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Macromastia in Adolescent Girls

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Macromastia has been defined as enlargement of the breast at which 50% of normal women experience discomfort from the weight of their breasts, which usually occurs when the breast weight exceeds 600 g(1). To differentiate macromastia from moderate to minimal breast enlargement, diagnostic criteria have included in addition, the overlying

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skin being stretched to cause ulceration(2). Macromastia is classified into pubertal, that seen in pregnancy, in adult women without obvious cause, associated with penicillamine therapy, and finally, associated with extreme obesity(3).

The cause for macromastia has been attributed to abnormal tissue sensitivity to normal circulating levels of steroid hormones(2-4). Essentially, the breast loses its ability to stop responding to normal endocrine signals that .promote pubertal breast development; if the loss of this ability occurs early in the embryonic stage, it leads to bilateral breast hypertrophy; if the loss is only segmental, giant adolescent fibroadenosis results(5). Fibroadenosis, gynecomastia and virginal hypertrophy were considered to represent different phases of the same pathological process(6).

Macromastia is an uncommon condition seen in pubertal girls and women, in contrast to fibroadenomatosis, which was the commonest surgically treated breast lesion between puberty and age 20 years(7).

We report three adolescent girls who presented to us with macromastia, or abnormal hypertrophy of the breasts.

Case Reports

Case 1: A 12-year-old girl presented with increase in size of both breasts for five years. She attained menarche two years ago, and had regular cyclic periods. Breasts were enlarged, ptoic and areola was excessively stretched. She had Tanner Stage III pubic hair; bilateral iris web was present. Hormonal assays done in the early follicular phase showed prolactin of 530 miu/ml [N=90-600 miu/ml], estradiol 100 pg/ml [N=60-200 pg/ml], progesterone 1 ng/ml [N=0.3-2 ng/ml]. Bilateral breast reduction by Strombeck procedure was done, with inferior pedicle. She was put on medroxyprogesterone acetate 7.5 mg/day postoperatively. On follow up for 18 months till now there has not been recurrence of significant breast hypertrophy.

Case 2: An 18-year-old woman presented with two year history of insidious increase in size of both breasts. She had menarche two years earlier, and her cycles were regular. On examination multiple large discrete masses were palpable in both breasts [R>L], and a clinical diagnosis of multiple fibroadenomas was made. Following Strombeck procedure, with bipedicle flaps for areola, total excision of multiple fibroadenomas was performed; the total mass of the excised tissue was 3 Kg. At 12 months of follow'up there has not been a recurrence of breast enlargement.

Case 3: A 16-year-old girl developed bilateral enlargement of breasts two years ago, at the time of menarche. She had irregular periods (once in 45-60 days). She was mentally retarded, with thick skin, broad short thumb and prognathism. Hormonal assays done in the early follicular phase showed prolactin 300 miu/ml [N=90-600 miu/ml], luteinizing hormone 7 miu/ml and follicular stimulating hormone <0.05 miu/ml. Ultrasonography demonstrated a unilocular thin walled right adnexal cyst measuring 9 cm by 6.5 cm. Left ovary was 3 cm by 1.9 cm. We explained the nature of the condition and the rationale and possible prognosis of intervention—

surgical and medical. Her parents decided to bring her for follow up without immediate intervention. She has been on follow up for two years, and there has been neither significant enlargement nor regression of the breast size.

Discussion

Our first patient had. pubertal macromastia, the second, multiple fibroadenomatoses and the third, macromastia associated with obesity and mental retardation.

A logical question that arises is whether the second patient with multiple fibroadenomatoses should be classified as having macromastia. There are two ways of looking at it: published reports have not stated that the definition of macromastia should exclude other pathological conditions which can give rise to massively enlarged breasts; future definition of macromastia may, therefore have to specifically exclude other causes of breast enlargement such as fibroadenomatoses. Or alternatively, both macromastia and fibroadenomatoses, which have been thought of as belonging to the same spectrum(6), can probably be clubbed, if the clinical definition is met.

Clinical features of macromastia arise from the weight of the breasts, as in all our patients; in addition, grooving of shoulders (94%), mental worry (85%), back pain (64%), breast pain (33%) and submammary intertrigo (33%) can all occur. The enlargement may be sudden and massive. Psychological reaction to this abnormal growth is often seen in young girls, as in our patients, who may refuse to go to school and want to stay back at home(8). The parents of the girls were also concerned about this abnormal size. Besides, special clothes may have to be tailored to accommodate the abnormal growth. In addition, postural defects may also occur due to the heavy breasts(8).

Laboratory tests are often inconclusive and seldom demonstrate any abnormality to explain the breast hypertrophy in these patients(8).

Differential diagnosis consists of inflammatory conditions of the breast, cystosarcoma phylloides, lymphoma, sarcoma and carcinoma(2).

Macromastia is managed by surgical reconstruction or removal of the breast, manipulation of endocrine milieu by exogenous hormones, or a combination(5). We employed a combination in the first patient, and surgery in the second.

Reduction mammoplasty is indicated to reduce physical discomfort, and for cosmetic reasons. It is however, only a temporary measure. Any remaining breast tissue has the potential for continued growth. Recurrence following mammoplasty without hormonal therapy is well described(2,5). To prevent recurrence, medroxyprogesterone acetate has been used. It is a substitute for the endogenous hormone, but does not elicit hypertrophy of breast cells(5).

In summary, three patients came to us with macromastia in adolescence. There was no significant alteration in conventional serum hormones to account for the hypertrophy. Surgery, a combination of surgery and progesterone, and observation without active intervention were employed in management.

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