The management of breast masses is challenging due to the lack of diagnostic criteria and the diversity of potential diagnoses. We present a series of 4 cases of macromastia in patients with a mean age of 15.3 years (range 11.9-16.2), all undergone surgery.

Each case. The data were retrieved from the health records and the diagnostic tests and treatment used in each case. The results were compared to the literature.

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Each case. The data were retrieved from the health records and the diagnostic tests and treatment used in each case. The results were compared to the literature.
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.

<table>
<thead>
<tr>
<th>Case</th>
<th>Race</th>
<th>Age (years)</th>
<th>Time elapsed from onset (months)</th>
<th>Localisation</th>
<th>Suspected diagnosis after ultrasound</th>
<th>Diagnosis after FNAB/CNB</th>
<th>Excisional biopsy</th>
<th>Final diagnosis after analysis of specimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Caucasian</td>
<td>11.9</td>
<td>7</td>
<td>Unilateral</td>
<td>GFA/phyllodes tumour</td>
<td>FNAB/GFA</td>
<td>Simple excision</td>
<td>14.5 x 11.5 x 7 GFA</td>
</tr>
<tr>
<td>2</td>
<td>Caucasian</td>
<td>16.2</td>
<td>Not documented</td>
<td>Unilateral</td>
<td>GFA/phyllodes tumour</td>
<td>FNAB/GFA</td>
<td>Simple excision</td>
<td>5 x 4 x 2 GFA</td>
</tr>
<tr>
<td>3</td>
<td>Caucasian</td>
<td>14.9</td>
<td>1</td>
<td>Unilateral</td>
<td>GF A/phyllodes tumour</td>
<td>FNAB/GFA</td>
<td>Simple excision</td>
<td>10 x 8 x 5 GFA</td>
</tr>
<tr>
<td>4</td>
<td>Black</td>
<td>15.7</td>
<td>24</td>
<td>Unilateral</td>
<td>GFA/phyllodes tumour</td>
<td>FNAB/GFA</td>
<td>Simple excision</td>
<td>12 x 10 x 3 GFA</td>
</tr>
</tbody>
</table>

Figure 2 (A) Histological examination in case 3. Fibroepithelial proliferation with areas of pericanalicular and intracanalicular growth. No evidence of marked stromal growth, fat infiltration or cleft-like spaces. (B) Detail of Fig. 2A (H&E stain, 4×), showing a mildly hyperplastic epithelium and a stroma without cytological atypia or mitotic activity.
lobules from the onset of puberty to approximately age 25 years.\textsuperscript{4,5} The patients in our study were aged less than 17 years, which was consistent with the description of Sosin et al.\textsuperscript{2}

The differential diagnosis of GFA includes inflammatory processes, benign proliferative lesions (hamartoma, lipoma, virginal or juvenile hypertrophy of the breast and pseudoangiomatous stromal hyperplasia [PASH]) and phyllodes tumour.\textsuperscript{2,3} The main diagnosis that needs to be excluded is phyllodes 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.\textsuperscript{5} In very rare cases, breast masses correspond to lipoma, hamartoma or PASH.\textsuperscript{4,6} The histological differential diagnosis includes virginal hypertrophy of the breast, breast hamartoma and, most importantly, phyllodes tumour. Fine-needle puncture aspiration biopsy is not useful to discriminate between these diseases. It is extremely difficult to distinguish GFA and phyllodes tumour in a core needle biopsy (CNB), and one study found that up to 25% of phyllodes tumours had initially been classified as fibroadenomas based on the CNB histology.\textsuperscript{7} 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× microscopic field, stromal fragmentation and entrapment of fat in the lesion.\textsuperscript{8}

Ultrasound is the first-line imaging test for assessment of a breast mass during adolescence. Fibroadenomas appear as a round or oval mass, isoechogenic 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 phyllodes tumour, which calls for histological examination in masses larger than 5 cm or exhibiting rapid growth.\textsuperscript{7,8} Magnetic resonance imaging of the breast is not used routinely. However, it may be useful to define the lesion better before surgery.\textsuperscript{7}

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 phyllodes tumour, based on the clinical presentation and radiological features.\textsuperscript{9}

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.\textsuperscript{10}

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


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