INTRODUCTION

Fibroadenoma is the most common type of benign breast tumor in women, especially at a young age. Fibroadenomas have both epithelial and stromal components. In general, varying degrees of epithelial hyperplasia are frequently observed. Fibroadenoma rarely occurs in the male breast; approximately only 15 cases of fibroadenoma have been reported in males, most of which were reportedly derived from gynecomastia. Here, we present the case of a young adult male patient with fibroadenoma of the right breast.

CASE PRESENTATION

A 27-year-old male patient who had been aware of a slowly growing mass in the right breast for approximately ten years was referred to our outpatient department. The patient had no medical history, was healthy, and was taking no medications at the time. The patient developed normal secondary sexual characteristics, and his serum hormone profile was normal. Physical examination revealed diffuse gynecomastia in the right breast, and a lobulated elastic firm lump measuring 4 × 2 cm in size was palpated in the lower inner quadrant of the right breast. The lump was mobile and not fixed to the skin or underlying fascia. No palpable axillary or supraclavicular lymphadenopathy was observed. No abnormal findings were recorded in the left breast.

Breast ultrasonography revealed diffuse thickening of the right mammary gland. An oval-shaped hypoechoic mass with a well-defined border measuring 41 × 12 mm in size was found in the lower inner quadrant of the right breast (Figure 1A). Chest computed tomography showed diffuse...
swelling of the right breast, suggestive of gynecomastia and a lobulated nodule with gradual contrast enhancement in the lower inner quadrant of the right breast (Figure 1B). Fine-needle aspiration cytology showed a biphasic population composed of spindle stromal cells and ductal cells (Figure 1C). Naked nuclei, myoepithelial cells, and apocrine metaplastic cells were also observed. Based on these findings, the lump was considered to be a fibroadenoma.

As the swelling of the breast impaired the patient’s body image, he had been very concerned about it. Hence, he requested resection of the mass together with the surrounding mammary gland, and we performed a nipple-sparing mastectomy through a periareolar incision (Figure 2). Gross examination revealed a well-circumscribed, unencapsulated, multilobulated nodule measuring 3.2 cm in its greatest diameter. The cut surface showed a gray-white solid nodule in the thickened mammary gland (Figure 3A). Histopathological examination revealed an unencapsulated tumor delimited from the surrounding breast tissue, and proliferation of both glandular and stromal elements was observed, which was compatible with fibroadenoma (Figure 3B). A marked increase in fibrosis in the interstitium and hyalinization was observed in the background mammary gland tissue. These findings were consistent with those of intermediate gynecomastia. The patient was healthy with no evidence of local recurrence after 2 years of follow-up and was satisfied with the appearance of the right breast. Written informed consent was obtained from the patient for publication of this report and the accompanying images.

3 | DISCUSSION

Fibroadenomas in the male breast are rare. Historically, some pathologists were skeptical of the existence of
male fibroadenoma and considered that the reported male fibroadenomas were nodular foci of gynecomastia.² There appears to have been approximately only 15 cases of male fibroadenoma reported in the English literature to date (Table 1).³–¹⁵ It has been suggested that proliferative changes in the male breast, such as gynecomastia and fibroepithelial lesions, are caused by hormonal imbalances or medications not primarily intended to target the breast. Fibroadenomas are known to have both estrogen and progesterone receptors,¹¹ and most of the reported male fibroadenomas have occurred in male-to-female transgender patients or patients receiving estrogen therapy for a medical condition such as prostate carcinoma.¹⁰,¹¹,¹⁷ Thus, fibroadenomas in men without hormone treatment or with normal hormone levels are extremely rare.

However, Agarwal et al.⁵ reported three cases of idiopathic fibroadenomas occurring in healthy young males that increased in size over a couple of years, which were similar to our present case. The current reported case is considered an idiopathic fibroadenoma that occurred in a healthy young male adult; however, the duration of illness

**TABLE 1** Reported cases of fibroadenoma in male patients

| First author | Year reported | Age (y) | Comorbidities | Hormone therapy (or other drugs) |
|--------------|---------------|---------|---------------|---------------------------------|
| Present case | 2021          | 27      | None          | No                              |
| Van den Berge³ | 2020      | 0       | None          | No                              |
| Faria⁴       | 2019          | 43      | Transgender   | Yes                             |
| Agarwal⁵     | 2016          | 18–23 (Not specified) | None          | No                              |
| Agarwal⁵     | 2016          | 18–23 (Not specified) | None          | No                              |
| Goyal⁶       | 2015          | 23      | None          | No                              |
| Ashutosh⁷    | 2013          | 72      | Prostate carcinoma | Yes                          |
| Gupta⁸       | 2011          | 75      | Prostate carcinoma | Yes                          |
| Adibelli⁹    | 2010          | 68      | Rectal carcinoma, polyposis coli | No                          |
| Shin¹⁰       | 2007          | 66      | Prostate carcinoma | Yes                          |
| Lemmo¹¹      | 2003          | 35      | Transgender   | Yes                             |
| Davis¹²      | 2001          | 19      | Complete androgen insensitivity syndrome | No                          |
| Kanhai¹³     | 1999          | 22      | Transgender   | Yes                             |
| Uchida¹⁴     | 1992          | 40      | None          | No                              |
| Nielsen¹⁵    | 1990          | 69      | Heart failure | Spironolactone                  |
was longer than that in cases reported by Agarwal et al. Although the etiology of fibroadenoma in this patient was unclear, it is possible that he had considered the breast swelling after puberty, which is experienced by more than half of boys as a normal occurrence, as the onset of fibroadenoma.

It has been reported that the most common male breast mass is gynecomastia, followed by lipoma and epidermal inclusion cysts. If no mass is detected by diagnostic imaging, the lesion is considered gynecomastia. However, gynecomastia is sometimes caused by hormone-producing tumors such as Sertoli-Leydig testicular tumors and functional adrenal cortical tumors, liver disease, or genetic disorders such as Klinefelter syndrome, we should proceed with the examination keeping these diseases in mind. If a mass is detected, we should carefully investigate the possibility of breast cancer, especially for a painless subareolar mass, which is the condition in the present case. Although the prevalence of male fibroadenoma is very low, it should still be considered as a differential diagnosis when a mass is seen in the male breast.

In the present case, the patient requested resection of the tumor and the enlarged mammary glands because they have impaired his body image since adolescence. As a result, performing the resection resulted in an apparent improvement in the quality of life (QOL) of the patient. In conclusion, it should be noted that swelling of the breast due to benign disease can cause a complex emotional distress in men, and surgical resection of the benign breast lesion would be able to improve their QOL.

ACKNOWLEDGEMENTS
We would like to thank Editage (www.editage.jp) for English language editing.

CONFLICT OF INTEREST
The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS
All authors, except TU, were involved in the management during the clinical course. HM and TK performed the operation. TU performed the pathological diagnosis. HM and KI contributed to drafting the manuscript. All authors have read and approved the final manuscript.

ETHICAL APPROVAL
Not applicable.

CONSENT
Written informed consent was obtained from the patient for publication of this case report and the accompanying images.

DATA AVAILABILITY STATEMENT
Please contact the author for data requests.

ORCID
Ken-ichi Ito https://orcid.org/0000-0002-6430-0307

REFERENCES
1. Harris JR, Lippman ME, Morrow M, Osborne CK. Disease of the Breast, 5th ed. Philadelphia, USA: Lippincott Williams & Wilkins; 2014.
2. Holleb AI, Freeman HP, Farrow JH. Cancer of male breast. II. N Y State J Med. 1968;68(5):656-663.
3. Van den Berge S, Keupers M, Breysem L. Juvenile fibroadenoma in a four-month-old male infant. J Belg Soc Radiol. 2020;104(1):42. doi:10.5334/jbr.2155
4. de Faria LL, Brasil ST, Endo E, Chala L, Shimizu C, de Barros N. Breast fibroadenoma in transgender woman. Breast J. 2020;26(2):293-294. doi:10.1111/tbj.13548
5. Agarwal P, Kohli G. Fibroadenoma in the male breast: truth or Myth? Ulas Cerrahi Derg. 2015;32(3):208-211. Published 2015 Sep 1. doi:10.5152/UCD.2015.3120
6. Goyal S, Goyal A, Trikha A. Fibroadenoma in male breast: case report and review. Clin Cancer Investig J. 2015;4(2):220-222.
7. Ashutosh N, Virendra K, Attri PC, Arati S. Giant male fibroadenoma: a rare benign lesion. Indian J Surg. 2013;75(Suppl 1):353-355. doi:10.1007/s12262-012-0566-9
8. Gupta P, Foshee S, Garcia-Moraes F, Gray T. Fibroadenoma in male breast: case report and literature review. Breast Dis. 2011;33(1):45-48. doi:10.3233/BD-2010-0320
9. Adibelli ZH, Yildirim M, Ozan E, Oztekin O, Kucukuzeybek B. Fibroadenoma of the breast in a man associated with adenocarcinoma of the rectum and polyposis coli. JBR-BTR. 2010;93(1):12-14. doi:10.5334/jbr-btr.29
10. Shin SJ, Rosen PP. Bilateral presentation of fibroadenoma with digital fibroma-like inclusions in the male breast. Arch Pathol Lab Med. 2007;131(7):1126-1129. doi:10.5858/2007-131-1126-BPOFWD
11. Lemmo G, Garcea N, Corsello S, et al. Breast fibroadenoma in a male-to-female transsexual patient after hormonal treatment. Eur J Surg Suppl. 2003;588:69-71.
12. Davis SE, Wallace AM. A 19 year old with complete androgen insensitivity syndrome and juvenile fibroadenoma of the breast. Breast. 2001;7(6):430-433. doi:10.1046/j.1524-4741.2001.07610.x
13. Khnaih RC, Hage JJ, Bloemaen E, van Diest PJ, Karim RB. Mammary fibroadenoma in a male-to-female transsexual. Histopathology. 1999;35(2):183-185. doi:10.1046/j.1365-2559.1999.0744c.x
14. Uchida T, Ishii M, Motomiya Y. Fibroadenoma associated with gynecomastia in an adult man. Case report. Scand J Plast Reconstr Surg Hand Surg. 1993;27(4):327-329.
15. Nielsen BB. Fibroadenomatosid hyperplasia of the male breast. Am J Surg Pathol. 1990;14(8):774-777. doi:10.1097/00000478-199008000-00009
16. Hoda SA, Rosen PP, Brogi E, Koerner FC. Rosen’s Breast Pathology, 5th ed. Philadelphia, USA: Lippincott Williams and Wilkins; 2020.
17. Chen L, Chantra PK, Larsen LH, et al. Imaging characteristics of malignant lesions of the male breast. Radiographics. 2006;26(4):993-1006. doi:10.1148/rg.264055116
18. Weinstein SP, Conant EF, Orel SG, Zuckerman JA, Bellah R. Spectrum of US findings in pediatric and adolescent patients with palpable breast masses. *Radiographics*. 2000;20(6):1613-1621. doi:10.1148/radiographics.20.6.g00nv091613

19. Yitta S, Singer CI, Toth HB, Mercado CL. Image presentation. Sonographic appearances of benign and malignant male breast disease with mammographic and pathologic correlation. *J Ultrasound Med*. 2010;29(6):931-947. doi:10.7863/jum.2010.29.6.931

20. Stavros AT ed. Evaluation of the male breast. *Breast Ultrasound*. Philadelphia, USA: Lippincott Williams & Wilkins; 2004:712-714.

**How to cite this article:** Morikawa H, Nobuoka M, Amitani M, et al. Fibroadenoma in a young male breast: A case report and review of the literature. *Clin Case Rep*. 2021;9:e05114. doi:10.1002/ccr3.5114