



Case Report

Management of patient presenting with breast fibroadenoma and medullary thyroid cancer in a young male: A case report and review of the literature

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ABSTRACT

Introduction and importance: Fibroadenoma of the male breast is a rarely diagnosed lesion that often occurs concurrently with gynecomastia and the intake of medications that alter sex hormone levels. Herein, we report the first case of fibroadenoma of the male breast, presenting with medullary thyroid cancer. In addition, we reviewed the current management strategies for fibroadenoma of the male breast in the literature.

Case presentation: A 25-year-old male patient presented to our surgical unit with medullary thyroid cancer (MTC). The physical examination revealed an unnoticed lump in his left breast. We delayed the planned thyroid surgery to determine whether the breast mass was associated with metastasis from MTC. We performed pathological tests from excised breast mass and confirmed the diagnosis of fibroadenoma. After confirming the benign nature of the breast mass, the patient underwent total thyroidectomy with selective neck dissection for MTC.

Clinical discussion: Fibroadenoma of the male breast was diagnosed based on clinical presentation and histopathological findings. Fibroadenoma of the male breast is a rarely diagnosed lesion: and is often associated with gynecomastia and altered serum sex hormone level. The presentation of this case without those concurrences is even rarer, as revealed in our case. The management for suspected fibroadenoma of the male breast presented with MTC should include delaying the thyroid surgery to rule out the presence of malignancy and metastasis.

Conclusion: The finding indicates that fibroadenoma can be considered a differential diagnosis in the male breast even in the absence of those concurrences. The timely diagnosis and orderly management of fibroadenoma of the male breast and MTC could help to improve the patient outcome.

1. Introduction

Fibroadenoma is the most common type of benign breast tumor in women, especially at a young age, and it has variable degrees of epithelial and stromal cells hyperplasia [1,2]. Fibroadenoma of the male breast is a rare lesion, and only a few cases have been reported in the English literature so far [3]. The presence of lobules in the female breasts serves as a primary site of the development of fibroadenoma. However, the absence of this structure in the male breast is attributed to the rarity of fibroadenoma in men [4]. In the same way, the developmental mechanism of the fibroadenoma without those two conditions, in male breast is a matter of scrutiny. According to previous case reports, the clinical presentation of male breast fibroadenoma includes painless breast swelling. Moreover, the FNAC, radiological and histopathological

findings were consistent [3,4]. To our knowledge, fibroadenoma of the left breast in a young male with no concurrent disease has not been reported yet. Here, we present the first case of left breast fibroadenoma with medullary thyroid cancer.

This study was reported in line with SCARE 2020 criteria [5] and the Declaration of Helsinki Ethical Principles for Medical Research involving human subject's protocol and registered at www.researchregistry.com with the research registry UIN: research registry 7935.

2. Case presentation

A 25-year-old male patient was admitted to Wolkite university teaching hospital surgical ward with the diagnosis of medullary thyroid cancer (Fig. 1). The planned surgical procedures were total

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Fig. 1. Showed the presence of multi-nodular goiter due to medullary thyroid cancer.

thyroidectomy and selective neck dissection. On physical examination by a medical intern, an unnoticed lump was detected in his left breast. The patient neither gave much attention to his breast swelling nor informed the surgeon during pre-operative follow-up. On retrospective evaluation by the surgeon, the patient mentioned that he noticed the breast swelling two months ago before his presentation: The swelling has no association with pain or nipple discharge. Moreover, he had no family history of similar illness, medication intake, or medical illness other than medullary thyroid cancer. The patient was born uneventfully after a full-term normal vaginal pregnancy, attained sexual maturity at 16 years of age, and has never received sex rearrangement treatment. Physical examination revealed a smooth, firm, non-tender lump with a size of 4×3 cm at the center of his left breast. The lump was mobile, not fixed to the skin or underlying chest wall, and no palpable axillary lymphadenopathy. However, there were multiple right supraclavicular and cervical lymphadenopathies on the side of the right thyroid lobe diagnosed with MTC. There was no gynecomastia in both breasts, and the right breast was free of abnormality. He had well-developed male pattern external genitalia, and serum hormone profiles were in normal ranges. Breast ultrasonography revealed a round-shaped hypoechoic mass with a well-defined border measuring 4×3.4 cm in the center of the left breast. There is no ipsilateral axillary lymphadenopathy; the contralateral breast and axilla were normal sonographically.

We delayed the planned surgery for MTC to rule out the possible secondary metastasis to the breast from thyroid cancer. Fine-needle aspiration cytology (FNAC) of the breast lump showed tightly cohesive myoepithelial and epithelial clusters admixed with stromal fragments and scattered single bipolar nuclei in the background suggestive

of fibroadenoma. In such a way, we performed a nipple-sparing lumpectomy through a peri-areolar incision (Fig. 2A). Gross examination of the excised mass revealed a well-circumscribed, un-encapsulated, and firm, size of 4×3 cm in its greatest diameter excised from a sub-areolar region of the left breast (Fig. 2B).

On histopathological examination of the biopsy, interlobular stromal cell proliferation compressing bland bi-layered ducts was noted. There is no malignancy sign, and the final diagnosis was a fibroadenoma (Fig. 3A and B). After confirming the benign nature of the breast mass, we performed a total thyroidectomy with level II-VII selective neck dissection. The postoperative outcome was uneventful, and the patient is on outpatient follow-up.

3. Discussion

Fibroadenoma of the male breast is a rarely diagnosed lesion, and only 17 cases of this disorder have been reported in the English literature so far as shown in Table 1 [6–21]. Gynecomastia is the most common benign disorder in the male breast [22–24]. This disorder has high concurrence with male fibroadenomas [6–8].

Fibroadenoma of the male breast was also reported in male-to-female transgender patients or patients receiving estrogen therapy for a medical condition such as prostate carcinoma [9–16]. Hence, disclosing these histories in a male patient suspected of having such rare cases is helpful. Generally, fibroadenoma, without gynecomastia, hormonal treatment, and normal hormone levels in males are extremely rare. In the same way, this case report is also the first fibroadenoma of the male breast with medullary thyroid cancer. To the best of our search, this coincidence is the first in both male and female patients. We recommend future studies to investigate similar coexistence and the relation between this rare case and MTC.

Even though the shorter duration of the swelling of the breast mass in our case, using ultrasound [25] and FNAC as diagnostic tools [26], we found reports suggestive of fibroadenoma similar to the prior studies. Therefore, it is always good to have a high index of suspicion to consider fibroadenoma for these kinds of presentations regardless of its rarity in a male breast. According to the study by Agarwal et al. [17], excision could help reduce complex emotional distress and improve the quality of a patient's life (QOL). The surgical management depends on the coexisted concurrent disease and the patient emotional state. Therefore, we performed an excisional biopsy of the breast mass. And the histopathological examination of excised mass confirms the diagnosis of this rare case.

The strength of our case report might be we confirm the lesion by using both FNAC and excisional biopsy. This case report analyzes a fibroadenoma that presents without gynecomastia and altered sex hormone levels, and the findings of the study will provide an insight for

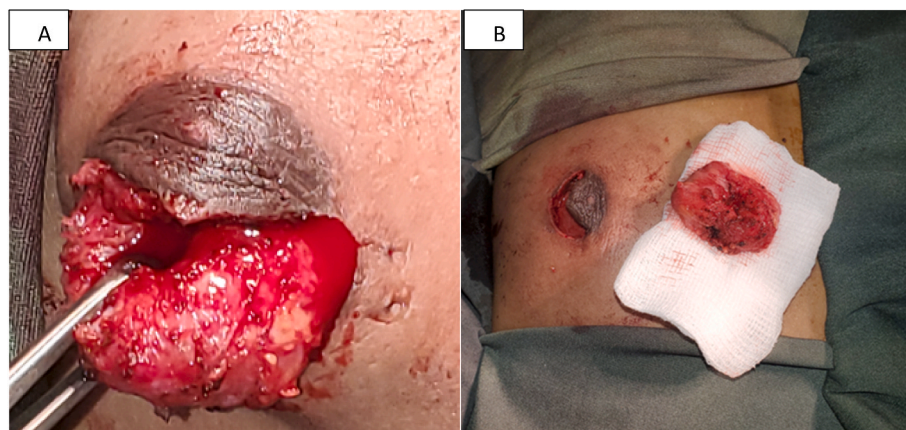


Fig. 2. Showed a nipple-sparing lumpectomy performed through a peri-areolar incision (2A) and excised mass (2B).

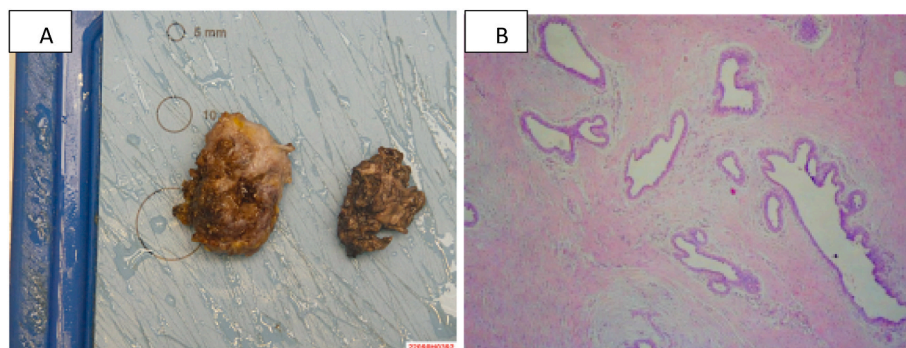


Fig. 3. Excisional biopsy shows the gross appearance of resected specimen (3A) and interlobular stromal cell proliferation compressing bland bi-layered ducts (3B) suggestive of fibroadenoma.

Table 1

Reported cases of fibroadenoma in male patients.

First author	Year reported	Age(y)	Comorbidities	Hormone therapy (Or other drugs)
Present case	2022	25	MTC	No
Morikawa ⁶	2021	27	None	No
Vanden Berge ⁹	2020	0	None	No
Faria ¹⁸	2019	43	Transgender	Yes
Iqbal ⁷	2019	25	None	No
Agarwal ¹⁷	2016	18–23 (Not specified)	None	No
Goyal ¹⁰	2015	23	None	No
Ashutosh ¹¹	2013	72	Prostate carcinoma	Yes
Gupta ¹⁹	2012	75	Prostate carcinoma	Yes
Adibelli ¹²	2010	68	Rectal carcinoma, polyposis coli	No
Shin ¹³	2007	66	Prostate carcinoma	Yes
Lemmo ²⁰	2003	35	Transgender	Yes
Davis ¹⁴	2001	19	Complete androgen insensitivity syndrome	No
Kanhai ¹⁵	1999	22	Transgender	Yes
Soomro ⁸	1996	73	Prostatic carcinoma	Yes
Uchida ¹⁶	1992	40	None	No
Nielsen ²¹	1990	69	Heart failure	Spironolactone

clinicians and the scientific world working in surgical practice.

However, this study is limited to images containing intraoperative and histopathological evidence of the MTC.

4. Conclusion

Fibroadenoma in the male breast can happen even without gynecomastia and exogenous drugs that change serum sex hormones. The occurrence of this lesion can affect emotional states in males, and excision of the lesion would be able to improve their quality of life.

Provenance and peer review

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Ethical approval

Ethical approval was exempted.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

MW, AB, YN wrote the reports and significantly contributed to literature review; TT, DR contributed to review and editing the manuscript. All authors equally contributed to the article and approved the submitted version.

Registration of research studies

1. Name of the registry: [ClinicalTrials.gov](https://clinicaltrials.gov)
2. Unique Identifying number or registration ID: UIN: research registry 7935.
3. Hyperlink to your specific registration (must be publicly accessible and will be checked): www.researchregistry.com

Guarantor

Dereje Zewdu.

Declaration of competing interest

This is no conflict of interest to declare.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2022.104298>.

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