedicine.org/avon_foundation_breast_center/breast_cancers_other_conditions/phyllodes_tumors.html)

Joshua, J.X., Chan, W.C., Chau, H.H.L., Wu, C. & Tse, G.M. 2019. Cytologic diagnosis of metastatic malignant phyllodes tumor of the breast in pleural effusion. *Diagn Cytopathol.* 2019 Jun;47(6):599-602. doi: 10.1002/dc.24151. Epub 2019 Mar 4.

Kim, Y.J. & Kim, K. 2017. Radiation therapy for malignant phyllodes tumor of the breast: an analysis of SEER data. *Breast.* 2017 Apr;32:26-32. doi: 10.1016/j.breast.2016.12.006. Epub 2016 Dec 22.

Liew, K.W., Siti Ubaidah, S. & Doreen, L. 2018. Malignant phyllodes tumors of the breast: a single institution experience. *Med J Malaysia.* 2018 Oct;73(5):297-300.

Limaem, F. & Kashyap, S. 2021. Phyllodes tumor of the breast. *In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan. 2021 Nov 5.*

Lohmeyer, J.A., Huster, N., Lühr, C., Lindner, C., Wittig, K.S. & Keck, M.K. 2020. Treatment of phyllodes tumours of the breast: evaluation of 66 cases and literature review. *Handchir Mikrochir Plast Chir.* 2021 Apr;53(2):159-167.

### MacMillan Cancer Support

<http://www.macmillan.org.uk/Cancerinformation/Cancertypes/Breast/Aboutbreastcancer/Typesandrelatedconditions/PhyllodesTumour.aspx>

Mitus, J.W., Blecharz, P., Jakubowicz, J., Reinfuss, M., Walasek, T. & Wysocki, W. 2018. Phyllodes tumors of the breast. The treatment results for 340 patients from a single cancer centre. *Breast.* 2018 Nov 26;43:85-90. doi: 10.1016/j.breast.2018.11.009. [Epub ahead of print]

### National Cancer Institute

<http://www.cancer.gov/cancertopics/factsheet/clinicaltrials/clinical-trials>

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**Phyllodes Tumour**

<http://www.surgical-tutor.org.uk/default-home.htm?core/neoplasia/fibroadenoma.htm~right>

**Stanford School of Medicine**

<http://surgpathcriteria.stanford.edu/breast/phyllodesbr/differentialdiagnosis.html>

**Tumour Grade and Tumour Stage**

[https://www.medicinenet.com/cancer\\_101\\_pictures\\_slideshow/article.htm](https://www.medicinenet.com/cancer_101_pictures_slideshow/article.htm)

**Wikipedia**

[http://en.wikipedia.org/wiki/Phyllodes\\_tumor](http://en.wikipedia.org/wiki/Phyllodes_tumor)

**Yii, N., Read, T., Tan, C.C., Ng, S.L. & Bennett, I.** 2018. Diagnosing phyllodes tumors of the breast: how successful are our current preoperative assessment modalities? *ANZ J Surg.* 2018 Oct;88(10):988-992. doi: 10.1111/ans.14815. Epub 2018 Aug 23. PMID: 30141271

**Zhang, Y. & Kleer, C.G.** 2016. Phyllodes tumor of the breast: histopathologic features, differential diagnosis, and molecular/genetic updates. *Arch Pathol Lab Med.* 2016 Jul;140(7):665-71. doi: 10.5858/arpa.2016-0042-RA.