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The Analysis Study Of Diagnosis And Surgical Management Of Phyllodes Tumor : A Comprehensive Systematic Review

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ABSTRAK

Latar Belakang: Tumor filodes (PT) merupakan bentuk tumor payudara langka dengan berbagai macam perilaku berdasarkan karakteristik patologis. Tumor ini diklasifikasikan menjadi jenis jinak, borderline, dan ganas, dengan hanya tumor yang diklasifikasikan sebagai borderline atau ganas yang diketahui bermetastasis. PT biasanya muncul sebagai benjolan payudara yang teraba atau ditemukan melalui pemeriksaan ultrasonografi. Diagnosis melibatkan biopsi jarum inti, mamografi, ultrasonografi, dan MRI payudara. Perawatan primer melibatkan eksisi bedah, dengan perawatan adjuvan disediakan untuk tumor borderline atau ganas. Metode: Mengikuti pedoman PRISMA 2020, tinjauan sistematis ini berfokus secara eksklusif pada artikel teks lengkap yang diterbitkan dalam bahasa Inggris antara tahun 2014 dan 2024. Untuk memastikan penyertaan sumber berkualitas tinggi, artikel editorial dan artikel tinjauan dikecualikan kecuali jika disertai dengan DOI. Pencarian literatur dilakukan dengan menggunakan beberapa basis data terkemuka, termasuk ScienceDirect, PubMed, dan SagePub, untuk mengumpulkan studi yang relevan secara komprehensif. Hasil: Penelitian ini melakukan tinjauan menyeluruh terhadap lebih dari 200 publikasi yang bersumber dari basis data bereputasi baik, termasuk ScienceDirect, SagePub, dan PubMed. Setelah penyaringan awal, delapan publikasi diidentifikasi sebagai yang memerlukan analisis lebih mendalam. Oleh karena itu, tinjauan menyeluruh terhadap penelitian terpilih ini dilakukan untuk memastikan evaluasi yang terperinci dan ketat. Kesimpulan: Tumor filodes, kanker fibroepitelial langka, biasanya ditemukan pada wanita berusia 45-49 tahun. Tumor ini muncul sebagai massa yang tidak nyeri dan tumbuh cepat, dengan tumor ganas yang menunjukkan risiko kekambuhan yang lebih tinggi. Penatalaksanaan bedah sangat penting untuk mencapai margin negatif, dengan RT dipertimbangkan untuk tumor ganas setelah eksisi luas.

Kata kunci: tumor filodes, tumor payudara, penatalaksanaan bedah

ABSTRACT

Background: Phyllodes tumor (PT) is a rare form of breast tumor with a diverse range of behaviors based on pathological characteristics. It is classified into benign, borderline, and malignant types, with only those classified as borderline or malignant known to metastasize. PTs typically present as palpable breast lumps or are discovered through ultrasound examinations. Diagnosis involves core needle biopsy, mammography, ultrasound, and breast MRI. Primary treatment involves surgical excision, with adjuvant treatments reserved for borderline or malignant tumors. **Methods:** Following PRISMA 2020 guidelines, this systematic review focused exclusively on full-text articles published in English between 2014 and 2024. To ensure the inclusion of high-quality sources, editorial pieces and review articles were excluded unless they were accompanied by a DOI. The literature search was conducted using several reputable databases, including ScienceDirect, PubMed, and SagePub, to comprehensively gather relevant studies. **Result:** The study conducted a comprehensive review of over 200 publications sourced from reputable databases, including ScienceDirect, SagePub, and PubMed. Following an initial screening, eight publications were identified as warranting more in-depth analysis. Consequently, a thorough review of these selected studies was performed to ensure a detailed and rigorous evaluation. **Conclusion:** Phyllodes tumors, a rare fibroepithelial cancer, are typically found in women aged 45-49. They present as painless, rapidly growing masses, with malignant tumors exhibiting a higher risk of recurrence. Surgical management is crucial to achieve a negative margin, with RT being considered for malignant tumors after wide excision.

Keyword: phyllodes tumor, breast tumor, surgical management

I. PENDAHULUAN / INTRODUCTION

1. Latar Belakang

Phyllodes tumor (PT), a rare form of breast tumor, exhibits a diverse range of behaviors based on its pathological characteristics. The variability in behavior is influenced by whether the PT is benign, borderline, or malignant. While benign PTs can mimic breast fibroadenomas, they pose a risk of recurrence if not excised with sufficient margins. On the other hand, some PTs exhibit borderline biology or malignancy, which can lead to distant metastasis and more severe outcomes. The classification of PTs traditionally relies on histological features, categorizing them into benign, borderline, and malignant types. Although all PTs have the potential to recur, only those classified as borderline or malignant are known to metastasize Originally termed "cystosarcoma phyllodes" by Johannes Muller in 1838, the World Health Organization now recognizes the term PT, which has evolved through over 60 different names used to describe these tumors.In the United States, the annual incidence of PT is approximately 2.1 cases per million women, with Latina white women exhibiting a higher incidence rate compared to non-Latina white, Asian, and African American women.[5] PTs are also associated with Li Fraumeni syndrome, a rare condition marked by the development of multiple sarcomatous tumors. Clinically, PTs typically present as a palpable breast lump or are discovered incidentally through ultrasound examinations. These lumps are usually well-defined, firm, mobile, and painless, ranging from 1 cm to over 10 cm in size, with a median size between 4 and 7 cm. Changes such as nipple retraction, ulceration, or discharge may occur, although axillary metastases are rare and most palpable axillary lymph nodes are reactive rather than metastatic. Approximately 20% of PTs are detected through screening mammograms, often appearing as lobulated masses similar to fibroadenomas. Diagnostic suspicion for PT should arise when encountering large, rapidly growing breast tumors with features resembling fibroadenomas on imaging. Core needle biopsy remains the standard for microscopic diagnosis of PT. Conventional imaging techniques, such as mammography and ultrasound, are used to assess breast lumps, with ultrasound typically revealing a hypoechoic, solid, well-defined mass. Clinical features like rapid growth and substantial tumor size heighten the suspicion of PT. Breast MRI may be utilized in select cases to evaluate disease extent and tumor resectability.[10,11] Accurate diagnosis hinges on pathology examination, as fine needle aspiration is less reliable and not recommended for PT diagnosis.[6] Differentiating malignant PT from other conditions like fibroadenomas or sarcomas involves examining specific microscopic features, with immunohistochemistry playing a crucial role.The primary treatment for PT involves complete surgical excision, with no routine axillary dissection recommended.[12] Adjuvant treatments, including radiotherapy and chemotherapy, are reserved for borderline or malignant tumors, with chemotherapy specifically considered for high-risk or recurrent cases. Hormonal therapy is not applicable for PTs. Given the rarity of PTs, treatment guidelines are primarily derived from retrospective case studies.[6,11] Surgical approaches, including wide local excision or mastectomy, have been shown to offer similar survival rates, with re-excision required for positive margins due to higher recurrence risks.[13] Adjuvant radiotherapy is advised when clear margins are not achieved, particularly for borderline and malignant tumors.[14,15] The use of systemic chemotherapy remains debated, with ongoing research needed to better define high-risk criteria and optimize treatment regimens. This study provides a thorough analysis of the diagnostic and management strategies for PTs, aiming to enhance understanding and guide future research..

2. Problem Formulation

In this study there is a problem formulation, namely how research on The Analysis Study Of Diagnosis And Surgical Management Of Phyllodes Tumor: A Comprehensive Systematic Review can be carried out..

3. Research Objectives

The purpose of this study is to obtain research results from The Analysis Study Of Diagnosis And Surgical Management Of Phyllodes Tumor: A Comprehensive Systematic Review.

4. Benefits of Research

The benefits of this study are to provide information on the results of research from The Analysis Study Of Diagnosis And Surgical Management Of Phyllodes Tumor: A Comprehensive Systematic Review to the academic world and the medical world.

II. METODE PENELITIAN / RESEARCH METHOD

Protocol

The study was executed with stringent adherence to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines, demonstrating a dedication to the highest standards of methodological integrity. Following PRISMA 2020 standards ensured a rigorous approach to enhancing transparency, reproducibility, and methodological precision throughout the review process. This involved meticulously planned strategies for literature search, data extraction, and synthesis, all designed to minimize biases and bolster the reliability of the study's conclusions.

Criteria for Eligibility

This study offers a comprehensive evaluation of research on phyllodes tumor diagnosis and management conducted over the past decade. By systematically reviewing and integrating data from a diverse array of studies, this research aims to identify prevalent patterns and trends that can inform and enhance patient care strategies for individuals affected by this rare tumor. The analysis is designed to offer a clearer understanding of how phyllodes tumors are diagnosed and managed, reflecting the most current practices and evidence-based approaches.The principal goal of this research is to highlight significant themes and insights that have emerged from a wide range of academic sources, thereby contributing to a more detailed and refined comprehension of phyllodes tumor management. To ensure the robustness and credibility of the analysis, stringent criteria were established for study inclusion. Only peer-reviewed articles published in English from 2014 to 2024 were considered, and each selected study had to have a Digital Object Identifier (DOI) to authenticate its validity. Non-research documents such as reviews, editorials, and duplicate entries were excluded to maintain the focus and integrity of the data set. This meticulous methodology guarantees that the data used in the analysis is pertinent and reliable, forming a solid basis for deriving actionable conclusions and advancing clinical practices. By adhering to these rigorous standards, the study provides a dependable and insightful contribution to the field, aiming to enhance the understanding and treatment of phyllodes tumors.

Search Strategy

We used "phyllodes tumor OR diagnosis OR surgical management." as keywords. The search for studies to be included in the systematic review was carried out using the PubMed, SagePub, and Sciencedirect databases.

Table 1. Search Strategy

Database	**Search Strategy**	***Hits***
Pubmed	*("phyllodes tumor" AND "diagnosis" AND "surgical management")*	31

Science Direct	*("phyllodes tumor" AND "diagnosis" AND "surgical management")*	261
Sagepub	*("phyllodes tumor" AND "diagnosis" AND "surgical management")*	21

Data retrieval

The authors conducted a thorough preliminary evaluation of each article by initially reviewing the abstracts and titles to determine their relevance. This preliminary screening ensured that only studies aligned with the research objectives and meeting the predefined inclusion criteria were selected for further analysis. This methodical approach facilitated the identification of clear and consistent patterns across the reviewed literature.To maintain uniformity, only full-text articles published in English were considered for detailed review. A stringent screening process was applied to ensure that the content was directly relevant to the study's focus and adhered to all established criteria. Articles that did not meet these criteria were systematically excluded from the in-depth analysis and were not included in the final evaluation. The evaluation process involved a comprehensive assessment of various data points, including study factors, titles, authors, publication dates, research locations, and methodologies. This rigorous approach ensured that the selected content was of the highest relevance and quality, thereby enhancing the reliability and robustness of the study's conclusions.

Quality Assessment and Data Synthesis

The authors performed a detailed initial review of each article's abstract and title to determine its relevance for further investigation. Articles that met preliminary criteria were then subjected to a comprehensive examination. This rigorous evaluation process ensured that only the most pertinent studies advanced to detailed analysis. By applying stringent selection criteria, the authors streamlined the review process, allowing for a more precise and nuanced assessment of existing research and its contextual relevance..

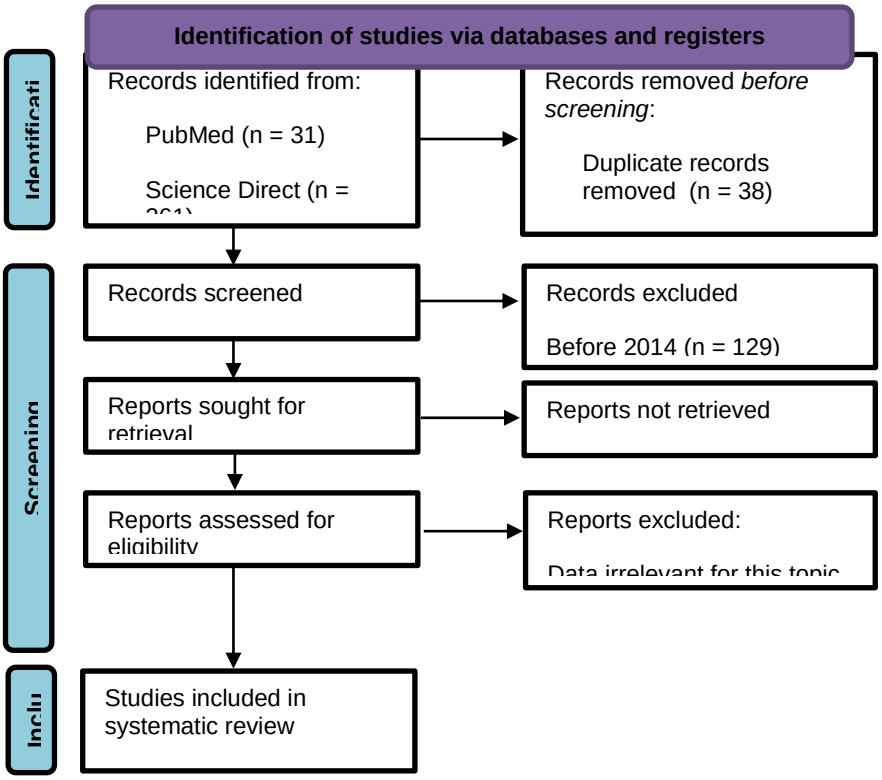

Figure 1. Article search flow char

III. HASIL DAN PEMBAHASAN / RESULT

We commenced the investigation by systematically collecting a substantial number of papers from established databases, including Science Direct, PubMed, and SagePub. Through a rigorous three-stage screening process, we identified and selected eight studies that were highly relevant to our systematic review. Following this, we focused on specific topics for in-depth analysis and carefully assessed each selected report. To facilitate a streamlined review, a concise summary of the evaluated data is provided in Table 3.

DISCUSSION

Phyllodes tumors, accounting for approximately 0.5% of breast neoplasms, are rare fibroepithelial tumors with distinct clinical and demographic characteristics.[24] Typically, these tumors are observed in women aged 45–49 years, a demographic that is about 20 years older than the peak age for fibroadenomas. However, our patient sample reveals an average age of 35 years for those diagnosed with phyllodes tumors. Clinically, phyllodes tumors often present as painless, rapidly growing masses. Imaging studies, including mammography and ultrasonography, can suggest a phyllodes tumor if the mass appears as a well-circumscribed, oval, or lobulated structure with rounded borders.[25] In our hospital records, most of the 112 cases identified presented as lobulated masses. Distinguishing phyllodes tumors from fibroadenomas based on imaging alone is challenging due to overlapping features.[26,27] Tumor size is a critical differentiator; while fibroadenomas typically measure around 2 cm, phyllodes tumors usually range from 4 to 7 cm in size.[24,25,28] In our study, the average size of phyllodes tumors was notably larger, with benign tumors averaging 3.5 cm, borderline tumors 6.6 cm, and malignant tumors 8.2 cm.Surgical management remains the cornerstone of treatment for phyllodes tumors, regardless of classification, with the primary goal of achieving a negative margin of at least 1 cm to minimize the risk of local recurrence.[24,29,30] If this margin is not attained, management strategies vary based on tumor classification.

IV. KESIMPULAN / CONCLUSION

Phyllodes tumors, which make up 0.5% of breast neoplasms, are rare fibroepithelial tumors with distinct clinical and demographic characteristics. They typically appear in women aged 45-49 years, with an average age of 35. Phyllodes tumors typically present as painless, rapidly growing masses, with imaging studies suggesting a well-circumscribed, oval, or lobulated structure with rounded borders. The average size of phyllodes tumors is larger, with benign tumors averaging 3.5 cm, borderline tumors 6.6 cm, and malignant tumors 8.2 cm. Surgical management is crucial for achieving a negative margin of at least 1 cm to minimize local recurrence risk. Adjuvant radiotherapy (RT) is considered primarily for malignant phyllode tumors following wide excision. While surgical margins did not significantly impact recurrence risk for benign and borderline phyllodes tumors, malignant tumors exhibited a higher risk of recurrence with inadequate margins.

DAFTAR PUSTAKA / REFERENCES

Abdul Hamid, S., Rahmat, K., Ramli, M. T., Fadzli, F., Jamaris, S., See, M. H., Teoh, K. H., & Taib, N. A. M. (2018). Radiopathological characteristics and outcomes of phyllodes tumor of the breast in Malaysian women. Medicine, 97(31), e11412. https://doi.org/10.1097/MD.0000000000011412

Adesoye, T., Neuman, H. B., Wilke, L. G., Schumacher, J. R., Steiman, J., & Greenberg, C. C. (2016). Current Trends in the Management of Phyllodes Tumors of the Breast. Annals of surgical oncology, 23(10), 3199–3205. https://doi.org/10.1245/s10434-016-5314-0

Atram, M., Gupta, A., & Gangane, N. M. (2022). Malignant Phyllodes Tumor with Heterologous Sarcomatous Differentiation: a Case Series and Review of Literature. Indian journal of surgical oncology, 13(4), 723–730. https://doi.org/10.1007/s13193-022-01525-7

Barrio, A. V., Clark, B. D., Goldberg, J. I., Hoque, L. W., Bernik, S. F., Flynn, L. W., Susnik, B., Giri, D., Polo, K., Patil, S., & Van Zee, K. J. (2007). Clinicopathologic features and long-term outcomes of 293 phyllodes tumors of the breast. Annals of surgical oncology, 14(10), 2961–2970. https://doi.org/10.1245/s10434-007-9439-z

Barrio, A. V., Clark, B. D., Goldberg, J. I., Hoque, L. W., Bernik, S. F., Flynn, L. W., Susnik, B., Giri, D., Polo, K., Patil, S., & Van Zee, K. J. (2007). Clinicopathologic features and long-term outcomes of 293 phyllodes tumors of the breast. Annals of surgical oncology, 14(10), 2961–2970. https://doi.org/10.1245/s10434-007-9439-z

Bernstein, L., Deapen, D., & Ross, R. K. (1993). The descriptive epidemiology of malignant cystosarcoma phyllodes tumors of the breast. Cancer, 71(10), 3020–3024.

Birch, J. M., Alston, R. D., McNally, R. J., Evans, D. G., Kelsey, A. M., Harris, M., Eden, O. B., & Varley, J. M. (2001). Relative frequency and morphology of cancers in carriers of germline TP53 mutations. Oncogene, 20(34), 4621–4628. https://doi.org/10.1038/sj.onc.1204621

Carlson, R. W., Allred, D. C., Anderson, B. O., Burstein, H. J., Edge, S. B., Farrar, W. B., Forero, A., Giordano, S. H., Goldstein, L. J., Gradishar, W. J., Hayes, D. F., Hudis, C. A., Isakoff, S. J., Ljung, B. M., Mankoff, D. A., Marcom, P. K., Mayer, I. A., McCormick, B., Pierce, L. J., Reed, E. C., … National Comprehensive Cancer Network (2012). Metastatic breast cancer, version 1.2012: featured updates to the NCCN guidelines. Journal of the National Comprehensive Cancer Network : JNCCN, 10(7), 821–829. https://doi.org/10.6004/jnccn.2012.0086

Chaney, A. W., Pollack, A., McNeese, M. D., Zagars, G. K., Pisters, P. W., Pollock, R. E., & Hunt, K. K. (2000). Primary treatment of cystosarcoma phyllodes of the breast. Cancer, 89(7), 1502–1511. https://doi.org/10.1002/1097-0142(20001001)89:7<1502::aid-cncr13>3.0.co;2-p

Choi, N., Kim, K., Shin, K. H., Kim, Y., Moon, H. G., Park, W., Choi, D. H., Kim, S. S., Ahn, S. D., Kim, T. H., Chun, M., Kim, Y. B., Kim, S., Choi, B. O., & Kim, J. H. (2019). The Characteristics of Local Recurrence After Breast-Conserving Surgery Alone for Malignant and Borderline Phyllodes Tumors of the Breast (KROG 16-08). Clinical breast cancer, 19(5), 345–353.e2. https://doi.org/10.1016/j.clbc.2019.04.003

Ditsatham, C., & Chongruksut, W. (2019). Phyllodes tumor of the breast: diagnosis, management and outcome during a 10-year experience. Cancer management and research, 11, 7805–7811. https://doi.org/10.2147/CMAR.S215039

Elston, C.W.; Ellis, I.O. The Breast. Systemic Pathology, 3rd ed.; Churchill Livingstone: Edinburgh, UK, 2000; Volume 13, pp. 147–186.

Farria, D. M., Gorczyca, D. P., Barsky, S. H., Sinha, S., & Bassett, L. W. (1996). Benign phyllodes tumor of the breast: MR imaging features. AJR. American journal of roentgenology, 167(1), 187–189. https://doi.org/10.2214/ajr.167.1.8659370

Gatta, G., Iaselli, F., Parlato, V., Di Grezia, G., Grassi, R., & Rotondo, A. (2011). Differential diagnosis between fibroadenoma, giant fibroadenoma and phyllodes tumour: sonographic features and core needle biopsy. La Radiologia medica, 116(6), 905–918. https://doi.org/10.1007/s11547-011-0672-y

Gnerlich, J. L., Williams, R. T., Yao, K., Jaskowiak, N., & Kulkarni, S. A. (2014). Utilization of radiotherapy for malignant phyllodes tumors: analysis of the National Cancer Data Base, 1998-2009. Annals of surgical oncology, 21(4), 1222–1230. https://doi.org/10.1245/s10434-013-3395-6

Guillot, E., Couturaud, B., Reyal, F., Curnier, A., Ravinet, J., Laé, M., Bollet, M., Pierga, J. Y., Salmon, R., Fitoussi, A., & Breast Cancer Study Group of the Institut Curie (2011). Management of phyllodes breast tumors. The breast journal, 17(2), 129–137. https://doi.org/10.1111/j.1524-4741.2010.01045.x

Hanby, A.M., walker, C. Tavassoli FA, Devilee P: Pathology and Genetics: Tumours of the Breast and Female Genital Organs. WHO Classification of Tumours series - volume IV. Lyon, France: IARC Press. Breast Cancer Res 6, 133 (2004). https://doi.org/10.1186/bcr788

Jayaraman, M., V, L., Diwagar, N., & Esakki, M. (2024). Diagnostic Maze: Malignant Phyllodes Tumor Mimicking Metaplastic Breast Carcinoma. Cureus, 16(6), e62114. https://doi.org/10.7759/cureus.62114

Limaiem F, Kashyap S. Phyllodes Tumor of the Breast. [Updated 2023 Jan 1]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK541138/#

Lu, Y., Chen, Y., Zhu, L., Cartwright, P., Song, E., Jacobs, L., & Chen, K. (2019). Local Recurrence of Benign, Borderline, and Malignant Phyllodes Tumors of the Breast: A Systematic Review and Meta-analysis. Annals of surgical oncology, 26(5), 1263–1275. https://doi.org/10.1245/s10434-018-07134-5

Macdonald, O. K., Lee, C. M., Tward, J. D., Chappel, C. D., & Gaffney, D. K. (2006). Malignant phyllodes tumor of the female breast: association of primary therapy with cause-specific survival from the Surveillance, Epidemiology, and End Results (SEER) program. Cancer, 107(9), 2127–2133. https://doi.org/10.1002/cncr.22228

Mishra SP, Tiwary SK, Mishra M, Khanna AK. Phyllodes tumor of breast: a review article. ISRN Surg. 2013;2013:361469. doi: 10.1155/2013/361469. Epub 2013 Mar 20. PMID: 23577269; PMCID: PMC3615633.

Mustață, L., Gică, N., Botezatu, R., Chirculescu, R., Gică, C., Peltecu, G., & Panaitescu, A. M. (2021). Malignant Phyllodes Tumor of the Breast and Pregnancy: A Rare Case Report and Literature Review. Medicina (Kaunas, Lithuania), 58(1), 36. https://doi.org/10.3390/medicina58010036

Norris, H. J., & Taylor, H. B. (1967). Relationship of histologic features to behavior of cystosarcoma phyllodes. Analysis of ninety-four cases. Cancer, 20(12), 2090–2099. https://doi.org/10.1002/1097-0142(196712)20:12<2090::aid-cncr2820201206>3.0.co;2-l

Ossa, C. A., Herazo, F., Gil, M., Echeverri, C., Ángel, G., Borrero, M., Madrid, J., & Jaramillo, R. (2015). Phyllodes tumor of the breast: a clinic-pathologic study of 77 cases in a Hispanic cohort. Colombia medica (Cali, Colombia), 46(3), 104–108.

Ouyang, Q., Li, S., Tan, C., Zeng, Y., Zhu, L., Song, E., Chen, K., & Su, F. (2016). Benign Phyllodes Tumor of the Breast Diagnosed After Ultrasound-Guided Vacuum-Assisted Biopsy: Surgical Excision or Wait-and-Watch?. Annals of surgical oncology, 23(4), 1129–1134. https://doi.org/10.1245/s10434-015-4990-5

Pitsinis, V., Moussa, O., Hogg, F., & McCaskill, J. (2017). Reconstructive and Oncoplastic Surgery for Giant Phyllodes Tumors: A Single Center's Experience. World journal of plastic surgery, 6(2), 233–237.

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