Title:

Relationship of pubertal gynecomastia with varicocele and various parameters
of growth: a seven year prospective study

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Objective: Gynecomastia is a complex process resulting from many hormonal
changes. It is related to either actual or relative decrease in testosterone-to-estrogen
ratio. Varicocele is known to be associated with a progressive decline in testicular
function. Hence we tried to study their relationship in otherwise clinically healthy
males. Furthermore, we analyzed the relationship of gynecomastia with various
physical changes occurring during pubertal development of boys so as to explore its
pathophysiology and predict its onset or disappearance.

Design: Prospective population based study.

Materials and Methods: 131 clinically healthy boys aged 6-8 were followed for 7
years by visiting 3 schools once every year and twice a year as they near their
puberty. Children were examined for the presence of gynecomastia (≥ 1 cm of
palpable button of firm subareolar breast tissue) and varicocele (by examining the
boys in standing position with help of Valsalva maneuver when appropriate).
Remaining clinical examination included height (Siber Hegner anthropometer),
weight (beam balance), testicular volumes (Prader orchidometer), and Tanner stage
according to pubic hair distribution. Logistic regression analysis was used to
determine the risk for developing gynecomastia in those who had varicocele as
compared to those without it.

Results: Prevalence of gynecomastia and varicocele in our study population was
15.2 % (20 of 131) and 22.1 % (29 of 131) respectively. Bilateral gynecomastia (13
of 131) was more common than either right (5 of 131) or left sided (4 of 131). In 2
boys, unilateral gynecomastia subsequently became bilateral. Gynecomastia was
more frequent in Tanner stages 3 and 4. In 13 boys, gynecomastia subsided on
follow up. Mean ± standard deviation of age (years), height (cm), weight (kg), left
and right testicular volumes (mL) at which gynecomastia was seen to appear were
12.27 ±0.86, 157.6 ±7.3, 46.0 ±6.7, 8.1 ±2.9 and 9.3 ±4.0 respectively. Corresponding
values for disappearance of gynecomastia were 13.0 ±0.86, 164.5 ±5.6, 48.62 ±5.8,
12.5 ±4.2, 13.5 ±4.0 respectively. In 11 year olds, when gynecomastia was seen for
the first time, it was positively correlated with varicocele (odds ratio = 3.039, 95%
confidence interval = 1.215 -7.598). However no significant correlation was seen in
subsequent years which may be due to the transient nature of gynecomastia.
Conclusions:  

Adolescent gynecomastia is a transient mid-puberty event. Gynecomastia is more likely to develop in young boys having varicocele.

Support: None.