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Breastfeeding adenoma in lactating mothers and management approaches

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Abstract

Breastfeeding adenoma represents the most common benign breast mass that occurs during pregnancy and lactation. As this period is characterized by significant morphological changes in the breast, the diagnosis and management of this condition often pose a significant challenge for healthcare providers. In this literature review, we will discuss the most contemporary data (from the last five years) regarding the diagnosis and, most importantly, the management of this condition in lactating mothers.

Keywords: Lactating Adenoma; Pregnancy; Breast; Breastfeeding

1. Introduction

Lactating adenoma (LA) is a benign breast mass and the most commonly occurring lesion in the breast during pregnancy and the lactation period of women. It is more frequently observed during a woman's third decade of life, and despite its name "lactating adenoma," it is particularly common during pregnancy [1]. Over 80% of soft tissue masses diagnosed in the breast during pregnancy and lactation are benign. However, the changes that occur in the breast during this specific period require special attention in both clinical and imaging examinations. These specific changes are due to increased levels of estrogen, progesterone, and prolactin, resulting in the development and enlargement of the milk ducts and glands, as well as an increase in the amount of stromal fatty tissue. Consequently, breast volume and density increase, making accurate clinical and imaging assessment more challenging [2].

Despite the ambiguity regarding its etiology, LA usually presents as a palpable, painless, mobile mass with well-defined borders. In rarer cases, it can be hard and tender due to tissue ischemia. Ultrasonography of soft tissues is the diagnostic method of choice, where LA appears as an oval-shaped mass with posterior acoustic enhancement, often with microlobulated characteristics. Fine-needle aspiration biopsy is a rapid and painless diagnostic method; however, the changes that occur in the mammary gland during this specific period can make histological diagnosis challenging, leading to false-positive diagnoses of malignancy in several cases [3].

In this systematic review of the literature, we will examine the most recent bibliographic data (from the last five years) related to the therapeutic management of lactating adenoma in lactating mothers.

2. Material and methods

The execution of this systematic review of the literature was based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) guidelines [4]. The databases used for the search included PubMed, Google Scholar, and the Cochrane Library, using search terms such as "lactating adenoma AND treatment" and, with no language

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restrictions and a time limit of the last five years (2015–2020). From this review, 10 published studies were selected, the details of which are summarized in Table 1. Flowchart of the literature review is presented in Figure 1.

Figure 1: Flowchart of the Literature Review

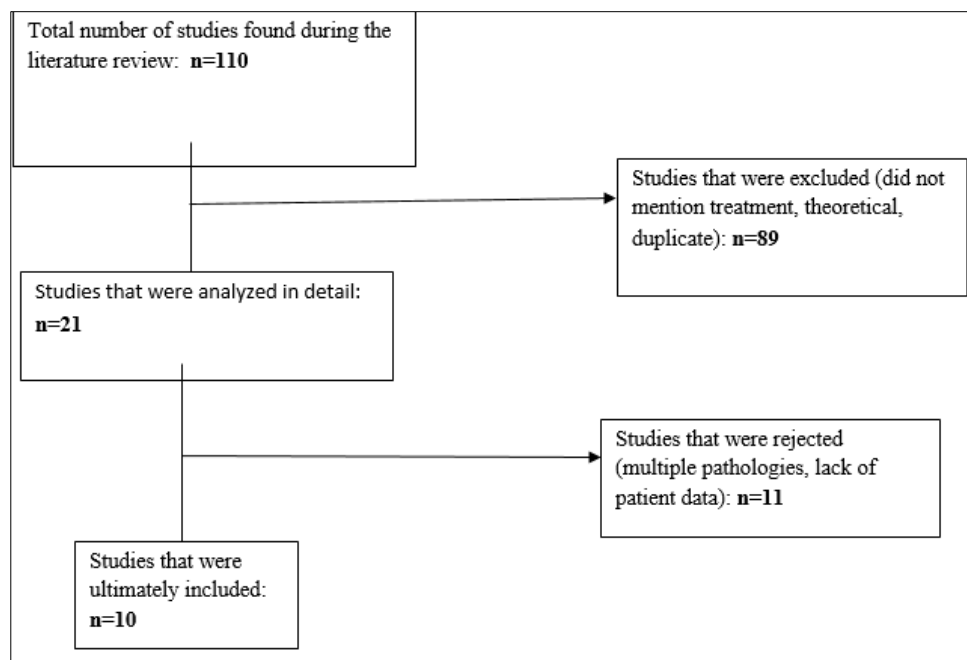


Figure 1 Flowchart of the Literature Review

Table 1 The summarized presentation of the systematic review studies

Published Study	Characteristics of Study	Study Results
Monib & Elkotery, 2020	Presentation of a case in a 32-year-old woman.	Mammary gland adenoma with a diameter of 130mm treated with surgical excision after childbirth.
Phung et al, 2020	Presentation of a case in a 25-year-old woman.	Soft tissue breast mass initially considered malignant, underwent surgical excision during pregnancy, with the final diagnosis being mammary gland adenoma.
Tran et al, 2019	Presentation of a case in a 16-year-old pregnant woman.	Adenoma of lactation with a diameter of 20 cm in the context of a tubular adenoma. Managed conservatively.
Mendez et al, 2019	Presentation of a case of a 25-year-old woman.	Multiple bilateral galactocele masses successfully treated with bromocriptine during the last trimester of pregnancy.
Mitchell et al, 2019	Clinical practice guidelines.	The management of galactocele is conservative, with regular monitoring. It usually resolves spontaneously.
Szabo et al, 2017	Presentation of a case of a 35-year-old woman.	Adenoma of lactation with a diameter of 15 cm "aggressively increasing in size," managed surgically after childbirth.
Mlees & Elsaka, 2017	Retrospective series study of 12 women (mean age 27 years) with lactation adenomas with a diameter > 5 cm.	Successful surgical treatment of lactation adenomas after childbirth. Mothers breastfed their infants from the very next day.

Teng & Diego, 2016	Presentation of a case of a 27-year-old woman.	Management with surgical excision of the galactocele, measuring 11 cm in diameter, at the 33rd week of pregnancy.
Lefere et al, 2015	Presentation of a case of a 22-year-old woman.	Presence of a galactocele coexisting with galactoceles. The galactocele resolved spontaneously after childbirth, while the galactoceles were treated with aspiration.
Olfatbakhsh et al, 2015	Retrospective series study of 22 women (mean age 27 years).	After childbirth, in 15 women, the LA spontaneously regressed. In 5 women, surgical excision was performed (and in one of these cases, the diagnosis of myeloid carcinoma was ultimately established).

3. Results and discussion

As evident from the data in Table 1, the majority of the published studies in the last five years are case reports, with very few retrospective studies. In 2015, Olfatbakhsh et al. published a retrospective case series of 22 cases. The average age of the women in this study was 27 years. The diagnosis of lactating adenomas (LA) was made during pregnancy in 8 cases and during lactation in the remaining 14. All diagnoses were based on ultrasound examination, with two of the cases undergoing needle biopsy. Initial management in all patients was conservative with regular follow-up. Complete resolution of the adenomas was observed in 15 cases after discontinuation of lactation, while the remaining 7 cases showed progressive enlargement of the soft masses and underwent surgical excision (two patients declined surgery). One of the surgically excised adenomas was diagnosed as myoepithelial carcinoma of the breast – patient with family history of breast neoplasms - and subsequently underwent partial mastectomy and axillary lymph node biopsy. The authors concluded that close monitoring of LA during the lactation period is necessary, and surgical excision should be considered in cases of progressive enlargement to rule out malignancy [5].

In the same year (2015), Lefere et al. reported an unusual case of a 22-year-old woman who presented with coexisting LA and galactoceles (a cyst or milk-filled cyst within the breast due to the blockage of one or more milk ducts) during lactation. Although one of the masses was rapidly increasing in size, raising suspicion of phyllodes tumor of the breast, ultrasound examination suggested lactating adenoma as the most likely diagnosis, which was confirmed by needle biopsy. After the cessation of lactation, the lactating adenoma spontaneously regressed, and aspiration of the galactoceles was performed [6].

In 2016, Teng & Diego described a rare case of a 27-year-old pregnant woman with a rapidly enlarging LA. A needle biopsy confirmed the diagnosis of LA, but due to the continued growth of the mass and associated symptoms (severe tenderness), surgical excision was chosen. The excised mass had a diameter of 11 cm, and histological examination confirmed the diagnosis of LA. The authors emphasized that close follow-up of the mass is the most appropriate therapeutic approach, as lactating adenomas usually regress spontaneously after lactation, except in rare cases where rapid enlargement and significant symptoms occur [7].

In 2017, Mlees & Elsaka published a retrospective study of a series of 12 women (average age of 27 years) who had large breast masses (average diameter of 12.6 cm) and significant symptoms. These symptoms included pain, tenderness, a feeling of heaviness, aesthetically displeasing breast appearance, as well as anxiety related to breastfeeding difficulties or the possibility of future malignancy. In all cases, surgical excision of the masses was performed under general anesthesia, with the women breastfeeding already from the next day and being discharged from the hospital 24 hours after the surgical procedure. The authors concluded that large LAs causing significant symptoms can be safely removed during lactation to exclude the possibility of malignancy, without causing any serious complications or interrupting breastfeeding [8].

In the same year, Szabo et al reported an unusual case of a large LA, measuring 15 cm in diameter, immediately after childbirth, which continued to grow throughout the pregnancy. Surgical excision performed two weeks after childbirth was successful without complications, and histological examination confirmed the absence of malignancy, allowing the patient to breastfeed immediately after surgery [9].

In 2019, Mitchell et al published clinical guidelines concerning the management of soft tissue breast masses in women during the lactation period. Regarding lactating adenomas, their recommendation is to confirm the diagnosis through needle biopsy, following ultrasound examination. The recommended approach is careful monitoring of the mass, as the majority of them regress immediately after breastfeeding [10]. In the same year, Mendez et al described a case of

multiple bilateral breast masses in a 25-year-old pregnant woman, successfully treated conservatively with bromocriptine during the third trimester of her pregnancy [11]. Bromocriptine is a dopamine antagonist that can be successfully used to regress large LAs, but it has the disadvantage of preventing breastfeeding during its administration [8].

In 2019, Tran et al reported the case of a 16-year-old girl who developed a 20 cm diameter LA during her pregnancy, located on a background of pre-existing fibroadenomatous changes in the breast. Surgical intervention was declined due to the patient's age and potential cosmetic implications, and it was decided to carefully monitor the mass after childbirth. Gradually, the mass regressed, resulting in a diameter of approximately 6 cm one year after childbirth, with the breast's appearance returning to nearly normal[12].

The most recent literature references were published in 2020: Phung et al described the case of a 25-year-old woman diagnosed with two large soft tissue breast masses (20 cm and 10 cm in diameter, respectively) during the 25th week of pregnancy, which were associated with protrusion and bleeding. Initially suspected as malignant, mastectomy was decided and performed, but the biopsy results confirmed lactating adenomas. The pregnancy progressed smoothly, and the patient gave birth without complications [13].

Finally, Monib & Elkotery reported the case of a 32-year-old woman who developed a large LA (13 cm) during pregnancy, on a background of pre-existing fibroadenomatous changes in the breast. Due to the large size of the mass and its atypical characteristics, surgical excision was decided and performed immediately after childbirth without complications [14].

4. Conclusion

Lactating adenoma is a benign mass, for which unfortunately, a specific cause has not been identified to date, nor clear treatment guidelines, apart from ultrasound examination. Needle biopsy can significantly assist in the diagnosis, especially in cases where there are breast tissue alterations. Monitoring the mass is the recommended approach by most practitioners, as it appears to regress automatically after the cessation of breastfeeding. An alternative medical treatment is the administration of bromocriptine, with the primary drawback being the discontinuation of breastfeeding. Surgical intervention is recommended in doubtful cases where malignancy cannot be ruled out, as well as in cases of aggressively and rapidly enlarging masses.

Compliance with ethical standards

Disclosure of conflict of interest

The authors have no relevant financial or non-financial interests to disclose.

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