Pubertal gynecomastia in Eastern Turkish boys

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The prevalence of pubertal gynecomastia wasdetermined in 293 healthy Turkish boys in Elazığ, Eastern Türkiye. Genital development and pubic hair growth were classified into five different stages by Tanner's criteria. The degree of gynecomastia was evaluated by measuring the diameter of breast tissue. The overall prevalence during puberty at various pubertal stages and ages was 10%. A marked increase was observed at genital stage 3 (18%) and age 14 years (24%). The subjects with gynecomastia were significantly heavier than those without gynecomastia; however, both were similar in age and height. Gynecomastia was bilateral in 52% of subjects, on the right side 27% and on the left 21%. Our cross-sectional study demonstrated that pubertal gynecomastia was relatively uncommon, and was developed in mid-puberty in Eastern Turkish boys. [Turk J Med Res 1996; 14(1):26-28]

Key Words: Gynecomastia, Puberty, Turkish

Pubertal gynecomastia is a common occurrence in healthy adolescent boys. During sexual maturation, approximately 40% of boys develop varying degrees of subareolar hyperplasia of the breasts. Spontaneous regression may occur within a few months; it rarely persists one year or more (1-3). The prevalence studies of pubertal gynecomastia in Turkish boys are very limited in number (4,5), and there is no data abouth this condition of Eastern Turkish boys. The aim of this cross-sectional study is to find the prevalence of pubertal gynecomastia among healthy young boys in Elazığ.

PATIENTS AND METHODS

Of the 462 subjects originally enrolled in the study, 293 healthy pubertal boys aged between 10 and 17 years, with no history of endocrinological or severe somatic disorders were evaluated for gynecomastia. This evaluation was part of a cross-sectional of pubertal development. For the study mentioned, subjects were selected using strafied random sampling method among the different regional primary and high schools in Elazığ. According to Turkish Growth curves (6), each subjects was within the normal range for his age in height and weight. Physical examination was carefully performed to determine the stage of pubertal develop ment, and the presence and degree of gynecomastia Genital (G) development and pubic hair (PH) growth were classified into five different stages, as described by Tanner (7). These assessments were done by the same author (H.V.)

The degree of gynecomastia was evaluated by measuring the diameter of breast tissue (1). The size of hese subareolar masses were estimated and rated on a scale of 1+ to 4+ separately in each breast: A small disk limited to the subareolar area and not reaching the margins of the areola (about 0.5 cm in diameter) was rated 1+, reaching the margins of the areola, but not beyond (up to 1.5 cm in diameter) 2+, no more than 5 mm beyond the margins 3+, and more than 5 mm beyond the margins of the areola 4+.

Chi square test and unpaired t-test were used for comparison as appropriate.

RESULTS

The prevalence of gynecomastia among pubertal boys according to pubertal stages and their ages are summarized in Table 1 and 2. A marked increase in the prevalence was observed at G3, PH3 (18.0%, 14.0%) and G4, PH4 (11.9%, 15.1%), respectively. A gradual

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Table 1, The incidence and degree of gynecomastia in pubertal stages

G stage	Total number of of cases	Number of cases with gynecomastia	Number of cases in each gynecomastia degree			
			1 +	2+	3+	4+
2	62	3 (4.8%)	2	1	0	0
3	78	14(18.0%)	6	4	2	2
4	59	7(11.9%)	1	4	1	, a* el
5	94	6 (6.4%)	3	2	1	0
Total	293*	30 (10.2%)	12	11	4	3
PH stage						
2	70	8(11.4%)	4	2	1	1
3	50	7(14.0%0	5	1	–	
4	66	10(15.1%)	3	5	1	1
5	91	5 (5.5%)	2	2	1	
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*Of 16 subjects before the onset of pubic hair all was in G2
G: genital, PH: pubic hair

increase was seen from 6.7% at age 11 years to 24% at age 14.5 years. Peak rate of 24.0% occurred in the 14.5 year-old age group. 52% of the cases were bilateral. Unilateral cases consisting of 48% did not show a statistical difference on the right or left side (27% and 21%, respectively; p>0.05). When matched some selected factors, there were no significant differences between those with or without gynecomastia in age and height (p>0.05). However, weight was significantly higher in those with gynecomastia (p<0.05) (Table 3). In 77% of the cases, the degree of gynecomastia was ruled as 1+ and 2+, while in only 23% of the cases it was 3+ and 4+.

DISCUSSION

Gynecomastia may appear at different stages of life due to various reasons (1,3,4,8,9). It is a physiological event in puberty. Between 10 and 16 years of age, about 40% of pubertal boys develop transient gynecomastia (1,4). This condition occurs when pubertal boys have a decreased ratio of androgen to estrogen (3) or lower serum free testosterone levels (10). Moore et al (11) found a decreased adrenal androgen to estrogen ratio in the afternoon in boys with pubertal gynecomastia but not in unaffected boys. They concluded that either decreased adrenal production of androgens or increased peripheral tissue aromatization of androgens to estrogen causes transient gynecomastia in adolescent boys. Bullard et al (12) provided support for the latter possibility by finding increased aromatase activity in the skin fibroblasts of affected but not unaffected boys.

In this study, the prevalence of pubertal gynecomastia was 10%, with a peak of 18% at G3, 15% at PH4 and 24% at 14.5 year of age. Nydick et al (1) found the rate of gynecomastia to be 38.7% in puberty with a peak of 64.6% at age 14 years. It has

Table 2. The incidence of pubertal gynecomastia in boys aged 10-17 years

Age (years)	Number of cases	Number of cases with gynecomastia
10	7	—
10.5	8	—
11	15	1 (6.7%)
11.5	13	1 (7.7%)
12	19	2 (10.5%)
12.5	19	2 (10.5%)
13	24	3 (12.5%)
13.5	24	4(16.7%)
14	26	4(15.4%)
14.5	25	6 (24.0%)
15	26	2 (7.7%)
16	17	1 (5.9%)
16.5	19	1 (5.2%)
17	25	1 (4.0%)
Total	293	30 (10.2%)

Table 3. Selected factors associated with pubertal gynecomastia

Factor	Boys with gynecomastia (n=30)	Boys without gynecomastia (n=263)	P*
Age (year)			
Mean±SEM	13.9±0.2	14.2±0.1	>0.05
Range	11-17	9-17	
Weight (kg)			
Mean±SEM	50.8±1.6	46.9±0.7	O.05
Range	25-64	25-75	
Height (cm)			
Mean±SEM	161.0±2.1	160.5±0.8	>0.05
Range	133-178	126-183	

*Data analyzed by unpaired t-test

also been reported that the prevalence was 67% and 48% in two longitudinal studies by Lee (2), Biro et al (10), respectively. In our previous study, between 10 and 16 years of age, about 35% of Ankara boys developed transient gynecomastia, with a peak of 60% at pubertal stage 4 and 61% at 14 years of age (4). Additionally, Neyzi et al (5) reported that the prevalence was 7% in İstanbul. Our data, which are quite similar to those reported by Neyzi et al, demonstrated that pubertal gynecomastia was relatively uncommon, and was developed in mid-puberty in Eastern Turkish boys. Similarity in age and height, and significant difference in the weight of the two groups in this study is not in accordance with those data by Biro et al (10). We suggest that our study being cross-sectional may explaine this difference in results.

In our previous study (4), and in that of Nydick et al (1) approximately, one fifth of the boys were found to have unilateral gynecomastia. In the cases studied by Nydick et al (1) and Güvenç et al (4) 23% and 19.6% were unilateral with 15% and 10.1% on the right and 8% and 9.5% on the left side. In this series, 48% of the cases were unilateral and there was no difference with regard to right and left involvement. No explanation for unilateral Involvement and for the increased incidence and of gynecomastia on the right side could be deduced. Unilateral breast development can usually be considered a stage in the development of bilateral gynecomastia (3).

Doğu Anadolu erkek çocuklarında pubertal jinekomasti

Doğu Anadolu Bölgesi'nden Elazığ il merkezinde 293 sağlıklı erkek çocukta pubertal jinekomasti sıklığı araştırıldı. Genital gelişme ve pubik kıllanma Tanner kriterlerine uygun olarak beş ayrı evrede sınıflandırıldı. Jinekomasti derecesi meme dokusunun çapının ölçülmesi ile saptandı. Puberte döneminin değişik evrelerinde ortalama jinekomasti sıklığı %10 idi. Genital evre 3 (% 18) ve 14 yaş grubunda (%24) belirgin yükseklik gözlendi. Jinekomasti bulunanlar, jinekomasti bulunmayanlara göre belirgin ağır bulundu, ancak yaş ve boy olarak fark yoktu. Jinekomasti, olguların %52'sinde çift taraflı, %27'sinde yalnız sağda, %21'inde ise yalnız solda rastlandı. Bu kros-seksiyonal çalışma, jinekomastinin Doğu Anadolu Bölgesi erkek çocuklarında relatif olarak seyrek olduğunu ve mid-puberte döneminde daha sık rastlandığnı gösterdi. [TurkJMedRes 1996; 14(1):26-28]

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