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THE INCIDENCE OF PUBERTAL GYNECOMASTIA IN BOYS LIVING IN THE ANKARA REGION*

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Gynecomastia, or the occurrence of mammary tissue in the male, is a common condition. During pubertal development, approximately two thirds of boys develop varying degrees of subareolar hyperplasia of the breasts. Tenderness of the breast is frequent but transitory. Spontaneous regression may occur within a few months; it rarely persists one year or more[1-5]. The incidence of this condition is not clearly defined in Turkish pubertal boys because studies of pubertal gynecomastia are very limited in number[6]. The aim of this cross-sectional study is to find the incidence of pubertal gynecomastia among healthy young boys in Ankara.

Material and Methods

The study consisted of 646 Turkish boys from the Ulus Social Security Hospital in Ankara. Since they came to the hospital presenting with simple complaints, the subjects were in good health and had no physical abnormalities. Their ages ranged from ten to 16 years. All of the boys were from the lower socioeconomic sector of the population. Physical examinations were carefully performed to determine the stage of pubertal development, and the presence and degree of gynecomastia. Genital development and pubic hair growth were classified into five different stages, as described by Marshall and Tanner[7], and Winter[8].

The degree of gynecomastia was evaluated by measuring the diameter of breast tissue[1]. The size of these 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+.

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Results

The incidence of gynecomastia among pubertal boys according to pubertal stages and their ages are summarized in Tables I and II. A marked increase from 9.2 percent at Pubertal Stage 2 to 60.2 percent at Pubertal Stage 4 in the incidence of gynecomastia was observed. After Stage 4, the incidence appeared to drop to 28.2 percent at Pubertal Stage 5 (Table I).

TABLE I: The Incidence and Degree of Gynecomastia in Pubertal Stages

Pubertal stage	Total number of cases	Number of cases with gynecomastia	Number of cases in each gynecomastia degree			
			1 +	2 +	3 +	4 +
2	195	18 (9.2%)	8	7	3	–
3	208	89 (42.7%)	26	52	7	4
4	151	91 (60.2%)	21	49	15	6
5	92	26 (28.2%)	2	18	5	1
Total	646	224 (34.6%)	57 (25.5%)	126 (56.2%)	30 (13.4%)	11 (4.8%)

A gradual increase was seen from 8 percent at age 11.5 years to 43.8 percent at age 13.5 years. Peak incidence of 61.1 percent occurred in the 14-year-old age group. After the age of 14 years, the incidence gradually decreased (Table II). 80.4 percent of the cases were bilateral. Unilateral cases consisting of 19.6 percent did

TABLE II: The Incidence of Pubertal Gynecomastia in Boys Aged 10-16 Years

Age (yrs)	Number of cases	Number of cases with gynecomastia
10	7	–
10.5	10	–
11	26	–
11.5	25	2 (8.0%)
12	49	13 (26.5%)
12.5	80	23 (28.7%)
13	88	39 (44.3%)
13.5	89	39 (43.8%)
14	72	44 (61.1%)
14.5	74	35 (47.2%)
15	43	20 (46.5%)
15.5	41	7 (17.0%)
16	42	2 (4.7%)
Total	646	224 (34.6%)

not show a statistical difference on the right or left side (10.1 percent and 9.5 percent, respectively; $p > 0.05$). In 56 percent of the cases, the degree of gynecomastia was rated as 2+, while in only 4.8 percent of the cases it was 4+ (Table I).

Discussion

Gynecomastia may appear at different stages of life due to various reasons[1,3,4,9,10]. It is a physiological event in puberty. A large percentage of boys develop some degree of gynecomastria during pubertal developmental and it often occurs bilaterally[1-5]. Although, it has been suggested that this condition is usually associated with a decreased testosterone/estradiol ratio, presumably resulting from a transient imbalance in testosterone-estrogen production and with a variation in prolactin secretion, several studies show that plasma estrogen, testosterone, luteinizing hormone and follicle-stimulating hormone levels do not differ in boys with or without gynecomastia at the same stage of puberty. The serum prolactin level is not elevated in pubertal gynecomastia[2,3,11-14].

In this study, the incidence of gynecomastia during puberty was 34.6% at various pubertal stages and ages, with a peak of 60.2 percent at Pubertal Stage 4 and 61.1 percent at 14 years of age. Nydick et al[1] found the incidence of gynecomastia to be 38.7% in puberty with a peak incidence of 64.6 percent at age 14 years. It has also been reported that the incidence was 67 percent in a longitudinal study by Lee[2]. Neyzi et al[6] studied the incidence of pubertal gynecomastia in 1,530 schoolboys in İstanbul in 1975. By considering the presence of firm subareolar mammary tissue as evidence of gynecomastia, they found the incidence to be seven percent, and could not see a significant difference in the incidences between four socioeconomic groups. We believe that in determining the incidence of pubertal gynecomastia, pubertal staging is more useful than age groups.

In our study, 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], 23 percent were unilateral with 15 percent on the right and eight percent on the left side, but no explanation for the increased incidence of gynecomastia on the right side could be deduced. In our series, 19.6 percent of the cases were unilateral and there was no difference with regard to right and left involvement.

Summary

The incidence of pubertal gynecomastia was determined in 646 Turkish boys in Ankara. A marked increase in the incidence was observed at Pubertal Stage 4 (60.2%) and age 14 years (61.1%). The incidence of gynecomastia during puberty at various pubertal stages and ages was 34.6%. Although the incidence of unilateral gynecomastia was 19.6%; there was no difference between right or left involvement.

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