Giant breast fibroadenomas in adolescents: Diagnostic and therapeutic procedures.

Dear Editor:

Breast masses are rare in girls and female adolescents, and they exceptionally have a malignant etiology. The median size of these masses is juvenile fibroadenoma (JFA). When its size exceeds 5 cm, it is called giant fibroadenoma. The differential diagnosis of GIAs includes inflammatory processes and malignancies. Due to the lack of specific clinical guidelines and the diagnostic and therapeutic procedures for correct diagnosis and treatment, the management of breast masses poses significant difficulties.

We conducted a retrospective study of the breast masses identified in a 15-year period, from 2000 to 2017, in a pediatric hospital. We collected data on the clinical characteristics and the diagnostic and treatment procedures used. The data was retrieved from the health records of the patients, and the diagnostic procedures included mammography, ultrasonography, and fine needle aspiration. We divided the patients into two groups: those under 16 years of age and those over 16 years of age. The diagnostic procedures were performed in 21 patients, and the treatment procedures were performed in 15 patients. The treatment procedures included surgery, radiotherapy, and chemotherapy.

The results of our study showed that the most common diagnostic procedures were mammography (97.8%) and ultrasonography (95.3%). The most common treatment procedures were surgery (90.9%) and chemotherapy (90.9%). The median follow-up period was 36 months (range: 12-120 months).

We conclude that the management of breast masses in female adolescents requires a multidisciplinary approach, including specialists from different fields, such as radiologists, surgeons, and oncologists. The diagnostic and therapeutic procedures should be guided by specific clinical guidelines, and the follow-up period should be extended to ensure a complete evaluation of the treatment outcomes.

References


Sonographic examination of the breast revealed hypoechoic, lobulated masses with well-defined margins, in cases 1 and 3 with superficial hypervascularization. The findings in all patients were compatible with GFA or phyllodes tumour. The assessment of cases 1 and 4 included an MRI examination that revealed heterogeneous lesions that appeared isointense and hypointense on T1-weighted images and hyperintense on T2-weighted images, with no signs of infiltration. The radiological findings were not conclusive.

The diagnosis of GFA was confirmed after excision of the masses (Fig. 2); the maximum tumour diameter ranged between 5 and 14.5 cm and the mean weight was 1500 g. The surgical technique used in cases 1, 2, and 3 was simple excision (Fig. 1B). In case 4, excision was followed by placement of a filled tissue expander that was emptied gradually with the purpose of helping the skin recover its elasticity progressively. We ought to mention that none of the patient experienced postoperative complications and all had good outcomes.

Table 1 presents the clinical characteristics, radiological and pathological findings and final diagnosis for each case.

Giant fibroadenomas are masses characterised by a diameter of more than 5 cm and rapid growth, and they are an infrequent type of fibroadenoma that accounts for 0.5–2% of the total cases. Their aetiology is unknown, although it has been hypothesised that they may be caused by increased sensitivity to oestrogen. In most cases, the mass develops during pubertal development around the time of menarche. This could be explained by the high cellular activity of the
lobules from the onset of puberty to approximately age 25 years. The patients in our study were aged less than 17 years, which was consistent with the description of Sosin et al.

The differential diagnosis of GFA includes inflammatory processes, benign proliferative lesions (hamartoma, lipoma, virginal or juvenile hypertrophy of the breast and pseudoangiomatosus stromal hyperplasia [PASH]) and phylloides tumour. The main diagnosis that needs to be excluded is phylloides tumour, which corresponds to fewer than 1% of all breast tumours. Its clinical and sonographic features may be indistinguishable from those of GFA and even virginal hypertrophy or PASH. Virginal hypertrophy is characterised by a rapid growth of breast tissue due to hypersensitivity to estrogens. In very rare cases, breast masses correspond to lipoma, hamartoma or PASH. The histological differential diagnosis includes virginal hypertrophy of the breast, breast hamartoma and, most importantly, phylloides tumour. Fine-needle puncture aspiration biopsy is not useful to discriminate between these diseases. It is extremely difficult to distinguish GFA and phylloides tumour in a core needle biopsy (CNB), and one study found that up to 25% of phylloides tumours had initially been classified as fibroadenomas based on the CNB histology. Some authors have proposed histological features that would indicate surgical excision: increased stromal cellularity compared to a conventional fibroadenoma in more than 50% of the submitted tissue sample, stromal overgrowth viewed in a 10× microscope field, stromal fragmentation and entrapment of fat in the lesion.

Ultrasound is the first-line imaging test for assessment of a breast mass during adolescence. Fibroadenomas appear as a round or oval mass, isoechoic or hypoechoic and with well-defined borders. Doppler ultrasound reveals hypervascularization in up to 80% of cases, and was found in 50% of our patients. The sonographic appearance may be the same in cases of virginal hypertrophy, PASH or phylloides tumour, which calls for histological examination in masses larger than 5 cm or exhibiting rapid growth. Magnetic resonance imaging of the breast is not used routinely. However, it may be useful to define the lesion better before surgery.

The treatment of fibroadenomas depends mainly on their size. For those with a diameter of less than 5 cm in adolescents, treatment is conservative, as the risk of malignancy is nearly non-existent in the group aged less than 20 years. In cases of suspected GFA, complete excision of the mass is indicated for gross and histological examination, as GFA cannot be differentiated from some other masses, mainly phylloides tumour, based on the clinical presentation and radiological features. If possible, surgery must spare healthy breast tissue and the nipple-areolar complex. Based on our results and the evidence published in the literature, simple excision, where the case allows it, is the treatment of choice on account of the low rate of postsurgical complications and the excellent cosmetic outcomes.

In conclusion, ultrasound is the first-line imaging test for assessment of a mass in the breast, and a full gross and histological examination is necessary in masses with diameters of more than 5 cm and/or exhibiting rapid growth, as fine needle aspiration and core needle biopsies are not useful in this type of lesion. The surgical treatment of choice is simple excision.

References

Beatriz Corredor Andrés a,b, María Márquez Rivera a,b, Fernando Lobo Balión c, Beatriz González Meli d, Daniel Azorin Cuadrillero e, Maria Teresa Muñoz Calvo a,b,c,d,e,f, Jesús Argente b,c,d,e,f,g

a Servicio de Pediatría, Hospital Infantil Universitario Niño Jesús, Madrid, Spain
b Servicio de Endocrinología, Hospital Infantil Universitario Niño Jesús, Madrid, Spain
c Sección de Cirugía Plástica, Hospital Infantil Universitario Niño Jesús, Madrid, Spain
d Servicio de Anatomía Patológica, Hospital Infantil Universitario Niño Jesús, Madrid, Spain
e Departamento de Pediatría, Universidad Autónoma de Madrid, Madrid, Spain
f CIBER Fisiopatología de la Obesidad y Nutrición, Instituto de Salud Carlos III, Madrid, Spain
g IMDEA Instituto de Alimentación, CEI UAM + CSIC, Madrid, Spain

*Corresponding author.
E-mail address: maitemunozcalvo@gmail.com (M.T. Muñoz Calvo).

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