Chapter 91

Incidence of breast nodules in young women from 15 to 35 years: a literature review

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ABSTRACT
Nodules are tumors that may present cystic or solid content. That benign mammary feature constitutes up to 80% of all palpable lumps existent in women. Among these nodules, fibroadenoma is the most common in women aged between 15 and 35 years old. Thus, it's important for the scientific community and the population to the study parameters, such as the growth of young people that presents mammary nodules, the risk factors, the most frequent types in young women, as well as the diagnostic description. This study has an exploratory qualitative approach, done through an integrative revision of the scientific literature available in Portuguese and foreign languages from 1988 to 2020 about mammary nodules in young women. The importance of carrying out this research is justified by the analysis of the mammary nodule incidence in young women over the years, and thereat verify if there were precursor wounds of mammary cancer. Therefore it is possible to find if there is an increase in its incidence and perform an early diagnosis to attend to the antecedence of the symptoms of this benign disease. In addition, if there is a history that biases the increase of cancer risk in the future, it's possible to prevent it based on the identification of high-risk lumps. This topic has an authentic profile, with no referent article, and has not been discussed in the existent platforms, so it makes this relevant and innovative.

Keywords: Cancer, Fibroadenoma, Biopsy, Fine needle aspiration puncture.

1 INTRODUCTION

The breast nodule, according to Febrasgo (2018) is all tumor present in the mammary gland that can present both cystic and solid content, being palpable to the touch. Therefore, it is important to evaluate the incidence of breast nodules in young women.

According to Frasson (2018), there are the following subdivisions of nodules: fibroadenomas which are the most frequent benign lesions in young patients under 35 years of age, the tumor filóide which are rare lesions that usually occur in women after 35 years – contains the same clinical characteristics of fibroadenoma; juvenile fibroadenoma that affects women after menarche and has the clinical picture equal to the tumor ide; cysts, which are softened nodules, which can be subdivided into simple and complex cysts; and lastly, malignant nodules that are uncommon in women under the age of 30 years.

One of the problems found was to evaluate whether there was a change in the incidence of breast nodules over the 34 years of research. For this: the analysis of the incidence of the number of young people

with breast nodules was placed as the object of the studies; identification of risk factors; the analysis of the most frequent types of occurrence in young women; the description of how the diagnosis of breast nodules was made, as well as the differentiation of benign breast disease from malignant. These points are emphasized in the discussion of the current research and justified by the analysis over the years if there was an increase in the incidence of breast nodules in young people because these lesions that are precursors that lead to breast cancer.

If this increase is found in the course of the research, it will be of paramount importance to make an early diagnosis, because thus, it will be possible to relieve in advance the symptoms attributed to benign breast diseases, identify them and if there are histones that may predispose to an increased risk of cancer, there will be a better prognosis for potentially future breast cancer prevention, based on the identification of high-risk lesions.

2 MATERIAL AND METHODS

This study has a qualitative exploratory approach, carried out through an integrative review of the scientific literature in Portuguese and foreign languages from 1988 to 2020 on breast nodules in young people.

The bibliographic search has as an inclusion the inclusion criterion of the following keywords: "breast nodule"; "benign breast nodule"; "benign breast nodule in young patients"; "nodule"; "incidence of breast nodule" in Portuguese and English on the following platforms Online Scientific Electronic Library (Scielo), Online Medical Literature Analysis and Retrieval System (Medline), Latin American and Caribbean Literature on Health Sciences (LILACS) and Descriptors in Health Sciences (DECS) and VHL (virtual health library).

Twenty-four articles were found that mentioned information on the subject in short excerpts. All articles were fully researched during the implementation of the project, as well as all references used were mentioned. Subsequently, for data analysis, exclusion criteria were used: the year of publication, exclusive cancer, exclusive breast cysts, nodules from other exclusive body areas, articles without public access, articles that did not have as target population the age group of said research, and also those that addressed breast nodules in men.

3 RESULTS AND DISCUSSIONS

3.1 RESULTS OF RESEARCH CONDUCTED IN THE LITERATURE

Table 1 - results of the bibliographic research, whose organization is based on the database in which the article was found, year of publication, authors, title, and language of study.

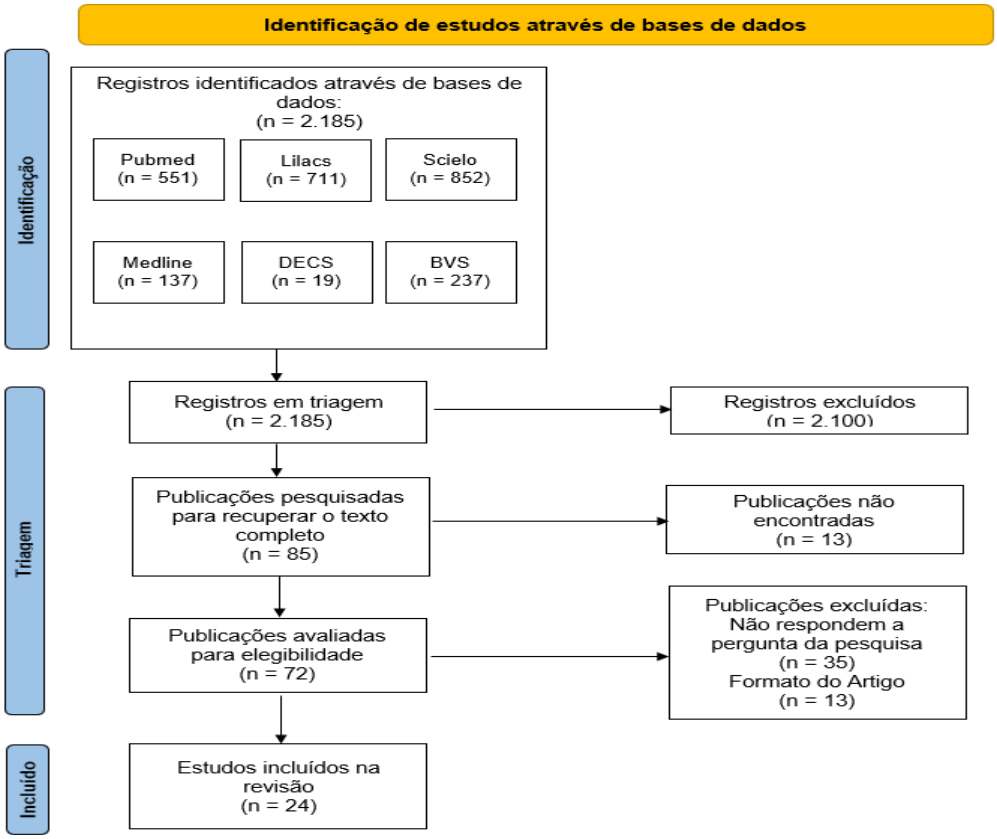
Database	Year of publication	Authors	Title	Study language
Pubmed	1988	J R Sainsbury, S Nicholson, G K Needham, V Wadehra, J R Farndon	Natural history of the benign breast lump	English
Pubmed	1989	PFEIFFER, U; MCLOUGHLIN, G A; DODSON, M E	Wound instillation for postoperative pain relief	English
Pubmed	1990	S Redman, A L Reid, E Campbell, R W Sanson-Fisher	Breast self-examination and breast examination by a health care provider: prevalence and predictors of screening in a randomly selected sample of Australian women	English
Pubmed	1991	MANT, D.	Breast self-examination	English
Pubmed	1992	M. Ellen MacFarlane RN, BScN, MadED and Saru D. Sony RN, BScN, MN	Women, breast lump discovery, and associated stress	English
Pubmed	1999	M A Trapp, T E Kottke, R A Vierkant, J S Kaur, T A Sellers	The ability of trained nurses to detect lumps in a test set of silicone breast models.	English
Pubmed	2001	Mark A. Dennis, Steve H. Parker, Anita J. Klaus, A. Thomas Stavros, Terese I. Kaske, Sallie B. Clark	Breast Biopsy Avoidance: The Value of Normal Mammograms and Normal Sonograms in the Setting of a Palpable Lump.	English
Pubmed	2001	S. Shrothia	Breast mass removal made easy by the lump extractor: introducing a new instrument in breast surgery	English
Scielo	2002	Régis Resende Paulinelli Célio da Silva Rocha Vidal Alessandro Naldi Ruiz Vardeli Alves de Moraes Júlio Roberto Macedo Bernardes Júnior Ruffo de Freitas Júnior	Prospective Study of The Ultrasound Features in the Diagnosis of Solid Breast Lesions	English
Pubmed	2003	Karla Kerlikowske, MD Rebecca Smith-Bindman, MD Britt-Marie Ljung, MD Deborah Grady, MD, MPH	Evaluation of Abnormal Mammography Results and Palpable Breast Abnormalities	English
Pubmed	2005	Cericatto R, A Pozzobon, M Morsch D, C H Menke, I S Brum, P M Spritzer	Estrogen receptor-alpha, bcl-2 and c-myc gene expression in fibroadenomas and adjacent normal breast: association with nodule size, hormonal and reproductive features	English
Pubmed	2006	Vipin Nagpal, Kanika Kohli, Abhideep Chowdhary, Ajay Kumar, Manoj Andley, Bina Ravi	Breast lump as a presentation of a hydatid disease	English

Scielo	2007	NAZÁRIO, Afonso Celso Pinto; REGO, Mychely Fernandes; OLIVEIRA, Vilmar Marques de	Benign breast nodules: a review of differential diagnoses and management.	Portuguese
Pubmed	2008	Kasonde Bowa; Jim Jewel; Victor Mudenda.	Fine needle aspiration cytology in the investigation of breast lumps at the University Teaching Hospital in Lusaka, Zambia	English
Pubmed	2008	K Kobayashi T, Bamba M, Okada K, Kato M	Fine needle aspiration cytology from a cystic breast lum	English
Pubmed	2010	PEARLMAN, Mark D.; GRIFFIN, Jennifer L.	Benign Breast Disease	English
Pubmed	2012	Duflos C., Plu-Bureau G., Thibaud E., Kuttenn F.	Breast Diseases in Adolescents	English
Pubmed	2013	WARREN, Rebekkah; DEGNIM, Amy.	Uncommon Benign Breast Abnormalities in Adolescents.	English
Pubmed	2014	Lina Michala, Alexandra Tsigginou, Dimitris Zacharakis , Constantine Dimitrakakis	Breast Disorders in Girls and Adolescents. Is There a Need for a Specialized Service?	English
Pubmed	2015	YUE, D; SWINSON, C; RAVICHANDRAN, D.	Triple assessment is not necessary in most young women referred with breast symptoms	English
Pubmed	2017	Ann L Brown,Jordana Phillips, Priscilla J Slanetz, Valerie Fein-Zachary,Shambhavi Venkataraman, Vandana Dialani , Tejas S Mehta	Clinical Value of Mammography in the Evaluation of Palpable Breast Lumps in Women 30 Years Old and Older	English
Scielo	2017	Roberto José Medeiros Patricia Z. Rebutini Thamyres G. V. Vargas Fabiola Medeiros Ana Paula M. Sebastião	Giant nodular pseudo angiomatous stromal hyperplasia of the breast with fbroadenomatoid myxoid changes: a potential pitfall in the differential diagnosis of phyllodes tumor	English
Pubmed	2018	MANJIRI, S.; PADMALATHA, S.K.; JEEVAK, Shetty.A	Prospective Observational Study of Breast Lumps in Adolescent Girls: Tertiary Care South Indian Teaching Hospital Experience	English
Ed. Atheneu	2018	Bagnoli, Fabio, Berrettini Jr, Anastasio and Others.	Breast Diseases - Evidence-Based Pocket Guide.	Portuguese
Pubmed	2020	HAGEMANN, Friederike.	Ein neuer Knoten in der Brust	German

Source: Medeiros (2022)

After the research of all the articles the authors who appeared the most were: KERLOKOWSKE, Karla *et al* (2008); MICHALA, Lina (2014) and PAULINELLI, Régis Resende (2002) corroborating the Brazilian author NAZÁRIO, Afonso Celso Pinto.

Figure 1. Identification of studies through databases. The publications were found in two databases of the six researched: Scientific Electronic Library Online (SciELO) and Publisher Medline (PubMed). The articles in the foreign Portuguese language were analyzed. In the Online Scientific Electronic Library (Scielo) 852 were selected, in the Online Medical Literature Analysis and Retrieval System (Medline) 137 were selected, in the Latin American and Caribbean Literature on Health Sciences (LILACS) 711 were selected, in Descriptors in Health Sciences (DECS) 19 were selected and VHL (virtual health library) were selected 237. The total number of articles was 2,185. After the removal of the exclusion criteria, 85 remained. Within this total, 72 articles had informative potential and were included in the current research 24 articles.



Source: MEDEIROS (2022).

3.2 FACTORS RELATED TO BREAST NODULES

Breast nodules have long been a matter of fear for society, but over the years with discoveries and the possibility of conducting new research, this process has been demystified. Although there are already important sources, palpable masses remain a clinical dilemma commonly presented today that requires investigation.

The abnormalities portrayed by the disease, even before the knowledge of the biopsy, can generate disorders such as anxiety, depression, uncertainties, and a general malaise such as apprehension, malaise, and stress, both for the patient and for their families, who end up involved in the health-disease process.

In southern Índia, for example, the patients, who were adolescents and visited the outpatient clinic with complaints of breast nodules, had an evaluation that comprised a triad. It included clinical examination, imaging, and core biopsy, which was used for the diagnosis and identification of the type of tumor. In this study, the most common lesions were benign fibroadenomas, as well as in most of the articles analyzed. In addition, the most recurrent complaints were abnormal breast augmentation, asymmetric growth, breast

secretion, breast pain, skin changes, and a palpable mass, unlike malignant ones (MANJIRI; PADMALATHA; JEEVAK; 2018).

3.3 RISK-RELATED FACTORS

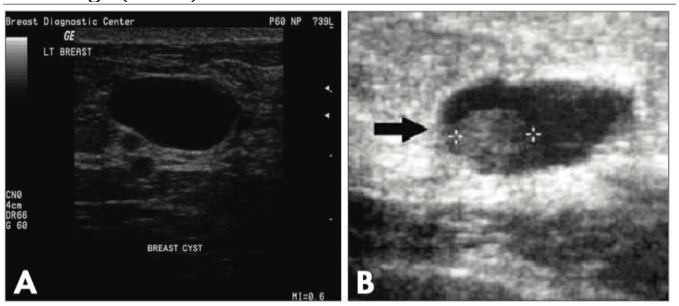
The history of mamamlar symptoms is altered over time, being characterized by pain, the presence of staining, and mamilar secretion spontaneously. Studies claim that risk factors for breast cancer may be genetic or non-genetic.

A complete understanding is of paramount importance because there are or not in women with breast symptoms, clinical conduction may change with the result of these factors. Hormone therapy being her, with estrogen combined with progesterone or prostaglandins, tends to increase the risk of breast cancer. The exception to this only happens in the first pregnancy, being it late onset; or following the interruption of cyclic hormonal exposure by breastfeeding for more than 3 months, multiparity or early menopause, factors considered as protective factors of breast cancer (PEARLMAN; GRIFFIN, 2010).

3.4 MOST FREQUENT CATEGORIES OF BREAST NODULES OCCURRING IN YOUNG PATIENTS

Differential diagnosis of a mammographic mass includes cysts, benign nonproliferative lesions, benign proliferative lesions with or without atypia, fibroadenoma, radial scar, intramamarium lymph node, lipoma, galactocele, ductal carcinoma in situ, invasive cancer. For mammographic calcification, the differential diagnosis includes atherosclerosis, benign nonproliferative lesions, benign proliferative lesions with or without atypia, dermal lesion, fatty necrosis, ductal carcinoma in situ has no specific mammographic findings, and invasive cancer (KERLIKOWSKE; et al, 2003).

Figure 2. Ultrasound aspect of breast cysts. A) simple cyst: anechoic image, with posterior acoustic reinforcement; B) complex cyst: inside the cyst, a solid nodular image (arrow) is observed.

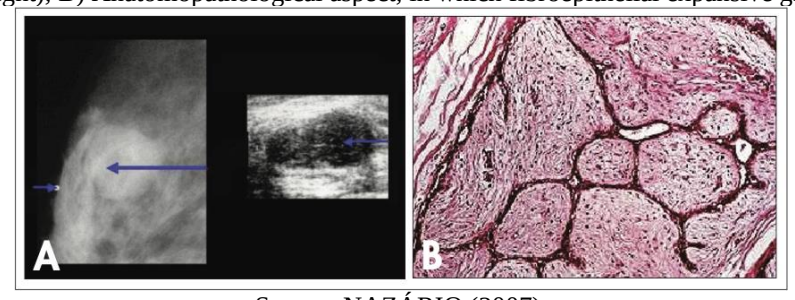


Source: NAZÁRIO (2007).

Fibroadenomas manifest with benign characteristics and are often multiple. This type of nodule is described by its self-limited growth aspect, its evolution is variable, remaining unchanged or even regressing in size with time. In addition, they express steroid receptors and their growth is influenced by age, parity, and hormones. The estrogen receptor (ER) plays an important role in both normal and neoplastic breast tissue, acting as a nuclear transcription factor and modulating the expression of multiple genes (CERICATTO; *et al* 2004).

According to cericatto (2004) studies, it was found that estrogen-mRNA receptor levels showed greater evidence in fibroadenoma tissue of follicular patients when compared with fibroadenomas of contraceptive users, and with normal breast tissue of all groups. As well, the diameter of the breast nodule was higher in younger nulliparous women.

Figure 3. Fibroadenoma. A) mammographic aspect (on the left), evidencing an ovoid image, well delimited and circumscribed (arrow), and ultrasound aspect (right), showing an ovoid image, of regular contours and with an anti-radial diameter (width). greater than the radial (height); B) Anatomopathological aspect, in which fibroepithelial expansive growth can be observed.



Source: NAZÁRIO (2007).

Thus, the fibroadenoma is the most common breast tumor in adolescence, and clinical diagnosis is less frequent when compared to ultrasound, which usually detects deeper fibroadenomas (PEARLMAN; GRIFFIN, 2010). Often, the tumor is accidentally perceived by the young woman herself by encapsulation having mobility. It is characterized by being a firm, smooth, round, or bosselated tumor, painless, and very mobile, presenting normally from 1 to 3 cm and occurring during adolescence. This phase, of course, also occurs during the growth of the patient, so the tumor is doubled in size and can vary from 6 to 12 months, with the possibility of remaining static until the end of life, or even decreasing in size and may disappear.

As evidence of the study addressed, it was found that 107 nodules disappeared in the 279 tumors followed for 7 to 9 years. However, there is no relationship between the probability of disappearance with the initial size or the multiple characteristics of the tumor, but there are less than 20 years of age. Thus, the development of fibroadenoma is characterized as hormone-dependent, as it decreases rapidly with the evolution of the lesion and the appearance of fibrosis without hormonal receptors (DUFLOS; *et al*, 2012).

Fibroadenoma is the most common benign breast abnormality in adolescents, but there are other possible diagnoses. Like intraductal papilloma and ductal ectasia: pathologies in which these are associated with bloody breast secretions, which occur rarely in adolescents and more commonly in adult women. Infections that occur in adolescents including mastitis and/or abscesses are treated with antibiotic therapy for Staphylococcus aureus or Staphylococcus epidermidis. However, when the infection is by the *site of piercings* (ornament of body insertion) other organisms should be suspected. Any procedures performed on breasts that are in development should be exercised because if there is trauma in these breasts can be carried out with the disruption of this maturation, asymmetry, or even cause the rupture of the subareolar ducts, and therefore impair or prevent a future lactation. Adolescent patients who have breast pain and erecting with or without symptoms (fever, chills, or myalgia) and have risk factors for a breast infection

(galactorrhoea, mammary duct obstruction, trauma, or being immunocompromised) are recommended to perform an ultrasound.

According to DUFLOS (2012), the most common postpartum abscess in adolescence is described as retro areolar. For a better classification of nodules, possible inflammatory signs as well as varying sizes were identified among affected patients. From these symptoms, physicians can perform treatment early, which is the association of local anti-inflammatory dressings and systemic antibiotherapy. When long-term anti-biotherapy is of paramount importance, even after the disappearance of clinical symptoms (DUFLOS; *et al*, 2012). If clinical treatment is not sufficient, surgery can be performed. Recurrences are common after a simple incision and drainage and, therefore, in such cases, it is recommended that a global resection of the duct be performed. The origin of the lobes illustrates numerous characteristics of fibroadenoma, such as the frequency in menarche, in which the maximum development of the lobe occurs (DUFLOS; *et al*, 2012).

Ultrasound helps to differentiate cellulitis from abscess; in cellulite, the treatment is based on the use of antibiotics, and to treat the abscess it is recommended to do percutaneous drainage with serial ultrasound, and aspiration every 48 hours until there is the resolution of the abscess. Or in cases of abscesses larger than 5 centimeters, girls with systemic sepsis, or recurrent abscesses, it is necessary to do surgical drainage. Spontaneous abscesses not related to lactation are associated with smoking and diabetes, for this, it is necessary to treat primary infection and reduce predisposing factors, which can reduce the formation of recurrent abscesses (WARREN; DEGNIM; 2013).

In this study, Breast Disorders in Girls and Adolescents. Is There a Need for a Specialized Service? (Mamamarian disorders in girls and adolescents. There is a need for a specialized study) conducted in Alexandria, Greece, contained 81 patients, among them, 11 had abnormal mamilar or areolar secretion, of these 3 had cysts identified by ultrasound, 33 had palpable nodules, of these 12 are fibroadenomas, 3 were phylloid tumors, and 14cysts, 20 patients with mastitis and 16 with the development of uneven breasts, and 1 with virginal mammary hypertrophy (MICHALA; *et al*,2014).

The filóides tumors and half of the fibroadenomas were removed and the rest of the fibroadenomas were regularly monitored by ultrasound. These ultrasounds were characterized according to the classification of BI-RADS, fibroadenomas having more than 2 cm, being considered large, were removed with surgeries. Fine needle aspiration (ANAB) is rare in young patients but can be performed if malignancy is suspected (MICHALA; *et al*,2014).

Because simple fibroadenoma is the most common, large fibroadenomas are considered rare forms, which grow rapidly and can reach a size of more than 10 cm in diameter. Juvenile fibroadenomas because they have a fibrous component are considered histologically different from simple or giant fibroadenomas and are more likely to achieve excessive dimensions that can cause deformities and asymmetry of the breasts leading to damage to normal tissues adjacent by expansion and compression at the site (MICHALA; *et al*,2014).

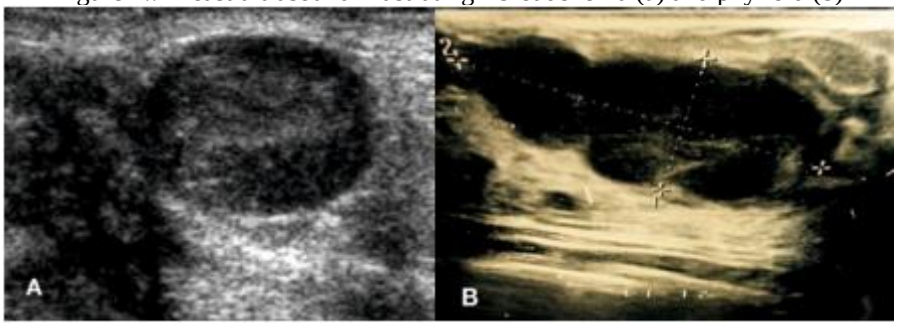
Fibroadenomas usually have a benign origin, can be evaluated and identified with an ultrasound, and their management is conservative. For the need for surgical indication, the tumor must corroborate with the rapid evolution of size, an increase greater than 50% of its original size in six months, with pain, or breast sensitivities. In adults in surgical intervention, the cutoff point of 2 cm is used, while in adolescents, there are no clear guidelines (MICHALA; *et al*,2014).

Less than 1% of breast tumors are represented by a small and rare class of fibroepithelial neoplasms, called filóides. Phyllo, has its origin in the Greek language and means leaves, but does not have that name unpurposely. The tendency of this tumor, which begins in the stroma, is to grow as a leaf in the breast ducts and may reach significant sizes. It is difficult to differentiate a fibroadenoma from a filóide tumor through ultrasound. This is due to the round, or even oval shape of the filóide, being known as a well-defined, non-calcified lobular nodule, and containing heterogeneous and cystic elements. Because it has 40% recurrence in adults, the recommended treatment is the broad local incision that includes the normal tissues surrounding it (MICHALA; *et* al,2014). There is also a benign stromal proliferation of the breast also known as pseudo angiomatous stromal hyperplasia (PASH) which has collagenous stroma and affects from childhood to adolescents and older women may affect up to 51 years.

A dilemma that has caught the attention of specialists, but has not been evidenced in studies: adolescents have become increasingly predisposed to infections and/or inflammations in the breasts, even when there is no absence in milk production. It is known that most women affected by this pathology have a higher age group. However, there is the possibility of infection during puberty, mainly staphylococcus aureus, and for this reason, empirical antibiotics of a broad spectrum are used, but if it is necessary to make incisions or local drainages (MICHALA; *et al*,2014).

Residual cysts may appear as inflammations on ultrasound, they respond little to treatments and may remain for weeks or months after initial appearance (MICHALA; *et al*,2014). For this proof, Fine *et al* (2015 *apud* MEDEIROS; *et al*, 2017, p.211) found in the study a pseudo angiomatous stromal hyperplasia in a 31-year-old woman containing 21 cm, and the largest case reported was 35 cm by Abdelrahman (MEDEIROS; *et al*, 2017).

Figure 4.: Breast ultrasound illustrating fibroadenoma (a) and phylloid (b)



Source: MANJIRI (2018).

3.5 ANALYSIS OF THE RAREST TYPES OF BREAST NODULES

Author NEGPAL (2006) evidences the study with a 35-year-old woman who had a painless nodule in her right breast for five months, with no significant size increase, history of fever, trauma, breast secretion, or any risk factors for breast cancer. It also notes that it has a hydatic breast disease, which is rare, and usually presents as a painless nodule with slow growth affecting many middle-aged women. Thus, even though it is rare, it is an important differential diagnosis of breast nodules in areas that are endemic for hydrate diseases, because even though it is a disease that forms cysts, they are caused by a parasite, called Echinococcus granolosus.

Metaplásic breast carcinoma represents less than 1% of all malignant diseases of the breast, characterized as a very rare disease (KOBAYASHI, T. K.; *et al*. 2008).

3.6 DIFFERENTIATION OF BENIGN AND MALIGNANT BREAST DISEASE

According to Redman (1990), 1 in 16 women will develop breast cancer in life, and 1 in 24 women will die from this pathology. The predictive value of a breast nodule for cancer was 4% in the city of Nottingham, where 1 in 25 women attended had breast cancer, and most were investigated noninvasively (MANT, 1991).

Among the symptom his facts analyzed, it is more likely to be malignant when any of these characteristics is existing, posterior acoustic shadow, irregular contours, heterogeneous internal echoes, diameter ântero- posterior greater than the later-lateral (PAULINELLI; *et* al,2002).

Of the breast nodules between 9% and 11% result in the diagnosis of breast cancer, and advancing age also increases the prevalence of women with breast nodules having cancer (KERLIKOWSKE*; et al*, 2003).

Unnecessary interventions should be avoided in children and adolescents, as they are unlikely to have malignancy. Breast cancer described in children and adolescents, however, is something very rare having an incidence of one in a million. Information that goes against older women, especially those over 40. This fact can be proven by the more than 192,370 cases of breast cancer that were diagnosed in 2009 alone in the United States. And it represents 27% of all cancers in women, thus having more deaths designated to breast cancer than of the ovary, uterus, fallopian tubes, cervix, and vulva, thus losing only to lung cancer (PEARLMAN; GRIFFIN, 2010).

In benign lesions, ultrasound features tend to be nonspecific, which include solitary or multiple cysts of varying sizes with fibrous echogenic tissue and dilated ducts (WARREN; DEGNIM,2013).

Although many patients have a benign outcome; those with palpable breast nodules are more likely to have breast cancer than all breast imaging patients (BROWN; *et al*, 2017) (MACFARLANE; *et al*, 2009).

For a deeper understanding of the topic, it is necessary to differentiate breast cancer nodules. The breast nodule is all tumors present in the mammary gland that can present both cystic and solid content, being palpable to the touch. Breast cancer is a disease caused by the disordered multiplication of abnormal cells, which has a high potential to invade other organs, developing tumors (FEBRASGO, 2018).

According to the Brazilian Society of Mastology (2019), about 60,000 Brazilians are diagnosed with breast cancer each year. In women under 35 years of age, in Brazil the incidence today is between 4 and 5%, which previously in this age group was only 2%, thus drawing attention in recent years, because the propensity of the development of the disease is 50 years but the incidence is increasing in women under 35 years.

In the study conducted by Hagemann (2020), a woman went to her office complaining of skin retraction, skin edema, nipple retraction skin redness, which have characteristics to be of breast cancer.

And to the National Cancer Institute (INCA), in the world breast cancer is considered the most incident. There are around 2.3 million new cases in 2020.

3.7 MAMARIAN NODULE DIAGNOSIS TECHNIQUE

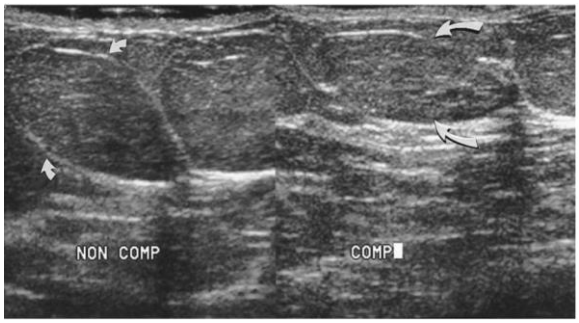
Table 2: Types of mamamarian disorders, diagnosis, and treatment

Breast disorder	Number	Median age (range)*	Diagnosis smear	Treatment
Nipple-areolar secretion	8	12,5 (10,5-14)	ultrasound for microbiology and cytology	No follow-up
Galactorrhea	3	14,5 (14-15)	of bean prolactin	Normal levels suspend causative medication cabergolins
Palpable nodule	33	15,5 (9-16)	ultrasound	I follow-up surgical excision/6 months
Mastitis	20	12,8 (9-16)	culture when nipple high ultrasound	broad-spectrum antibiotics for two weeks
Total	64	14(9-16)	Breast Diseases in Adolescents	English

Source:MICHALA (2014).

To evaluate a patient, the gold standard is the evaluation of a palpable lesion of the breast performed by the triad, which includes clinical examination, imaging (mammography, ultrasound, or both), and core biopsy or fine needle puncture. This triad is used because with it it is difficult not to have breast cancer screening. (YUE; SWINSON; RAVICHANDRAN, 2015).

Figure 5. Split-screen ultrasound obtained in a 31-year-old woman with focal breast thickening shows the uncompressed (NON COMP) fat lobe (short curved arrows) on the left screen compared to the same lobe in the compressed state (COMP) (long curved arrows) on the right screen; these findings suggest a type 5 tissue pattern and that there is no underlying isoechoic pathological process.



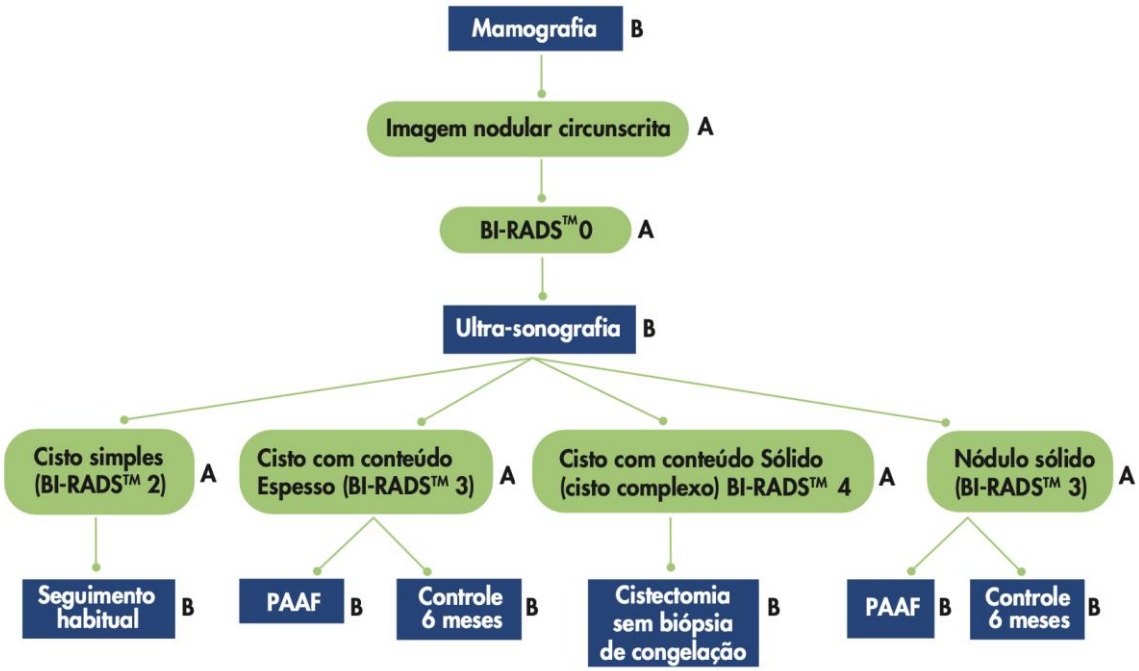
Source: DENNIS (2001).

Ultrasound is an alternative to fine needle aspiration because it is not invasive of a palpable mass to aid in the difference between a simple cyst and a solid mass, because ultrasound is 98 to 100% accurate in the diagnosis of simple cysts when made with strict criteria, just when a simple cyst appears on ultrasound the fine needle puncture is not performed (KERLIKOWSKE; *et al*, 2003).

A fine needle or ultrasound biopsies are used as the first test for the diagnosis of palpable breast masses, to differentiate simple cysts from solid masses. Mammography does not indicate whether a palpable mass should be biopsied or not. For this, we use the evaluation of the American College of Radiology (a society that describes bi-rads), and we compared the results of mammography with the five categories that this instrument predicts. These are negative, benign findings, probably benign findings, suspected abnormality, or highly suggestive of malignancy (KERLIKOWSKE; *et al*, 2003).

In Dennis's (2001) study, he suggests that breast biopsies can be avoided in women who have palpable abnormalities, and ultrasound and mammography show normal breast tissue.

Figure 6. Flowchart of conduct for benign non-palpable breast nodules.



Source: NAZÁRIO (2007).

In women who have basic "negative" evaluation, i.e., BI-RADS (which is a breast evaluation, and interpretation of imaging reports), BIRADS 1 or "benign finding", BIRADS 2, has a mammographic result of normality, and they are associated with a low risk of cancer. Thus, women with negative or benign evaluation should have routine screening mammography in 1 to 2 years. BI-RADS 3 or "probably benign finding" are associated with a slightly higher risk of breast cancer than negative or benign evaluations, but the risk of cancer is low. A repeated diagnostic breast examination with the lesion probably benign is

suggested at 6 months to determine whether the lesion is benign. After being repeated, it should be included in the radiologist's report whether the lesion progressed or remained stable. If the lesions have evolved, an immediate assessment should be made. In lesions that remained stable, they are usually benign, and thus, women can resume a regular screening interval (KERLIKOWSKE*; et al*, 2003).

In women under 30 years of age, it is recommended that you have an ultrasound, while for women over 30 years of age, mammography should be performed if there is BI-RADS 1 to 3 on mammography ultrasound can be performed together, and if they present inflammatory skin changes or suspicious changes, they should be investigated thoroughly. Because mammography has a higher accuracy than ultrasonography, painful breast nodules presented benign (55/81 [67.9%]) and malignant (4/81 [4.9%]) imaging findings (BROWN; *et al*, 2017).

If the supplied image presents a specific benign lesion, i.e., BIRADS 2, concomitantly with the clinical history and physical examination, follow-up should be based on your concern or risk factors (PEARLMAN; GRIFFIN, 2010). To perform the ultrasound, the patient is placed in the supine position, with her arms raised and hands behind her head, scans are done clockwise, and they are from the periphery to the center of the breast (PAULINELLI; *et al*, 2002).

An example of the above is the simple cyst that, for the most part, is benign and requires its withdrawal with aspiration, unless the patient feels uncomfortable, and if it is chosen to be done it can be guided by ultrasound or palpation. If the fluid is clear, green, or yellowish and the cyst disappears, it can be discarded. Otherwise, if it is bloody or the cyst does not disappear completely, then, it is indicated, a larger investigation such as image-guided aspiration, central biopsy, or cyst extraction, together with clinical follow-up of 3 to 6 months for 1 or 2 years to thus ensure stability (PEARLMAN; GRIFFIN, 2010).

If the image suggests that the palpable mass is a probable benign lesion, i.e., BI-RADS 3, thus decisions should be made with the patient because a biopsy is done or not because this lesion has less than a 2% chance of being malignant. But if the clinical examination is alarming for a malignant lesion, or even the findings on the image are not consistent with the clinical findings, it is essential to do the biopsy, together with repeated images every 6 months for two years to see if stability remained (PEARLMAN; GRIFFIN, 2010).

In BI-RADS lesions 4 and 5, biopsies will be performed by a large-caliber needle (which is the minimally invasive technique in which the histological sample is made for the necessary diagnosis) guided by: palpation or mammography, ultrasound, or magnetic resonance imaging. Magnetic resonance imaging is most commonly used because it has few complications and minimizes maternal alterations (PEARLMAN; GRIFFIN, 2010).

Mammography is used for non-palpable lesions, both for screening and for better diagnosing solid masses, bloodthirsty cystic fluid detected in GNA (fine needle aspiration puncture) or ultrasound, or complex cysts. Diagnostic mammography is usually performed after GNAB or ultrasound, as it cannot accurately differentiate a cyst from a solid mass, and if performed before and a non-calcified mass is

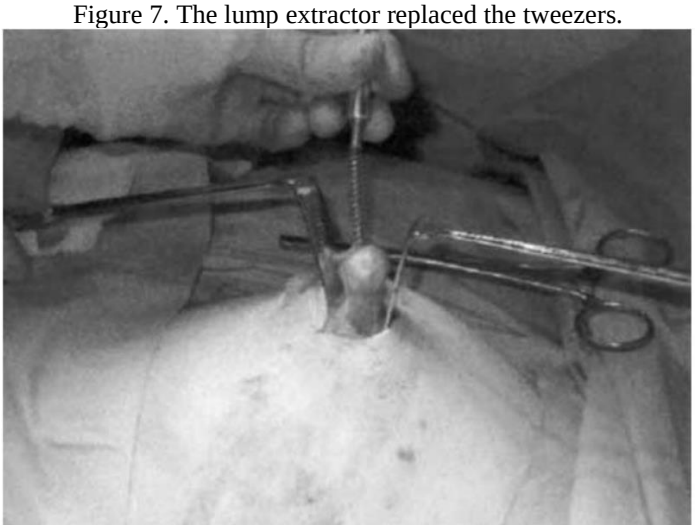
present, aNAB (fine needle aspiration puncture) or ultrasound will be necessary to determine whether the mass is solid or a cyst. Therefore, the previous performance will nullify the need for diagnostic mammography, in about 20 to 25% of women who have simple cysts, but can provide findings that have support for a malignant lesion and identify non-palpable lesions in any breast, and when necessary it can be performed after aNAB on the same day without interference in the interpretation of it. When there is a need to request diagnostic mammography, it should present the size and location of the mammary abnormality to be evaluated (KERLIKOWSKE; *et al*, 2003).

The fine needle aspiration puncture technique was described by Parsons (1983 *apud* BOWA; JEWEL; MUDENDA, 2008). The acceptance of this diagnostic technique for mammaries diseases is being established, according to SAINSBURY (1988), and has a high accuracy, 98-99%, in the diagnosis of malignant lesions. In this technique it is not necessary to use anesthesia, for this, the mass is maintained between the thumb and index finger, a needle of caliber 21 is used for external nodules, and a needle of caliber 23 for internal. The needle is attached to a 10 mL syringe and inserted into the nodule. It is necessary to suck, keeping the needle all the time in the patient's breast, this allows the detachment of the cells and thus the nodules are removed (BOWA; JEWEL; MUDENDA, 2008). To avoid discomfort and the costs of association with a percutaneous needle biopsy in young people under 25 years of age, fine needle aspiration puncture is limited to abnormal clinical or ultrasound examination. The exception to this limitation is when patients have a genetic susceptibility to breast cancer (YUE; SWINSON; RAVICHANDRAN; 2015).

3.7.1 New technique for diagnóstico

To be able to remove a nodule is often difficult to reach access, so it was used in the study of S. Shrotria (2001), a new instrument that has two parts: the central trocar and an external coil. This instrument was used in this study in 25 breast surgeries and was considered effective.

Figure 7. The lump extractor replaced the tweezers.



Source: SHROTRIA (2001).

3.8 AWARENESS OF PROFESSIONALS

There is a consensus among breast surgeons that some benign nodules disappear spontaneously. And by using severe clinical foundations, through cytology by biopsy, it is possible to accurately diagnose benign diseases in young women, in which breast cancer presents rarely (PFEIFFER; MCLOUGHLIN; DODSON,1989).

The American Cancer Society recommends that women take breast self-examination (BSE), as well as the National Health and Medical Research Council (NHMRC) in Australia and the Australian Cancer Society suggest that all women 25 years and older should be instructed about breast self-examination. Furthermore, these societies encourage physicians to teach patients to practice self-examination regularly. It was found that women who have already found breast nodules tend to be more concerned about breast cancer and seek more doctors than women who do not perform a self-examination. Thus, it is evidenced that women who self-evaluate have a higher chance of survival if this breast mass is cancer, because it may have been discovered early on (REDMAN; *et al*, 1990).

In this context, it is necessary to make clear to health professionals that they promote mentality in their patients (with posters, leaflets, and awareness in outpatient places teaching the necessary techniques) of the need for monthly breast self-examination (AEM). In this way, they can find breast masses and even detect breast cancer in advance (MANT, 1991). Corroborating this, in the United States trained nurses were able to detect palpable masses, making the screening test then a response to breast cancer screening (AT; 2017).

4 CONCLUSION

Up to 80% of all palpable masses in women are considered benign nodules, and fibroadenoma is more frequent and occurs in women 15 to 35 years of age. Risk factors linked to the development of breast cancer may be genetic or not. It is known that hormone therapy significantly increases the chances of breast cancer growth, but pregnancy acts as a protective barrier.

Symptoms of a probable diagnosis are characteristic and alarming, changing over time. Pain, presence of staining, and mamilar secretion are important clinical signs. Clinical evaluation and diagnosis are composed of the triad that examines the palpable lesion of the breast, composed of clinical examination, imaging examination (mammography, ultrasound, or both), and core biopsy or fine needle puncture.

Thus, it is noted that this triad is efficient for breast cancer screening because according to the analyzed articles, it was noticed that the earlier tracked and treated, the better the prognosis of the patient. However, if the diagnosis and treatment are late there will be aggravating consequences making the condition more aggressive. Among the history of symptoms analyzed, breast evaluation, and interpretation of imaging reports through BI-RADS, it is evaluated whether the nodule has characteristics of benignity or malignancy. And this can be correctly diagnosed and treated with the specific demands that each of these situations lacks.

It was possible to evaluate that adolescents have more fibroadenomas than older women because they have, but intraductal papilloma and ductal ectasia: pathologies in which these are associated with bloody breast secretions.

This review illustrates the reality of patients in the last 34 years, and also helps in the better quality of life for the local community and their families, who could not protect themselves from this disease, and the state that can decrease their capital invested in treatments if there is the early diagnosis made accurately and adequately.

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