JOGM
Journal of Global Medicine

RESEARCH ARTICLE

Histological pattern of breast lesions in children and adolescents: a ten-year review

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Abstract

***Background*:** Breast lesions in children and adolescents exhibit varying patterns and diagnostic distributions. Understanding the relationship between age, specimen type, and histopathological diagnosis is essential for optimising clinical management and guiding diagnostic approaches. This study aims to examine the breast tissues collected in this age group, as well as the histological diagnoses and biological behaviours of the lesions.
***Methods*:** This is a retrospective analysis of the histology of breast lesions and the distribution of diagnoses across two age groups (10–14 and 15–19 years). Chi-square and Fisher's exact tests were used to assess statistical associations, with significance set at $P < 0.05$.
***Results*:** Fibroadenoma was the most prevalent diagnosis, accounting for 76.8% of cases of excised lumps. The two trucut biopsies showed a malignant (B5b) and an atypical (B3) lesion. Fibrocystic change increased with age, peaking at 12.4% in the 15–19 years category. Malignant and atypical breast lesions were rare but present across different age groups. The proportion of fibroadenomas was higher in the older age group, at 77.2%, compared to 68%.
***Conclusion*:** This study highlights fibroadenoma as the predominant breast lesion among adolescents and young adults. Malignant lesions were seen in this age group, albeit rarely, justifying the need to histologically examine all breast lesions, even in the very young. The significance of increasing age underscores the need for age-specific diagnostic approaches and the selection of appropriate specimens for accurate histopathological evaluation. Early detection and monitoring of atypical and malignant lesions remain crucial for optimal clinical management.

Keywords: *breast lesions*; *fibroadenoma*; *histopathology*; *adolescents*

Received 8 May 2025; Revised 16 June 2025; Accepted 29 June 2025; Published 7 August 2025

Breast lesions in adolescents represent a diverse spectrum of pathological conditions ranging from benign developmental anomalies to malignant neoplasms. Although breast cancer is rare in this age group, the presence of breast abnormalities often leads to significant psychological distress and necessitates thorough clinical evaluation [1].

Adolescence is characterised by profound hormonal changes that influence breast development [2, 3]. Thelarche, the onset of breast development, typically occurs between the ages of 8 and 13 years and is regulated by oestrogen and other endocrine factors [2, 4]. During this period, physiological changes may mimic pathological conditions, making it essential to distinguish between normal variations and true pathological lesions [2, 5, 6].

According to the Global Cancer Observatory (GLOBOCAN), breast cancer remains the most common cancer in females worldwide, with over 2.3 million new cases annually [7]. Although adolescent cases are rare, they are reported in both high-income and low-income countries. Delayed diagnosis, limited awareness, and aggressive tumour behaviour contribute to poor outcomes among young patients, with 5-year survival rates varying based on early detection and access to treatment [7, 8]. Genetic predisposition, particularly BRCA1 and BRCA2 mutations, family history, early exposure to ionising radiation, and hormonal imbalances are associated with breast cancer in adolescents [9, 10].

Africa experiences a disproportionately high burden of aggressive and late-stage breast cancer, mainly due to inadequate healthcare infrastructure, limited awareness, and sociocultural challenges. In the region, breast cancer accounts for 28% of all cancers and 20% of cancer-related deaths among women [7]. Despite this impact, incidence rates remain relatively low, typically below 35 per 100,000 women in most African countries, compared to over 90–120 per 100,000 in Europe and North America [11, 12].

The exact incidence of adolescent breast cancer in Africa is poorly documented due to a lack of cancer registries. Still, the overall breast cancer incidence in the region has been increasing, with an estimated 186,598 cases in 2020 and a high mortality rate due to late-stage presentation [10, 13, 14].

In Nigeria, as in many sub-Saharan African countries, the growing burden of breast cancer is exacerbated by challenges in early detection and treatment. Studies in Nigeria show that breast cancer constituted between 30 and 50% of all cancers among adolescents and young adults [15–17]. Breast lumps in adolescents are often dismissed as benign fibroadenoma, resulting in delayed diagnosis and unwillingness of many surgeons to subject these lumps to histopathological examination [18, 19]. Sociocultural and economic barriers such as stigma, fear of mastectomy, and financial constraints hinder early diagnosis and treatment, leading to many patients presenting at advanced stages when curative treatment is less effective [13, 20, 21].

This study aims to analyse the pattern of breast lesions in children and adolescents over 10 years, providing insights into their epidemiology, histopathological characteristics, and clinical implications. By understanding the distribution and nature of these lesions, healthcare providers can improve diagnostic accuracy, optimise management strategies, and enhance patient education. This research will also contribute to the existing body of knowledge by highlighting the histological patterns of breast lesions in our locality and correlating these with the age and biological behaviours of the lesions.

Methods

Study design and setting

This study is a retrospective cross-sectional review of histological samples of breast lesion cases in children and adolescents over 10 years. Diagnoses were made using World Health Organisation (WHO) criteria. Data were obtained from hospital records of children and adolescents 19 years and below who presented with breast lesions at the University of Port Harcourt Teaching Hospital.

Study population and sampling

The study population comprised all female patients 19 years and below with histological diagnoses of breast pathologies between January 2013 and December 2022. A total sampling technique was employed to include all eligible cases within the specified timeframe. All female 19 years and below with histological diagnoses of breast lesions within the study period were included with complete clinical and histopathological records. Cases with incomplete or missing histology were excluded.

Data collection

Relevant clinical and histopathological data were retrieved from electronic and manual medical records. Information extracted included patient demographics (age, sex), clinical presentation, imaging findings, histopathological diagnosis, and treatment outcomes.

Data analysis

Data were analysed using SPSS version 26.0. Descriptive statistics were used to summarise categorical and continuous variables. Frequencies and percentages were calculated for categorical variables, while means and standard deviations were computed for continuous variables. Chi-square tests were employed to assess associations between categorical variables, with a significance level set at $P < 0.05$.

Ethical considerations

Ethical approval was obtained from the Ethics and Research Committee of the University of Port Harcourt. Patient confidentiality was maintained throughout the study by anonymising data and ensuring secure storage of records.

Results

The mean age of the participants was 16.8 ± 2.0 years. Figure 1 shows the age distribution of all patients. Of the 170 patients,145 (85%) were 15–19 years old, and 25 (15%) were 10–14 years old. No child was less than 10 years.

Figure 2 presents the frequency distribution for each year from 2013 to 2022, with a total of 170 recorded cases. The highest number was observed in 2015 with 24 (14.1%), and the lowest, 6 (3.5%), the following year. Overall, the distribution fluctuated over the years, with a stable range of 30–37 cases every 2 years.

Of the 170 specimens, only 2 (1.2%) were trucut biopsies, and it is unclear why they were rare in this setting. Table 1 shows the frequency distribution of histological diagnosis. Fibroadenoma was the most common diagnosis, accounting for 129 cases (75.9%), followed by fibrocystic change, which occurred in 20 cases (11.8%). Invasive breast carcinoma was rare, with only 2(1.2%) cases. All other diagnoses were less than 2% each (Table 1); three cases (1.8%) were deemed inadequate for pathological diagnosis.

A total of 137 (80.6%) of diagnoses were neoplastic, and of these, 2 (1.6%) were invasive carcinoma. Thirty-three (19.4%) were non-neoplastic, with fibrocystic changes accounting for the majority of these at 60.6% (Table 1). The two malignant lesions had a Scarff-Bloom-Richardson grade of 2. One of the malignant lesions was identified in the trucut biopsy, classified as

Citation: Journal of Global Medicine 2025, **5**: 313 - http://dx.doi.org/10.51496/jogm.v5.313

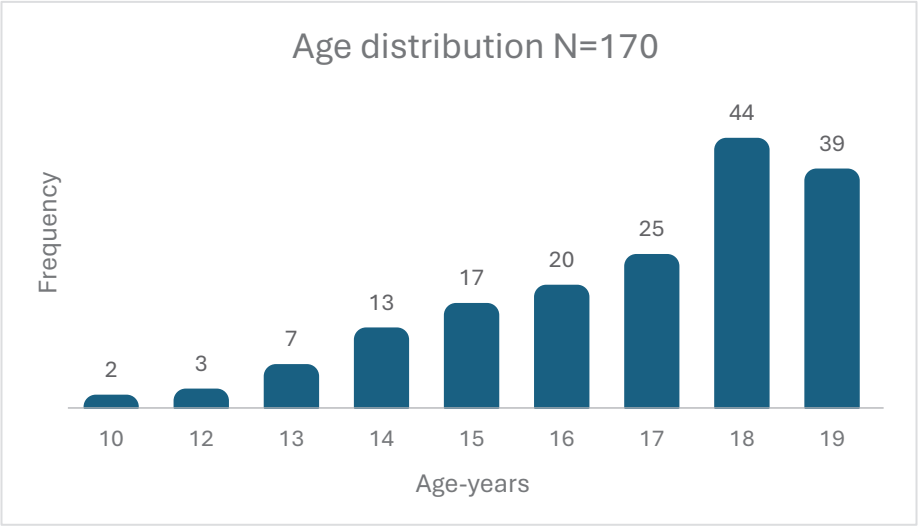

Fig. 1. Age distribution of study participants.

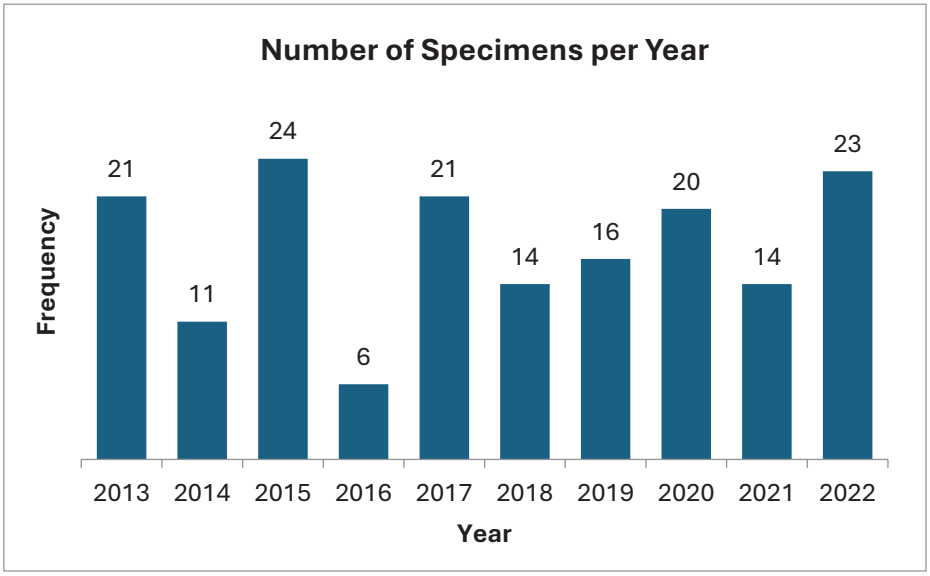

Fig. 2. Distribution of lesions per year.

B5b, denoting invasive breast carcinoma of no special type, and the other malignant lesion was found in the biopsy specimens.

Table 2 presents the distribution of different diagnoses across two age groups: 10–14 years, and 15–19 years, with data represented in absolute frequency (n) and percentage (%) within each category. Fibroadenoma was the most prevalent diagnosis in both groups, 68.0% (17 cases) in 10–14 years and 77.2% (112 cases) in 15–19 years. Fibrocystic change is the second most common diagnosis, 8.0% in 10–14 years to 12.4% in 15–19 years, suggesting a higher occurrence in older adolescents. Malignant and atypical diagnoses are rare, collectively accounting for a small proportion across all age groups (Table 2).

Discussion

Adolescent breast lesions accounted for 5.6% of all breast lesions seen within the study period. While this is higher than the average rate of 3.2% reported in Western studies, it is significantly lower than the values reported within Nigeria. Higher values of 11.1, 11.5 and 16% have been reported at Benin, Uyo and Abuja, respectively [19, 22–24].

The mean age was 16.8, similar to a range of 16.0–17.1 years in other studies [19, 22, 24–26]. There was also a steady increase in the incidence of breast lesions with age, a finding similar to other studies [19, 21, 22, 25]. This could be due to increased awareness among teenagers of the changes occurring in their bodies and the willingness to present to health facilities.

Table 1. Distribution of histological diagnoses

Diagnosis (n = 170)	Frequency (%)
Fibroadenoma	129 (75.9)
Fibrocystic change	20 (11.8)
Inadequate for pathology diagnosis	3 (1.8)
Tubular adenoma	3 (1.8)
Usual ductal hyperplasia	3 (1.8)
Hamartoma	3 (1.8)
Chronic non-specific mastitis	2 (1.2)
Invasive breast carcinoma	2 (1.2)
Abscess	1 (0.6)
Atypical ductal hyperplasia	1 (0.6)
Benign phyllodes tumour	1 (0.6)
Fibroma	1 (0.6)
Keloid	1 (0.6)

Table 2. Diagnosis based on age groups

Diagnoses	10–14 years	15–19 years
	N (%)	N (%)
Fibroadenoma	17 (68.0)	112 (77.2)
Fibrocystic change	2 (8.0)	18 (12.4)
Tubular adenoma	0 (0.0)	3 (2.1)
Inadequate for pathology diagnosis	0 (0.0)	3 (2.1)
Usual ductal hyperplasia	1 (4.0)	2 (1.4)
Chronic non-specific mastitis	2 (8.0)	0 (0.0)
Keloid	0 (0.0)	1 (0.7)
Intramammary lymph node with reactive lymphoid hyperplasia	0 (0.0)	1 (0.7)
Benign phyllodes tumour	0 (0.0)	1 (0.7)
B5 (malignant)	0 (0.0)	1 (0.7)
Invasive breast carcinoma (NST)	0 (0.0)	1 (0.7)
Atypical ductal hyperplasia	0 (0.0)	1 (0.7)
Hamartoma	1 (4.0)	0 (0.0)
B1	0 (0.0)	1 (0.7)
Abscess	1 (4.0)	0 (0.0)
Fibroma	1 (4.0)	0 (0.0)
Total	**25 (100.0)**	**145 (100.0)**

Fibroadenoma was the most frequently diagnosed breast lesion across all age groups, with an overall incidence of 75.9%, which is similar to reports of 74.3% in Abuja [24] but lower than the 58.8% reported in Benin [22]. Though higher rates of 81.1, 82 and 86.6% have been reported in other studies, respectively [19, 25, 27]. Varying rates of 62.8 and 80% have also been recorded in Austria and India [26, 28].

Fibroadenoma accounted for 68.0% of cases in individuals aged 10–14 years and 77.2% among those aged 15–19 years. This finding aligns with established literature, which consistently reports fibroadenoma as the most common benign breast tumour in females and children and adolescents. A study by Fatiregun et al. demonstrated that fibroadenoma is highly prevalent in adolescents and young adults, with a peak incidence in women under 25 years of age, representing up to 60–80% of all benign breast lesions [17]. Furthermore, a systematic review by Olayide et al. [15] found that fibroadenomas in young patients are predominantly hormone-sensitive, often presenting during puberty and regressing after menopause. Findings from a study by Xu et al. support this hormonal influence [10], who observed a correlation between fibroadenoma growth and oestrogen receptor activity. Given this, the high prevalence observed in this study is expected and suggests that most breast lumps in children and adolescent females are benign.

There were no trucut biopsies of fibroadenoma, which is in line with standard clinical practice, as fibroadenomas are generally excised for histopathological confirmation only when they demonstrate rapid growth or symptomatic enlargement [29]. According to the guidelines by the American Society of Breast Surgeons (2018) [29], small, asymptomatic fibroadenoma (< 2 cm) is often managed conservatively with imaging follow-up, while larger lesions may warrant excision, particularly if there is diagnostic uncertainty [29].

The second most common diagnosis was fibrocystic change, with a prevalence of 11.8%, which is higher than the reports from Uyo (5.9%) and Lagos (1.9%) [19, 25]. Studies from other parts of the country have shown much higher rates, such as 10.3% in Abuja and 16.4% in Benin [22, 24]. Fibrocystic change showed an increasing prevalence from 8% in the 10–14 years group to 12.4% in the 15–19 years group. This trend is well-documented in previous research, as fibrocystic changes tend to become more common with increasing age due to prolonged exposure to fluctuating oestrogen levels [8, 14, 30]. According to Ahmed et al., fibrocystic changes are the most frequent benign breast conditions in women, affecting up to 60% of females at some point in their reproductive years [18]. Our findings align with those of Alshamlan et al., who reported that fibrocystic changes occur more frequently in women over 20 years old, but they can also be seen in late adolescence [2]. The slightly lower prevalence in the 10–14 years group in our study is consistent with the understanding that fibrocystic changes are uncommon before menarche [8, 31].

The proportion of fibroadenoma was higher in the older age group, but this did not reach statistical significance (Table 2); however, studies by Bray et al. [7] and Mareti et al. [6] showed that certain benign breast lesions, such as fibroadenoma, are more prevalent in younger populations. In contrast, fibrocystic changes and atypical ductal hyperplasia tend to appear in older adolescents and young adults. There was only one case

Citation: Journal of Global Medicine 2025, **5**: 313 - http://dx.doi.org/10.51496/jogm.v5.313

of a benign phyllodes tumour (0.6%), similar to a study by Nwafor et al., who recorded one case (0.5%), though this is less than another study, which reported 2.2% [24].

Primary malignancy of the breast is infrequent in the children and adolescent population, with a prevalence of 1/1,000,000 in women under 20 years [24]. Although rare, malignant and high-risk lesions can be diagnosed in adolescents and young adults. This agrees with studies by Edegbe et al. [32] and Ahmed et al. [18], which found that malignant breast lesions in young women account for less than 1% of all breast cancers but should not be overlooked, particularly in those with a family history of breast cancer or genetic predispositions (e.g. BRCA1/BRCA2 mutations) [3, 19, 20, 32]. This study documented two cases (0.74%), which is similar to other accounts of 0–4 cases (0 to 2.5%) [22, 23–25, 27]. Malignant phyllodes tumours have been reported as the most common primary malignancy in the paediatric population, while secretory carcinomas are reported as the most common carcinoma subtype [24]. This is not in tandem with our studies, where invasive breast carcinoma of no special type was found in the two cases. Malignant breast tumours in adolescence reported in other studies in Nigeria include invasive cribriform carcinoma, invasive breast carcinoma of no special type, alveolar soft part sarcoma, non-Hodgkin's lymphoma, and metastatic carcinoma [21, 22–24, 27, 33].

One of the malignant cases was diagnosed through trucut biopsy (50%), underscoring the role of core needle biopsy in distinguishing benign from malignant lesions following careful clinical evaluation. This observation aligns with findings by Feng et al. [14], who demonstrated that core needle biopsy has a diagnostic accuracy of over 95% for breast malignancies and high-risk lesions.

Conclusion

These findings have significant clinical implications for the diagnosis, management, and surveillance of breast lesions in children, adolescents and young adults. The high prevalence of fibroadenoma and fibrocystic changes suggests that most breast lumps in young females are benign. Still, the presence of malignant and high-risk lesions in the 15–19 years group warrants a cautious approach.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Conflict of interests and funding

Authors have declared that no Conflict of interests and funding exist.

References

1. Elmore JG, Longton GM, Carney PA, Geller BM, Onega T, Tosteson ANA, et al. Diagnostic concordance among pathologists interpreting breast biopsy specimens. JAMA 2015; 313(11): 1122–32. Available from: https://pubmed.ncbi.nlm.nih.gov/25781441/ [cited 12 February 2025].
2. Alshamlan NA, Alomar RS, Almukhadhib OY, Algarni SA, Alshaibani AK, Elmaki SA, et al. Characteristics of breast masses of female patients referred for diagnostic breast ultrasound from a Saudi Primary Health Care setting. Int J Gen Med 2021; 14: 755. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC7937368/ [cited 12 February 2025].
3. Berg WA, Campassi C, Langenberg P, Sexton MJ. Breast imaging reporting and data system. Am J Roentgenol 2023; 174(6): 1769–77. Available from: https://www.ncbi.nlm.nih.gov/books/NBK459169/ [cited 12 February 2025].
4. Ukweh O, Okeke C, Ukweh I, Ekanem I. Benign breast disease pattern and prevalence in Calabar – a 5 year histopathologic review. Niger J Med 2019; 28(3): 320.
5. Breehl L, Caban O. Physiology, puberty. StatPearls; 2023. Available from: https://www.ncbi.nlm.nih.gov/books/NBK534827/ [cited 12 February 2025].
6. Mareti E, Vatopoulou A, Spyropoulou GA, Papanastasiou A, Pratilas GC, Liberis A, et al. Breast disorders in adolescence: a review of the literature. Breast Care 2020; 16(2): 149. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC8114041/ [cited 12 February 2025].
7. Bray F, Laversanne M, Sung H, Ferlay J, Siegel RL, Soerjomataram I, et al. Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin 2024; 74(3): 229–63. Available from: https://onlinelibrary.wiley.com/doi/full/10.3322/caac.21834 [cited 12 February 2025].
8. Watkins EJ. Overview of breast cancer. J Am Acad Physician Assist 2019; 32(10): 13–7. Available from: https://journals.lww.com/jaapa/fulltext/2019/10000/overview_of_breast_cancer.3.aspx [cited 12 February 2025].
9. Arzanova E, Mayrovitz HN. The epidemiology of breast cancer. Cancer Res 2022; 23: 1503–13. Available from: https://www.ncbi.nlm.nih.gov/books/NBK583819/ [cited 12 February 2025].
10. Xu H, Xu B. Breast cancer: epidemiology, risk factors and screening. Chinese J Cancer Res 2023; 35(6): 565. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC10774137/ [cited 12 February 2025].
11. Iacoviello L, Bonaccio M, De Gaetano G, Donati MB. Epidemiology of breast cancer, a paradigm of the "common soil" hypothesis. Semin Cancer Biol 2021; 72: 4–10. doi: 10.1016/j.semcancer.2020.02.010
12. Winters S, Martin C, Murphy D, Shokar NK. Breast cancer epidemiology, prevention, and screening. Prog Mol Biol Transl Sci 2017; 151: 1–32. doi: 10.1016/bs.pmbts.2017.07.002
13. Adeoye PA, Adeoye PA. Epidemiology of breast cancer in sub-Saharan Africa. Breast cancer updates. 2023. Available from: https://www.intechopen.com/chapters/85501 [cited 12 February 2025].
14. Feng Y, Spezia M, Huang S, Yuan C, Zeng Z, Zhang L, et al. Breast cancer development and progression: risk factors, cancer stem cells, signaling pathways, genomics, and molecular pathogenesis. Genes Dis 2018; 5(2): 77–106. doi: 10.1016/j.gendis.2018.05.001
15. Olayide A, Isiaka A, Ganiyu R, Samuel O, Halimat A, Olalekan O, et al. Breast cancer treatment and outcomes in Nigeria: a

systematic review and meta-analysis. Asian Pacific J Cancer Care 2023; 8(3): 591–8. Available from: http://waocp.com/journal/index.php/apjcc/article/view/1074 [cited 12 February 2025].
16. Omisore AD, Sutton EJ, Akinola RA, Towoju AG, Akhigbe A, Ebubedike UR, et al. Population-level access to breast cancer early detection and diagnosis in Nigeria. JCO Glob Oncol 2023; 9. Available from: https://ascopubs.org/doi/10.1200/GO.23.00093 [cited 12 February 2025].
17. Fatiregun OA, Oluokun T, Lasebikan NN, Nwachukwu E, Ibraheem AA, Olopade O. Breast cancer research to support evidence-based medicine in Nigeria: a review of the literature. JCO Glob Oncol 2021. Available from: https://ascopubs.org/doi/10.1200/GO.20.00541 [cited 12 February 2025].
18. Ahmed ST, Singh SK, Mukherjee T, Banerjee M. Breast carcinoma in a prepubertal girl. BMJ Case Rep 2014; 2014: bcr2013203251. doi: 10.1136/bcr-2013-203251
19. Nwafor CC, Umeh KU, Etuk EB, Eziagu UB, Kudamnya IJ, Ekwo E. Clinicopathological pattern of breast lesions in children and adolescents. Afr Health Sci 2023; 23(3): 228–35. doi: 10.4314/ahs.v23i3.28
20. Olarinoye-Akorede S, Ibinaiye P, Suleiman L. Ultrasonographic review of paediatric breast masses among Nigerian children in a tertiary hospital. Afr J Paediatr Surg 2020; 17(3–4): 54–8. doi: 10.4103/ajps.AJPS_57_17
21. Ozumba BC, Nzegwu MA, Anyikam A, Okoye I, Okafor OC. Breast disease in children and adolescents in Eastern Nigeria—a five-year study. J Pediatr Adolesc Gynecol 2009; 22(3): 169–72. doi: 10.1016/j.jpag.2008.10.007
22. Olu-Eddo A, Ugiagbe E. Breast masses in children and adolescents: what is the burden of breast cancer? Ann Biomed Sci 2012; 11(1): 48–56. Available from: https://www.ajol.info/index.php/abs/article/view/77992 [cited 8 June 2025].
23. Umanah IN, Akhiwu W, Ojo OS. Breast tumours of adolescents in an African population. Afr J Paediatr Surg 2010; 7(2): 78–80. Available from: https://pubmed.ncbi.nlm.nih.gov/20431215/ [cited 13 February 2025].
24. Raphael S, Ezike K. Histological pattern of breast diseases in children and adolescents in North Central Nigeria. N Niger J Clin Res 2020; 9(16): 39. Available from: https://www.researchgate.net/publication/347193177_Histological_pattern_of_breast_diseases_in_children_and_adolescents_in_North_Central_Nigeria [cited 8 June 2025].
25. Ademuyiwa AO, Lawal AO, Anunobi CC, Bode CO, Fan AX, Kapoor N. Discrete breast masses in female children and adolescents: Is there a place for non-operative management by pediatric surgeons? J Adv Med Med Res 2015; 9(8): 1–7. Available from: https://journaljammr.com/index.php/JAMMR/article/view/2066 [cited 13 February 2025].
26. Tea MKM, Asseryanis E, Kroiss R, Kubista E, Wagner T. Surgical breast lesions in adolescent females. Pediatr Surg Int 2009; 25(1): 73–5. Available from: https://pubmed.ncbi.nlm.nih.gov/18985359/ [cited 13 February 2025].
27. SeleyeFubara D, Erivwo P, Etebu E. Breast tumors in childhood and adolescence in Port Harcourt, Nigeria. Mary Slessor J Med 2010; 10(2): 6–10.
28. Manjiri S, Padmalatha SK, Jeevak S. A prospective observational study of breast lumps in adolescent girls: tertiary care South Indian teaching hospital experience. Indian J Surg Oncol. 2018; 9(3): 402–6. Available from: https://pubmed.ncbi.nlm.nih.gov/30288007/ [cited 13 February 2025].
29. Manahan ER, Kuerer HM, Sebastian M, Hughes KS, Boughey JC, Euhus DM, et al. Consensus guidelines on genetic' testing for hereditary breast cancer from the American Society of Breast Surgeons. Ann Surg Oncol 2019; 26(10): 3025–31. Available from: https://pubmed.ncbi.nlm.nih.gov/31342359/ [cited 13 February 2025].
30. Simon A, Robb K. Breast cancer. In: Cambridge handbook of psychology, health and medicine. 2nd ed. 2024, p. 577–80. Available from: https://www.ncbi.nlm.nih.gov/books/NBK482286/ [cited 12 February 2025].
31. Ntekim A, Oluwasanu M, Odukoya O. Breast cancer in adolescents and young adults less than 40 years of age in Nigeria: a retrospective analysis. Int J Breast Cancer. 2022; 2022: 9943247. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC9355764/ [cited 12 February 2025].
32. Edegbe FO, Uzoigwe JC, Ndukwe CO, Nwachukwu AA, Ugwu NI, Nnachi OC, et al. Pattern of benign breast diseases in Abakaliki, South Eastern Nigeria, a 5 year retrospective study. Niger J Med 2022; 31(5): 540–3. doi: 10.4103/NJM.NJM_60_22
33. Onuigbo WIB. Adolescent breast masses in Nigerian Igbos. Am J Surg. 1979; 137(3): 367–8. Available from: https://pubmed.ncbi.nlm.nih.gov/434332/ [cited 14 February 2025].

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Citation: Journal of Global Medicine 2025, **5**: 313 - http://dx.doi.org/10.51496/jogm.v5.313