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Recurrent multiple fibroadenomas: History of a case presented in MDT meeting with clinical discussion and decision making

Negar Mashoori[a], Abdolali Assarian[a], Sanaz Zand[b], Erica Patocskai*[c]

[a] *Department of Surgery, Tehran University of Medical Sciences, Tehran, Iran*
[b] *Department of Research, Kaviani Breast Diseases Institute, Tehran, Iran*
[c] *Department of Surgical Oncology, Université de Montréal, Montreal, QC, Canada*

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ABSTRACT

Background: Fibroadenoma is a common benign breast disorder in young women which has a low risk of malignant transformation. Most fibroadenomas present as a single mass, but the presence of multiple fibroadenomas can be seen in 15–20% of patients, with average number of 3–4 masses in one breast. In different studies and reports, various treatment modalities-including observation and follow up, surgery, radiofrequency ablation, etc- have been proposed, though the best management for these patients are not determined yet.

Case presentation: We present the case of 33-year-old female with history of multiple bilateral benign breast lesions with a presumptive diagnosis of fibroadenomas. She had three previous surgical excisions in the past 14 years. Her case was presented to a breast MDT meeting to obtain a recommendation on appropriate management.

Question: The proposed a question in MDT concerned the best and most appropriate management plan for the patient; Does she require further surgical excisions? And if not, how should she be followed?

Conclusion: After reviewing past medical history, physical examination, and all documents regarding the patient, MDT members recommended that the patient should be managed with close follow up with physical examination and ultrasound every 6 months. The necessity of further surgical intervention would be determined according to any new findings.

Introduction

Fibroadenoma is a common benign breast disorder occurring in almost 20% of women. It mostly occurs in women of child-bearing age, especially those under 30.[1-3] The risk of malignant transformation is very low in fibroadenomas; but epithelial hyperplasia, atypical hyperplasia (0.81%), invasive and insitu ductal and lobular carcinoma has been seen rarely in fibroadenomas.[1-3] Patients with strong positive family history of breast cancer and complex fibroadenomas need greater attention, as the risk of malignant transformation is higher in these subgroups of patients.[3]

Ultrasound is a reliable diagnostic test for fibroadenomas. Generally, when clinical and ultrasound features are consistent with diagnosis of fibroadenoma, no tissue biopsy is needed and it is managed either conservatively or excised;[1, 3] but if there is no certainty, biopsy -often core needle biopsy- is helpful in making definite diagnosis. Fibroadenomas are often managed by observation with clinical control and imaging (usually ultrasound), or surgical excision according to the size and features of the lesion and its risk of malignant transformation, and patient characteristics and preferences.[4]

When considering a patient with presumed fibroadenoma based on clinical and imaging findings, one important thing to deal with is how to accurately differentiate it from phyllodes tumor. Phyllodes tumor

Address for correspondence:
Erica Patoscki, M.D.
Address: CHUM Hospital, 850 saint Denis St., Montreal, H2X 0A4, Canada
Tel: +1 514 890 8000
Email: erica.patocskai@ssss.gouv.qc.ca

of the breast is an uncommon fibroepithelial neoplasm which is classified into benign, borderline, and malignant types according to histologic features.[5] Although in some studies special features of imaging modalities (like size, shape, and margin of the mass in mammography; size, shape, margin, echo pattern, and vascularization of the mass in ultrasound; internal cystic areas on MRI) are reported to be helpful to ascertain imaging-histological concordance and guide clinicians to make appropriate decisions about correct follow-up or the necessity of biopsy or excision, differentiating fibroadenoma from phyllodes tumor based on clinical, radiologic and even pathologic findings is not always easy.[5,6]

Most fibroadenomas present as a single mass, but the presence of multiple fibroadenomas can be seen in 15–20% of patients. Average number of masses in cases of multiple fibroadenomas has been reported to be 3–4 in one breast, and occurrence of more than five fibroadenomas is reported to be much less common.[2] Unlike women with a single fibroadenoma, most of the patients with multiple fibroadenomas have a strong family history of these lesions.[2] The etiology of this entity has not been clearly known yet. Possibilities like taking oral contraceptive pills, imbalance of estrogen levels in the body, hypersensitivity of local breast tissue to estrogen, dietary factors, or inherited predisposition has been proposed in different studies.[7]

Patients with multiple fibroadenomas usually undergo several diagnostic imaging, tissue biopsies and surgical excisions during their life, all showing same benign results. Therefore, this disorder poses a conundrum for the surgeon, as it is difficult to avoid unnecessary imaging and procedures while not missing any malignant lesions. In different studies and reports, various treatment modalities -including observation and follow up, surgery, radiofrequency ablation, …- have been proposed, though the best management for these patients has not been determined yet.

Herein, the medical records of a 33-year old woman discussed in Multidisciplinary Team Discussion (MDT), is presented. The patient had the history of multiple bilateral benign type breast lesions in favor of fibroadenoma and three previous excisions during the past 14 years. She was suffering from the recurrence of lesions in the same area of the breast, as well as the other quadrants of both breasts. The medical records of the patient are presented in MDT session for clinical discussion and decision making concerning appropriate management.

Case presentation

A 33-year-old female was referred to our breast clinic with complaint of multiple bilateral breast masses for the past 14 years. She had no positive family history of breast or ovarian cancer, she was married and nulliparous. In her physical examination a 25mm mobile mass was palpated in UIQ of the right breast. She had undergone multiple previous imaging tests (including 6 ultrasound exams and two breast MRIs). All the imaging modalities reported multiple benign looking masses in both breasts. She had three surgical excisions, two with pathology of fibroadenoma, and the last one (which had been done 2 years before the current presentation) with pathology of benign fibroepithelial lesion reported to be benign phyllodes tumor in pathology review. On her recent ultrasound, multiple hypoechoic lesions with benign features in both breasts was reported, five masses in the left breast (the biggest one 20 mm in 7 o'clock), and three in the right (the biggest one was 21mm in 1 o'clock). The report of core needle biopsy for the recent lesions in both sides was compatible with fibroadenoma. She did not take oral contraceptive pills or any other medications. Her menstrual cycles were regular and there were no findings on gynecologic exam. The patient's history was presented in multidisciplinary team meeting of breast unit in the surgery department, Tehran University of medical sciences to decide appropriate management.

Question

The proposed question was about the most appropriate management for the patient as the further step: Does she need further surgical excisions? And if not, how should she be followed up?

Discussion

Fibroadenoma is a common benign breast disorder mostly seen in young women under 30. They rarely progress into malignant lesions.[1-3] There are several treatment options for fibroadenomas including observation with clinical and imaging control and surgery.[4] It is postulated that fibroadenomas may be safely followed, if volume growth rate is less than 16% in those younger than 50 years and less than 13% per month in those 50 years or older. A mean size change of 20% for a 6-month interval reported to be acceptable for all ages.[8] It was concluded that non-operative management of fibroadenomas seems to be safe.[9, 10] Surgical resection is another effective and appropriate treatment, but the permanent surgical scar can cause psychological issues for the patients, especially younger ones.[1] The surgical treatment of choice for fibroadenoma is breast lumpectomy, however, multiple fibroadenomas may pose a particular challenge.[2] Other proposed treatments include minimally invasive treatment such as vacuum assisted breast biopsy applied for mass resection and thermal ablation treatment with radiofrequency ablation (RFA), microwave ablation, and laser ablation.[1]

Most fibroadenomas present as a single mass; however, the presence of multiple fibroadenomas can be seen in 15–20% of patients, with average

number of 3-4 masses in each breast.[2] The best management for patients with multiple fibroadenomas is not determined yet. Most patients undergo several imaging and diagnostic procedures, as well as surgical excisions during their life which causes psychologic and cosmetic distress for them. In different studies and reports, various treatment modalities have been proposed for this group of patients.

Pasta et al. have reported a case of a 22-year-old woman undergone surgical treatment many times to remove multiple mammary fibroadenomas. They proposed that the periodic radiological exams would be the proper management, and the surgical treatment should be reserved only for rapidly growing lesions.[11] Based on natural history of fibroadenomas, the method of observation, follow-up and implementing surgical resection only under certain conditions -such as large tumor size and inability to rule out malignancy- has been claimed to be the most common advice in other studies.[1,12]

As mentioned above, the treatment of choice for fibroadenoma is the surgical excision, but multiple fibroadenomas may pose a particular challenge and necessitate more extensive surgeries e.g. oncoplastic techniques for reconstruction of the breast shape. In one study by Camara *et al.*, Riberi technique of reduction mammaplasty modified by Rezai was used for selective resection of more than seventy fibroadenomas on two patients. In this technique, remodeling of the breast like a mastopexy through the inferior pedicle technique was done. The authors concluded that multiple fibroadenomas of the breast can be removed safely with these techniques.[4] In another study by Lai HW *et al.*, 20 patients with multiple fibroadenomas (average number of 3.3 masses in each patient) underwent surgical excision with round block technique; they reported low complications rate and good aesthetic results and concluded that the round block technique is a useful oncoplastic procedure for the management of multicentric fibroadenomas excised at the same time.[13]

The effect of some new non-surgical techniques in treatment of multiple fibroadenomas has been investigated in some studies. In one report by Povoski, a female patient with 16 breast lesions (eight within each breast), presumed on ultrasound to be fibroadenomas, underwent ultrasound-guided vacuum-assisted breast biopsy of 14 of these 16 lesions during a total of 11 separate procedures performed during seven separate sessions over a ten and fifteen days. The patient discontinued taking OCP after the third treatment session. In addition, two of these 16 breast lesions were removed by surgical excision. A pathologic diagnosis of fibroadenoma and/or fibroadenomatosis was confirmed for all lesions. The rate of recurrence in this study was extremely low; with an interval follow-up ultrasound at least 8 months following treatment, showing the absence of any residual lesions or recurrences at the site of the 16 original breast lesions. The authors finally concluded that this approach is highly recommended in similar appropriately selected patients.[14]

In another study by Li *et al.* the safety and efficacy of ultrasound (US)-guided percutaneous radiofrequency ablation (RFA) for multiple breast fibroadenomas was evaluated. Sixty-five patients with multiple breast fibroadenomas underwent US-guided percutaneous RFA under general anesthesia. Contrast-enhanced US (CEUS) was used immediately after operation to determine whether the tumor was ablated completely or not. The complete ablation rate (CAR) and the change of focal volume were evaluated by CEUS at the first and third months after operation. The number of lesions in all patients was reported as high as 256 nodules. Complete ablation was achieved for 251 nodules (98.04%) after the first month. The volume reduction rate was 39.06% and 75.99% at the first and the third month after operation, respectively, of which 45 nodules were completely absorbed (17.58%). The authors reported no complications such as skin burns, hemorrhage, hematoma, or nipple discharge during and after RFA. They concluded that regarding the advantages of high CAR, mild injury, rapid recovery, and cosmetic outcome, RFA has the potential to become the preferred method in the treatment of breast fibroadenoma, especially for multiple fibroadenomas.[1]

In a study by Dhar *et al.* the effect of Centchroman (Ormeloxifene) -a novel non-steroidal selective antiestrogen- on the treatment of mastalgia and fibroadenoma was evaluated. Sixty patients with mastalgia or breast fibroadenoma (42 and 18 patients, respectively) who were 35 years old and younger were included in this study. They received centchroman 30 mg on alternate days for 3 months and were followed up for 6 months. Results of clinical examination, visual analog scale (VAS) for pain relief, and ultrasonography for the size of breast mass were recorded. Fibroadenoma size ranged from 1.5 to 5 cm, single or multiple in one or both breasts. In the fibroadenoma group, there was a mixed response, with complete disappearance in 40%, partial regression in 20%, and no response in the remaining 40%. There were very few side effects. The authors concluded that Centchroman is safe for the treatment of fibroadenoma.[7]

In conclusion, management of multiple fibroadenomas can be a complicated clinical situation especially for recurrent lesion, and there is no universal consensus about the best management yet. More prospective investigation is needed to reach a standard management plan. It seems that consideration of history, physical examination, imaging and any previous pathologies of each patient and making decision individually, probably with help

of a MDT discussions, is the best option for now.

Recommendation

The patient history, imagings, and pathologic reports was presented to MDT. The imaging and pathology reports was reviewed by two other pathologists and radiologists. According to the expert opinion of the breast radiologists, all masses seen in the last ultrasound and MRI were looking to be benign and neither malignant features nor significant changes in the recent masses were found in the follow up MRI and Ultrasonography exams. After review of all documents, MDT members recommended thet close follow up could be continued by means of physical examination and ultrasound every 6 months. The necessity of further surgery would be determined according to the possible new findings or mass enlargements in the future.

Ethical Consideration

Medical ethics considerations were fully observed according to the protocol delivered by ethics committee of surgery department at Tehran University of Medical Sciences (TUMS).

Conflict of Interest

The authors declare that they have no conflict of interest.

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