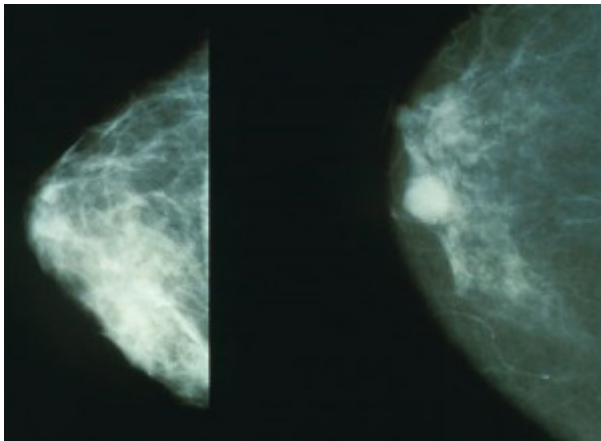


Breast Masses in Adolescents: Intraductal Papilloma, Fibroadenomas and More

[See online here](#)

Breast masses are uncommon in adolescents but can cause significant distress to the affected individual. They are usually benign fibroadenomas, intraductal papilloma, or phyllodes tumors. Malignant phyllodes tumors and primary breast cancer are very rare in adolescents but have been diagnosed occasionally. Treatment of benign lesions is usually local excision, whereas malignant lesions usually need complete surgical resection. Chemotherapy and radiotherapy are not recommended in adolescents with breast cancer.



Overview

Benign and malignant breast masses are uncommon in adolescents. Despite being rare, breast masses usually cause significant worry and distress to the adolescent and their family. Breast masses in adolescents are usually benign fibroadenomas. Malignant breast masses constitute only 0.02% of the masses identified in adolescents.

Pubertal breast development mainly under the influence of:	
Estrogen	Progesterone
Lactiferous ducts	Lobular tissue and alveolar budding
Female adolescent breast tissue is very dense and responsive to hormonal changes.	
Many breast masses found accidentally.	

Epidemiology of Breast Masses in Adolescents

The estimated prevalence of breast masses in adolescents is approximately 3.2%. The most common type is fibroadenoma, which is diagnosed in up to 95% of cases.

Malignant breast masses are very rare in adolescent girls but have been reported to

exist. Approximately, 0.02% of the identified breast masses in adolescents are found to be cancerous. Phyllodes tumors, primary breast cancer, sarcoma, lymphangioma, hemangioma, and metastatic cancer are some examples of the malignant breast masses seen in adolescents.

Intraductal Papilloma in Adolescents

Clinical Presentation of Intraductal Papilloma

Intraductal papilloma is the most common cause of non-bloody nipple discharge in an adolescent and often causes pain. It is important to note the duration and progression of symptoms. Physical examination of the breast with palpation can express nipple discharge. These benign lesions are usually found in the subareolar area and are usually nonpalpable.

Diagnostic Workup for Intraductal Papilloma

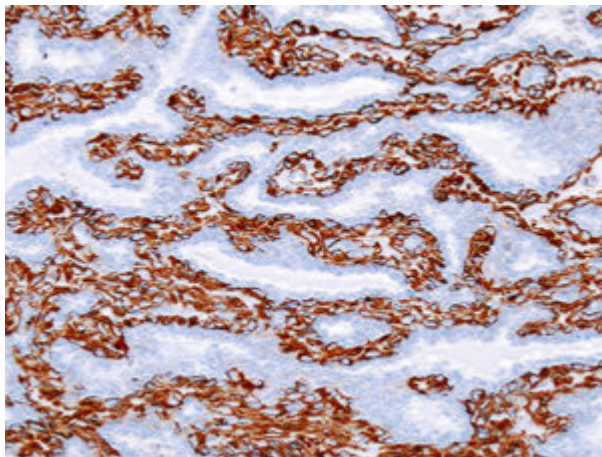


Image: "Histopathology of intraductal papilloma of the breast by excisional biopsy. Immunostaining for alpha-smooth muscle actin." by No machine-readable source provided. Own work assumed (based on copyright claims). License: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

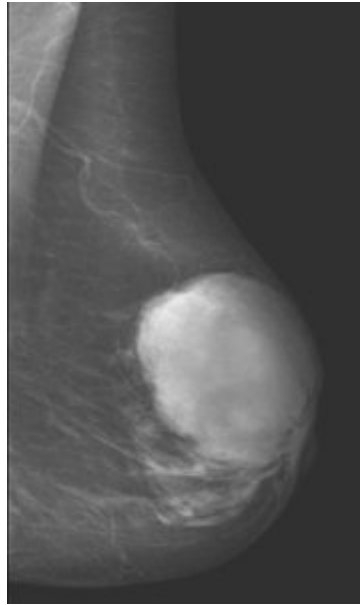
A cytology exam is indicated when nipple discharge is present in an adolescent. Ductal cells are usually observed on cytological examination. Ultrasonography is indicated to identify the cause of the nipple discharge and can be used to visualize the intraductal papilloma. The gold-standard diagnostic tool is a ductogram; however, this procedure is considered to be too invasive for an adolescent, who is much more likely to have a benign condition than a malignant lesion.

Treatment of Intraductal Papilloma

While intraductal papilloma itself is not a premalignant condition, the risk of breast cancer in an adult with a previous history of intraductal papilloma has been shown to be increased. Therefore, the treatment of choice of an intraductal papilloma in an adolescent is local surgical excision.

Phyllodes Tumors in Adolescents

Clinical Presentation of Phyllodes Tumors



[Image](#): "Phyllodes tumor in mammography." by Hellerhoff.
License: [CC BY-SA 3.0](#)

Phyllodes tumors are cystic lesions that resemble fibroadenomas but with increased stromal content. The term 'cystosarcoma phyllodes' can be also used to describe the lesions. Patients present with a rapidly growing tumor that is large and painless. A clinical examination may be inconclusive, as phyllodes tumors are difficult to distinguish from giant fibroadenomas.

Diagnostic Workup for Phyllodes Tumors

When the main complaint from the adolescent is a large breast mass, the first diagnostic test should be ultrasonography, which can reveal lobulations and heterogeneity without microcalcifications. Unfortunately, these findings are not specific enough to detect phyllodes tumors. A core needle biopsy is therefore recommended.

Histology Findings in Phyllodes Tumors

The typical histology finding for phyllodes tumors is a fibroadenoma with significantly increased stromal proliferation. It is important to identify the degree of dysplasia and proliferation, as grading the tumors has been linked with survival rate. The 5-year survival rate for benign phyllodes tumors is 96%, but this declines to 74% for intermediate phyllodes tumors. The survival rate after complete resection of malignant phyllodes tumors is approximately 66%.

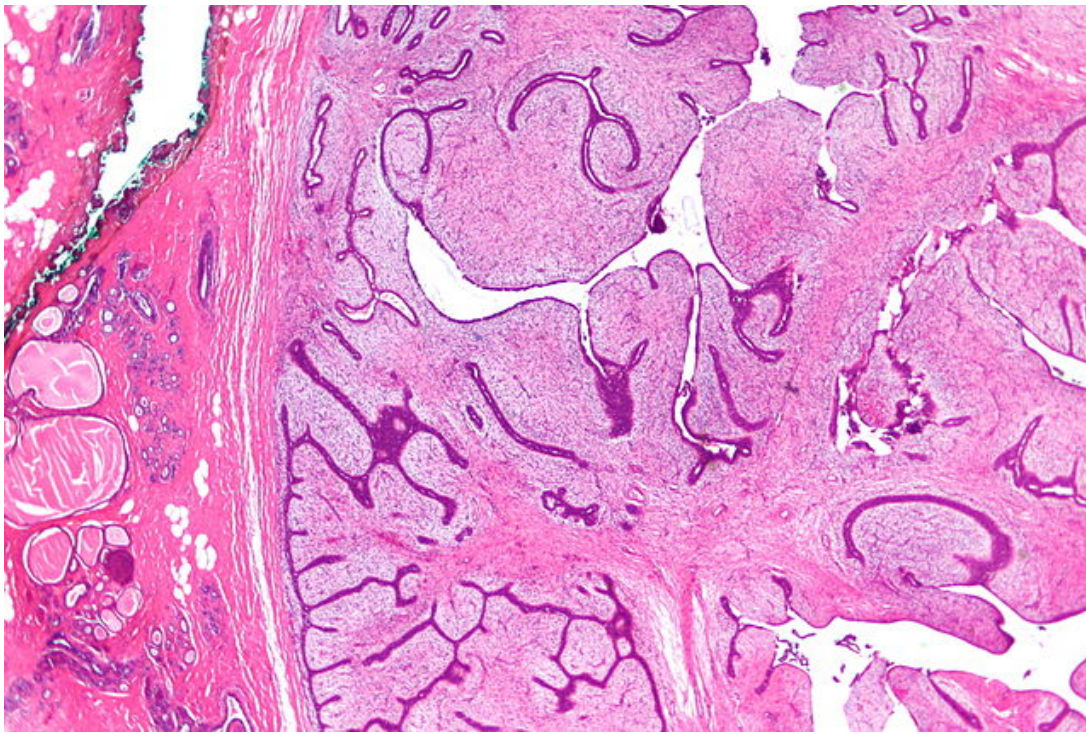


Image: "Very low magnification micrograph of a phyllodes tumor, also spelled phyllodes tumor and also known as cystosarcoma phyllodes, is a tumor of the breast that is usually benign and occasionally malignant. H&E stain. On the left of the images, one can see normal breast tissue and fibrocystic change. The green seen in the image is ink to mark the surgical margin." by Nephron. License: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

Treatment of Phyllodes Tumors

The treatment of phyllodes tumors in adolescents is similar to adults, i.e., complete surgical resection. The main difference in treatment between adult and adolescents is that a 1-cm surgical margin is unnecessary.

Fibroadenomas in Adolescents

Clinical Presentation of Fibroadenomas

Fibroadenomas usually present as firm, non-tender, well-demarcated masses. The most common site is the upper outer quadrant of the breast. The masses can become tender or show cyclic size changes related to the menstrual cycle. Breast asymmetry is also a common presenting problem in adolescents. The typical mousy feel of the fibroadenomas—i.e., sliding between the fingers during palpation—is usually observed during physical examination. The skin overlying the tumors is normal.

Diagnostic Workup for Fibroadenomas

The diagnosis of fibroadenomas in adolescents is simply and usually based on history and physical examination. If nipple discharge is present, cytology is indicated.

Ultrasonography is the imaging modality of choice for confirmation of the diagnosis. Mammography is not recommended due to the presence of high-density breast tissue.

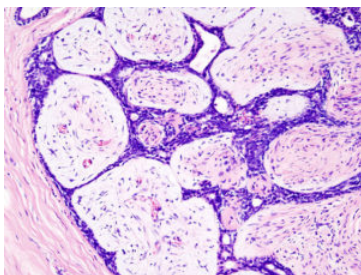


Image:
 “Histopathologic image of breast fibroadenoma. Core needle biopsy. Hematoxylin & eosin stain.” by No machine-readable author provided. KGH assumed (based on copyright claims).
 License: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

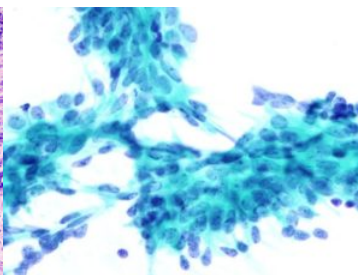


Image:
 “Fibroadenoma, Fine Needle Aspiration Biopsy (Papanicolaou stain). The image shows a sheet of epithelial cells in the typical antler pattern.” by KGH – Personal collection of histopathologic slides.
 License: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

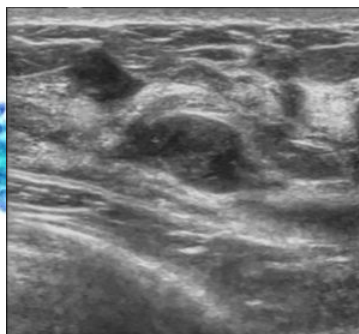


Image: “Fibroadenoma of the breast. Ultrasound image.” by © Nevit Dilmen.
 License: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

Inspection	Palpation
<ul style="list-style-type: none"> • Asymmetry • Skin changes • Color changes 	<ul style="list-style-type: none"> • Location • Size • Mobility • Consistency • Nipple discharge

Treatment of Fibroadenomas

The potential for malignant transformation in adolescents who have fibroadenomas is very low. Therefore, treatment can be challenging. When fibroadenoma is diagnosed for the first time, a follow-up should be arranged to see if the mass disappears after the next menstrual period. If it does not disappear and is small and not painful, treatment can comprise mainly observation and follow-up. If the lesions are growing in size or are associated with tenderness, then surgical excision of the tumors is indicated.

Clinical follow-up	Surgical excision	NSAIDs or OCPs
Most require only clinical follow-up	Surgical excision for symptomatic, rapidly growing	NSAIDs or OCPs to help pain with hormone-dependent changes

Primary Breast Cancer in Adolescents

Clinical Presentation of Primary Breast Cancer in Adolescents

The incidence of [breast cancer](#) in adolescents is 1 in 1,000,000. Adolescents with breast cancer usually present quite late to the clinic and the mass is usually large. Physical examination reveals a firm, nonmobile mass with poorly circumscribed borders. Nipple

discharge and retraction are uncommon in adolescents with breast cancer compared with adults.

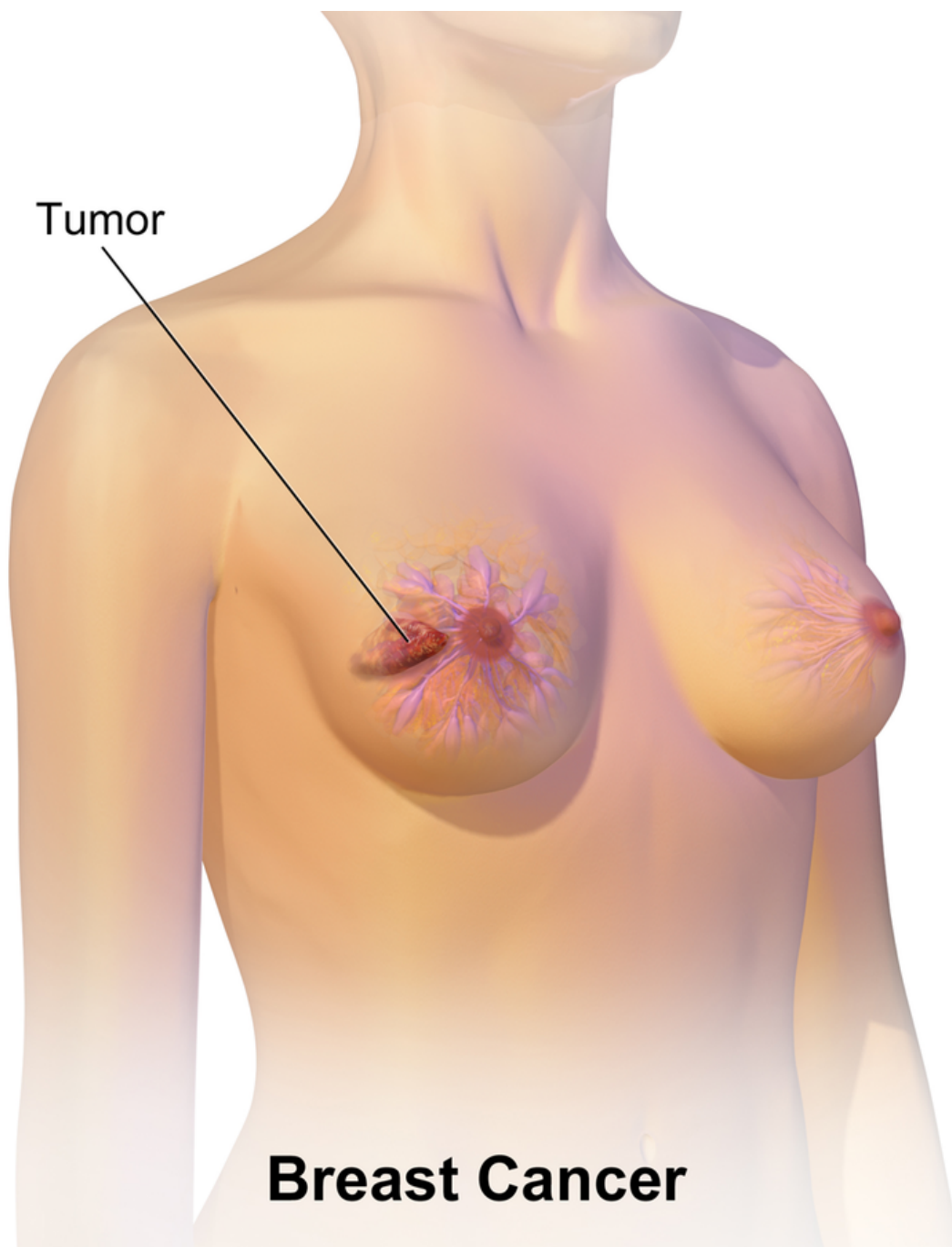


Image: "Breast cancer." by © BruceBlaus. License: [CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/)

Diagnostic Workup for Primary Breast Cancer in Adolescents

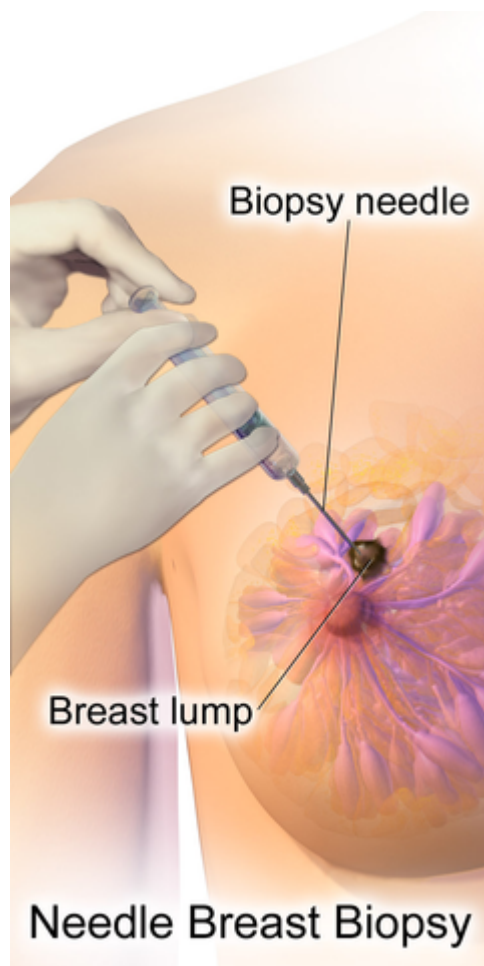


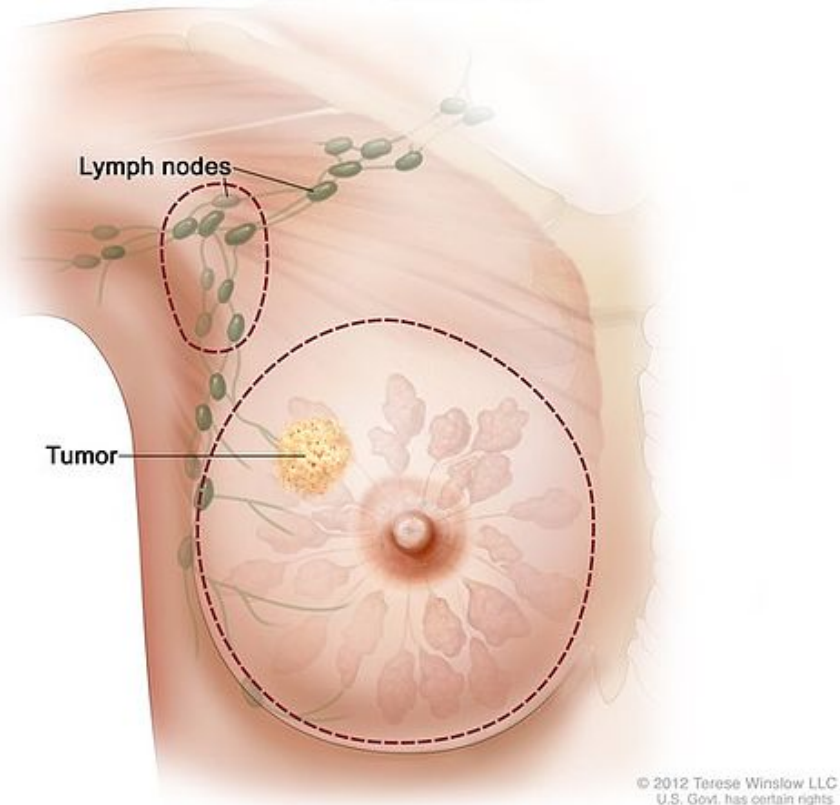
Image: "Needle breast biopsy." by © BruceBlaus.
License: [CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/)

The most common type of breast cancer in adolescents is a secretory adenocarcinoma. These tumors are characterized by their cystic appearance on ultrasound, with a thick wall. Mortality and nodal metastasis are uncommon. Medullary and inflammatory cancer has been also reported in adolescents and pediatrics. Mammography is not recommended in the diagnostic workup for breast masses in adolescents due to the relatively higher density of the adolescent breast compared with the adult breast. Core needle biopsy is indicated for grading and histological examination.

Treatment of Primary Breast Cancer in Adolescents

Complete surgical resection should be attempted in all cases. Because a complete breast resection may be psychologically traumatic to the adolescent, reconstructive surgery is also indicated. Axillary lymph node staging is indicated. Ultrasonography should be used to assess the status of the axillary lymph nodes and if no metastasis is identified, then a sentinel lymph node should be obtained during surgery.

Total (Simple) Mastectomy



[Image](#): "Total (simple) mastectomy." by National Cancer Institute - This image was released by the National Cancer Institute, an agency part of the National Institutes of Health, with the ID 7129. License: Public Domain

The role of radiotherapy and chemotherapy in primary breast cancer in adolescents is controversial and therefore should be considered carefully.

Metastatic Cancers of the Breast

Many cancers have been associated with metastatic diseases of the breast. The most common examples are hepatocarcinoma, non-Hodgkin lymphoma, leukemia, and rhabdomyosarcoma. The management of these tumors should also cover breast metastatic disease if present.

Management of Breast Infections

Mastitis

- Common in lactating adolescents
- *Group A strep* or *Staph aureus*
- May present with fever alone, then develop into erythematous, confluent painful rash
- Fever is common
- Treat with cephalexin or clindamycin

Breast abscesses

Treat with:

- Antibiotics

- Warm compresses
- Drainage

References

Kennedy RD, Boughey JC. Management of Pediatric and Adolescent Breast Masses. *Seminars in Plastic Surgery*. 2013;27(1):19-22. doi:10.1055/s-0033-1343991.

Legal Note: Unless otherwise stated, all rights reserved by Lecturio GmbH. For further legal regulations see our [legal information page](#).

Notes