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Childhood gynecomastia: a clinical analysis of 240 cases

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Abstract: Two hundred forty cases of childhood gynecomastia were studied retrospectively. There were 13 cases aged 3 to 10 years and 227 cases aged 11 to 15 years. Of the 240 cases of gynecomastia, 160 presented with bilateral breast enlargement, 50, left breast enlargement, and 30, right breast enlargement. The etiology of gynecomastia of the 240 patients included adolescent breast hyperplasia ($n = 219$), drug ingestion ($n = 2$), and secondary causes ($n = 5$). Fourteen patients did not show identifiable causes and were diagnosed as idiopathic gynecomastia. The 8 patients with identifiable causes received specific treatment. After 1-3 months of treatment, the breasts of the patients improved. The 219 cases of adolescent breast hyperplasia and 14 cases of idiopathic gynecomastia were not given any medication. They were followed up regularly. Most of the patients recovered well within a 27-month follow-up.

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Key words: Gynecomastia; Breast; Child

男性儿童乳房发育症 240 例临床分析

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[摘要] 该文回顾性地分析了 240 例男性儿童乳房发育症的临床资料。其中 3~10 岁 13 例, 11~15 岁 227 例。双侧乳房增大者 160 例, 左侧乳房增大者 50 例, 右侧乳房增大者 30 例。240 例男性儿童乳房发育症的病因包括青春期的乳腺增生($n = 219$)、误服避孕药($n = 2$)、继发于其他疾病($n = 5$), 14 例无明确的原因, 诊断为男性儿童特发性乳房发育症。7 例病因明确者予病因治疗。1~3 个月后, 患儿乳房均有不同程度的缩小。其他病例未予任何药物治疗, 定期随访, 27 个月内绝大多数病例增大的乳房均消退。

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[关键词] 男性乳房发育症; 乳房; 儿童

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Gynecomastia is a common clinical problem. About 50% of cases of gynecomastia are physiological gynecomastia, connected with the neonatal period, puberty or aging. However, gynecomastia can also be a symptom of a serious disease^[1]. In recent years, the number of children visiting the clinics due to gynecomastia is growing. Reports about the etiology, diagnosis and treatment of gynecomastia are relatively inadequate. We present our retrospective study of 240 male children presented with gynecomastia from January 2004 to January 2006.

Methods

From January 2004 to January 2006, 240 male children with gynecomastia visited our endocrinology clinic. Their ages ranged from 3 to 15 years old. There were 13 cases (5.4%) aged 3 to 10 years and 227 (94.6%) aged 11 to 15 years. Out of the 240 cases of gynecomastia, 160 (66.7%) presented with bilateral breast enlargement, 50 (20.8%) with left breast, and 30 (12.5%) with right breast enlargement. Two hundred patients were in the Tanner stage 2, and 40 in the

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Tanner stage 3. The clinical courses of diseases varied from 2 days to 1 month. The breast tissues presented with diffused hyperplasia and hypertrophy, and an unclear galactophore border in 70 cases. The other 170 cases belonged to limited nodular gynecomastia. The nodular hyperplasia of the breast tissue was palpable beneath the areola, with a clear boarder with surrounding tissues and without adhesion, in these patients. Fifty cases of diffuse type gynecomastia and 110 cases of limited nodular type gynecomastia had breast pain or tenderness.

None of the 240 children had a family history of gynecomastia. Their height, weight, length of the penis, and testis volume were taken; and intravenous blood for sex hormone levels, as well as thyroid, liver and kidney functions; ultrasonography of the adrenals, testicles and breasts; together with magnetic resonance (MR) imaging examinations of hypothalamus, pituitary; and a karyotype analysis. After all the above examinations, the patients with fatty breast enlargement, secondary breast disease and testicular diseases were excluded from this study.

Results

Etiology

Of the 13 cases aged 3-10 years, 2 patients ingested contraceptives, 11 causes did not shov identifiable causes and were considered idiopathic gynecomastia. Among the 227 cases aged 10-15 years, 219 cases with testicular volume ≥ 4 mL were diagnosed as adolescent breast hyperplasia; 2 patients had symptoms like sweating, hyperphagia and weight loss, with mild thyroid enlargement, increased free triiodothyronine (FT3) and thyroxine (FT4) level, decreased thyrotropin-stimulating hormone (TSH) level, and were considered as hyperthyroidism; 1 patient was diagnosed as hypothyroidism, presenting with short stature, rough skin, dry stool, increased serum TSH, and decreased FT3 and FT4 levels; 1 case was diagnosed as Klinefelter syndrome, whose karyotype was 47, XXY, with short penis and testicle; 1 case was diagnosed as pituitary tumor; 3 patients had the testicular volume of less than 4 mL but the cause was unknown, and they were considered idiopathic gynecomastia. See Table 1.

Treatment and outcome

The patients with identifiable causes received the appropriate treatment. Two hyperthyroidism cases were administered with tapazole. The patient with hypothyroidism received Levothyroxine treatment. The patient with pituitary tumor was administered orally with bro-

Table 1 Etiology of gynecomastia

Age (years)	Etiology	Case number
3-	contraceptive ingestion	2
	unknown causes	11
10-15	adolescent breast hyperplasia	219
	hyperthyroidism	2
	hypothyroidism	1
	Klinefelter syndrome	1
	pituitary tumor	1
	unknown causes	3

mocriptine. The patient with Klinefelter syndrome received a monthly intramuscular dose of 200 mg of testosterone. Another 2 cases were asked to stop contraceptive ingestion. After 1-3 months of treatment, the breasts of the 7 patients with identifiable causes improved. The 219 cases of adolescent breast hyperplasia were not given any medication. They were followed up three months after first visit to the clinic and later once every six months. The enlarged breasts regressed spontaneously in the patients after 3-24 months. Among the 14 idiopathic gynecomastia cases, gynecomastia resolved spontaneously in 12 patients after 6 months and in 1 patient after 27 months. Only one patient did not show obvious changes in both breasts and was continued to follow up (once every half a year).

Discussion

Gynecomastia is defined as excessive development of the breast in boys, with or without pain. It is caused by hormonal imbalance mainly due to physiological factors, and may last be transient or permanant. Children at puberty may have enlarged breasts which usually become normal spontaneously and are not pathological hyperplasia^[2].

Several common causes of gynecomastia are: (1) Adolescent breast hyperplasia (physiological). 91.3% of patients resulted from it in this study. Chen^[3] thought that the normal males may present with a transient breast enlargement during puberty, with an incidence of 39%. Liu^[4] found that adolescent breast hyperplasia was the major cause of gynecomastia in male children. Zhang^[5] thought that adolescent breast hyperplasia was benign proliferation of breast tissues and might relate to the changes of some sex hormones levels in adolescent boys. Czajka^[6] concluded that gynecomastia was resulted from the imbalance of estrogen and androgen in the breast tissue. (2) Secondary to other diseases. In this study, 2 cases were secondary to hyperthyroidism, 1 to hypothyroidism, 1 to pituitary tumor, and 1 to Klinefelter syndrome. (3) Food or

drug exposure. Some medicines like reserpine, spironolactone or cimetidine may cause, mainly in adults, enlargement of breasts. For childhood cases, mistaking contraceptives or taking food or supplements that contain some estrogen are common. There were 2 cases of gynecomastia due to this cause in this study, accounting for 0.8%. (4) Unknown causes. There were 14 cases of gynecomastia with unknown causes in this study, accounting for 5.8%. Chen^[3] thought that gynecomastia may be related to environmental pollution. There might be estrogen-like compounds in environmental pollutants, such as organochlorine pesticides and dioxin-type compounds, which may exert sex hormone-like effects after entering the human body.

The evidence for the diagnosis of gynecomastia is as follows: ①Male children presents with unilateral or bilateral excessive breast development or hyperplasia. ②Hard disk-shaped nodules or the hyperplasia of breast tissue are palpable around the nipple. ③Hyperplasia of breast tissue is confirmed by B ultrasoundgraphy. For patients over 10 years of age who have breast enlargement with unknown causes and their testicular volume is more than 4 mL, adolescent male breast hyperplasia may be diagnosed. A diagnosis of idiopathic gynecomastia may be made when the breast enlargement patient with unknown causes whose testicular volume is less than 4 mL. Liang^[7] thought that B ultrasonography can directly show the form, scope, internal echo and the surrounding area of breast hypertrophy and hyperplasia, which can be used in identifying hypertrophy of adipose tissue and breast tumor with high accuracy. B ultrasonography of bilateral breasts is necessary to differential diagnosis of gynecomastia. In this study one patient refused pituitary MR imaging at the first visit because of financial difficulties. Half a year later, both breasts were further enlarged. MR imaging examination showed pituitary tumor. The experience showed that the male children with excessively developed breasts should be regularly followed-up. For cases with

progressive breast enlargement, MR imaging examination of hypothalamus and pituitary was indicated to exclude organic disorders.

Cases of gynecomastia with identifiable causes should be given specific treatment. Whether medication should be given to patients with adolescent male breast hyperplasia and idiopathic gynecomastia remains controversial. Wu^[8] thought that medication was very necessary to gynecomastia children with unknown causes. Liu^[4] thought that gynecomastia would resolve spontaneously in 97.8% of adolescent cases. This study found that all of gynecomastia patients due to adolescent male breast hyperplasia and most of patients with idiopathic gynecomastia recovered well without medication within a 27-month follow-up.

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