Bilateral juvenile fibroadenosis of the breast: management with subcutaneous mastectomy and silicone implant placement

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Summary

Bilateral fibroadenosis is a rare, benign disorder, affecting adolescents or women of childbearing age. Choosing the most optimal therapy that manages both the physical and psychological aspects of the disease is a challenge. The goals of the treatment are complete resection of the lesions with optimal cosmesis. Options range from cryoablation, ultrasound-guided vacuum-assisted eradication and simple excision of the lesions to subcutaneous mastectomy with reconstruction. We present a case of a 25-year-old woman with 37 complex fibroadenomas affecting both breasts who was treated with nipple-sparing subcutaneous mastectomy and silicone implant reconstruction to both the surgeons' and patient's satisfaction.

Key words: Multiple juvenile fibroadenomas; Fibroadenosis; Subcutaneous mastectomy; Silicone implant.

Introduction

Fibroadenomas are the most common fibroepithelial benign lesions of the breast affecting adolescent girls and young women, with an incidence of 7-13% in this age group [1-3]. Generally, the tumor presents as a round, elastic, nodular, nontender palpable mass, measuring up to 3 cm in diameter [2]. Fibroadenomas can be solitary or multiplex, sub-classified as simplex (80%) and complex (20%), respectively, or histologically classified as intra- and pericanalicular, depending on the relative amount of epithelial and stromal tissue present [2, 3]. The epithelial elements of a fibroadenoma can exhibit a spectrum of proliferative lesions [2, 4]. Usually the diagnosis is made clinically, based on physical and ultrasound examination, and confirmed by core biopsy [3]. The decision to perform a biopsy of the lesion is based on the Breast Imaging-Reporting and Data System (BI-RADS) criteria of the American College of Radiology [3]. The risk of malignant transformation to any fibroadenoma is low (0.0125-0.3%), with approximately 100 cases reported in the literature [2, 5]. Fibroadenomas are believed to be stimulated by estrogen and progesterone, pregnancy or lactation, and then to regress, lose their cellularity and become smaller in menopause. In young patients with histologically proven fibroadenomas, the current management tends to be more conservative, with a recommendation of 6-month sonographic surveillance [4]. The invasive principles are in situ cryoablation (in lesions < 4 cm), percutaneous ultrasound-guided vacuum-assisted eradication and local excision of the lesion through a circumareolar or inframammary incision [1-7].

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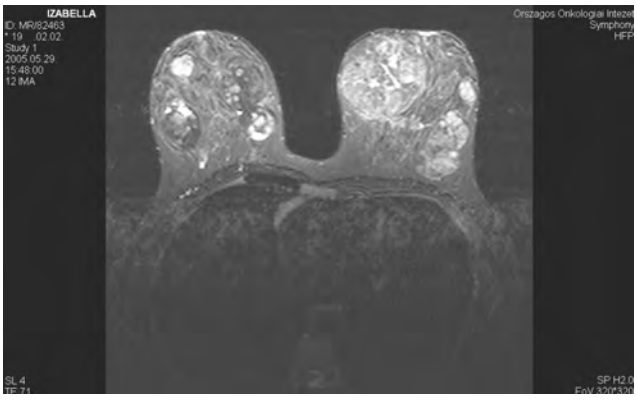
In 5-10% of all adolescent fibroadenomas, the uncommon juvenile, or giant variant is present, characterized by a diameter larger than 5 cm, rapid enlargement, or a weight greater than 500 g [1, 2, 5]. Up to 25% of these patients have multiple bilateral tumors. The etiology is believed to be tissue hypersensitivity to normal levels of estrogen [4, 6]. The involved breast is enlarged with prominent superficial veins, stretched, and has an enlarged areola. Juvenile fibroadenomas usually harbor one or more complex features, including epithelial calcifications, papillary apocrine metaplasia, sclerosing adenosis, and cysts [2, 3, 5]. Dupont et al. found that the cumulative risk of breast carcinoma in females with complex fibroadenomas was 3.1-3.72 times that of women in the general population [3]. Despite the benign behavior of these lesions, their large size and multiple and bilateral presentation can cause physical deformity, discomfort or emotional distress for the patient and a challenge for the surgeon both in diagnosis and in selection of the best therapy [3, 5]. Treatment is usually surgical and ranges from simple excision to subcutaneous mastectomy with reconstruction [5-7].

Case Report

A 25-year-old nulliparous woman was admitted to our surgical department in February 2005 with multiple, bilateral, firm, well-circumscribed, mobile masses in the breasts. The diameter of the lesions varied between 1-8 cm, occupying the entire breast. Some of the larger lesions caused deforming skin protuberances. There was no palpable regional lymphadenopathy. Ultrasonography of the breasts revealed several bilateral, round, circumscribed, hypoechoic lesions, ranging in size from 0.5 to 7 cm in diameter. Sonography-guided core biopsies of a couple

Fig. 1a



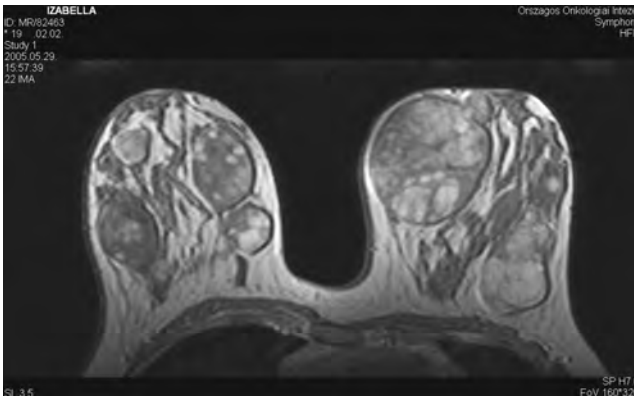
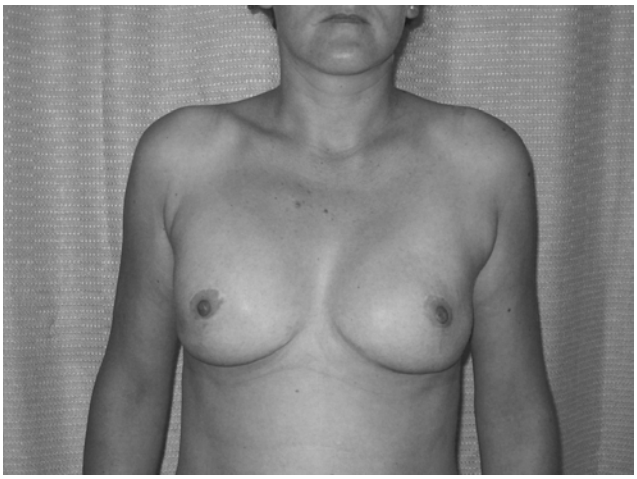


Fig. 1b

Fig. 2a



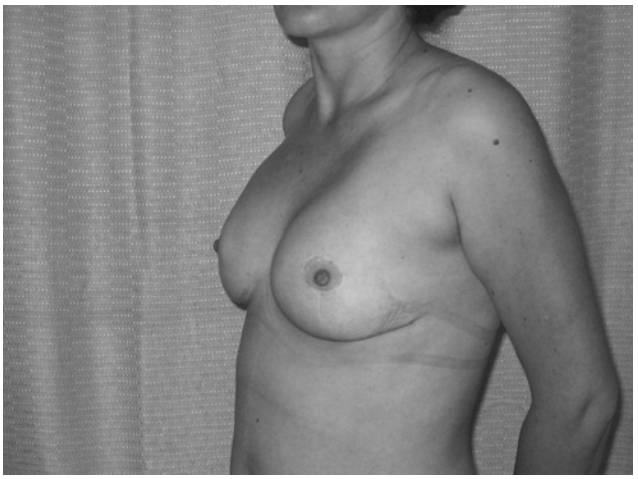


Fig. 2b

Fig. 3

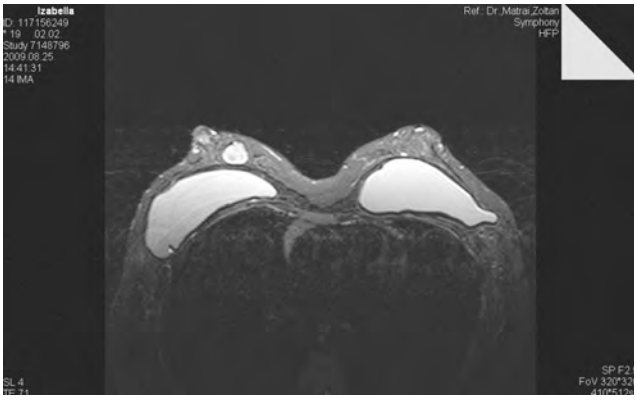


Figure 1. — a/b: Preoperative MR images of the breasts: the morphologic features of most of the fibroadenomas were generally similar, consisting of smooth margins and round or lobulated shape. Inner septations with heterogeneous structures have been found in a marked part of the tumors, making the accurate differentiation of phyllodes tumors or even of malignant neoplasms impossible.

Figure 2. — a/b: Excellent cosmetic result after reconstruction.

Figure 3. — A control MR image made during the 30th month of follow-up, after performing bilateral subcutaneous mastectomy and submuscular placement of silicone implants. A recurrent fibroadenoma (20 mm in diameter) in the minimal remnant of the retroareolar gland in the right breast was confirmed by FNA.

of the largest lesions of both sides confirmed benign juvenile fibroadenomas. According to the patient, the first lesion was palpated at the age of 17. The patient also reported being on hormonal contraception for the previous two years, during which she reported rapid tumor progression. Hormonal assays were normal, as was sonography of the lesser pelvis. Magnetic resonance (MR) imaging ultimately identified a total of 34 separate breast lesions, consisting of 19 in the right and 15 in the left breast, with a range of 5 to 77 mm in diameter (Figure 1 a/b).

The patient was highly anxious and concerned about the possibility of diagnostic inaccuracy, progression of the proliferative lesions and probable cosmesis resulting from the surgical removal of the lesions. A multidisciplinary consultation of the institutional breast oncology board, involving plastic surgeons and a psychiatrist, recommended bilateral subcutaneous nipple-sparing mastectomy and reconstruction with implants. The decision for this major procedure, in accordance with the expectations of the patient, was confirmed by the following: (i) breast tissue might be replaced by the lesions, (ii) optimal oncological solution and accurate histopathological investigation of each lesion can be provided with the minimalization of recurrence, (iii) the disease is managed both oncologically and cosmetically within a short time without multiple subsequent admissions, and (iv) optimal cosmesis can be achieved. In February 2006, bilateral subcutaneous mastectomy was performed. The pathological investigation revealed simple and complex juvenile fibroadenomas in all 37 lesions, without any malignancies. Two months later, cohesive textured-surface silicone implants (McGhan Style 410ML 220 g) were placed submuscularly with superior pedicle vertical scar mammaplasty, resulting in excel-

lent cosmesis (Figure 2 a/b). During the 43 months of MR controlled follow-up, one recurrent core biopsy proved fibroadenoma was detected, originating in the minimal remnant retroareolar gland of the right breast (Figure 3). The lesion is being observed every six months by sonography. Until the last medical check-up the long-term results of implant reconstruction were associated with high patient satisfaction, and absence of any signs of capsular contracture.

Discussion

Bilateral breast fibroadenosis has been related to familial (Carney complex) and hormonal factors (the effect of oral contraception is still a matter of debate), as well as an association with the use of cyclosporin A in female renal graft recipients [1, 5]. Since there are no definite clinical or radiological criteria to differentiate fibroadenomas from phyllodes tumors or carcinoma (especially mucinous carcinoma) developing in a fibroadenoma, histopathological examination of all fibroadenomas should be routinely performed [2]. The goals of treating fibroadenosis are the complete resection of the lesions and a symmetrical cosmetic result [1, 2, 5]. Different approaches to tumor excision and subsequent breast reconstruction have been described [1-7]. The successful use of ultrasound-guided, vacuum-assisted breast biopsy technology (Mammotome system, Ethicon Endo-Surgery, Inc., Cincinnati, OH) for the eradication of small-volume bilateral fibroadenomas was reported [7]. Beyond a certain total volume of a solitary giant or multiple fibroadenomas, enucleation alone is inadequate, and additional reconstructive techniques are necessary for a symmetrical result [2]. According to this principle, a reduction mammaplasty would appear to be the ideal solution if there is sufficient uninvolved parenchyma and the tumors can be completely excised [1, 5]. Successfully treated cases of bilateral fibroadenosis were reported using reduction mammaplasty with the McKissock, Wise or Rezai modified Ribeiro technique [1, 5]. A disadvantage of these techniques is the possible novel formation of fibroadenomas in the remaining breast tissue [2, 3, 5, 7]. For selected patients with bilateral fibroadenosis, the major procedure of subcutaneous nipple-sparing mastectomy with expander-to-implant reconstruction may be the procedure of choice, minimalizing the risk of recurrence, reducing scars and diminishing the need for multiple subsequent admissions that would be a burden, both physically and psychologically, to the young patient [1, 5]. The loss of the potential to breastfeed in these women of childbearing age should be assessed by the surgeon for careful consideration of therapeutic options [2, 3, 6].

Conclusions

Although juvenile bilateral fibroadenosis is a benign disorder, choosing the most optimal therapy, which treats both the physical and psychological aspects of the disease at a young age, is a challenge. To achieve an optimal solution, a multidisciplinary consultation, strict clinical surveillance and the education of the patient and family are mandatory.

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