Turkish Journal of Endocrinology and Metabolism, (2005) 2 : 69-71 **CASE REPORT**

A Testicular Regression Syndrome Presenting with Feminisation

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Testicular regression syndrome is a kind of genital abnormality associated with cessation of testicular function. In the patients with 46 XY karyotype, genital elements are absent, and development of genital duct, urogenital sinus and external genitalia is heterogeneous. Here we described a female patient with the complaint of primary amenorrhea and absence of breast development. After imaging studies, dynamic tests, karyotype analysis and laparoscopic investigation the diagnosis was testicular regression syndrome.

Keywords: Testicular regression syndrome, XY karyotype, female fenotype

Introduction

The term testicular regression syndrome is used to describe a spectrum of genital abnormalities, associated with cessation of testicular function in the middle phase of male sex differentiation, between 8 and 14 weeks of gestation (1). It is first defined as vanishing testes syndrome in 1957 (2). In the patients with 46 XY karyotype, genital elements are absent, and development of genital duct, urogenital sınus and external genitalia is heterogeneous. At the end of the clinical spectrum of this syndrome are the 46 XY patients in whom testicular deficiency occurred prior 8 weeks of gestation, which results in female differentiation of the internal and external genitalia. In these patients neither gonads nor streak gonads are found (3). Cessation of fetal testis functions at 8 to 10 weeks of gestation results in ambiguous genitalia and variable development of genital ducts, from complete absence of both Müllerian and Wolffian ducts, to partial development of these ducts (4, 5, 6). Loss of testicular functions after the critical phase of male differentiation at 12 to 14 weeks results in anorchia and in this condition normal male differentiation both in internal and external genitalia occurrs, but gonadal tissue is absent.

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Case Report

Seventeen years old female patient, named SA was admitted to our hospital with the complaints of primary amenorrhea and the absence of breast development. In her physical examination the height was 158 cm (%40 of her age percentile), the weight 48 kg (% 13 of her age percentile), the arm span 157 cm. Her genital examination revealed normal female external genitalia. The basal hormones were as follows: Follicle stimulating hormone: 100, 94 IU/Lt, luteinizing hormone (LH): 49,9 IU/Lt, estradiol: 16,9 pg/ml, prolactin: 3,3 ng/ml, free testosterone: 0,5 ng/ml, total testosterone: 26,1 mg/ml, dehydroepiandrosterone sulphate: 0,96 mg/dl, 17-hydroxyprogesterone: 1,2 ng/dl, plasma cortisol: 45,8 mg/dl, thyroid stimulating hormone: 0,9 ml/lt, free $T_{3:}$ 1,40 ng/ml, free T_4: 8,3 mg/dl. The karyotype analysis revealed 46 XY chromosome and positive sex determining region (SRY) (+).

Neither of the examinations such as abdominal and pelvic ultrasonography, computerized tomo-

graphy, and magnetic resonence showed any internal genitalial organs or gonads. After human chorionic gonadotropic stimulation test, in the third and fourth days, the levels of estradiol 15,46 and 15,83 and free testosterone 1,28 and 1, 53, were obtained respectively. The patient was accepted to be unresponsive to this test. The laparoscopic investigation revealed that uterus and gonads were absent, in their places a thin fibrotic band was encountered (Figure 1).

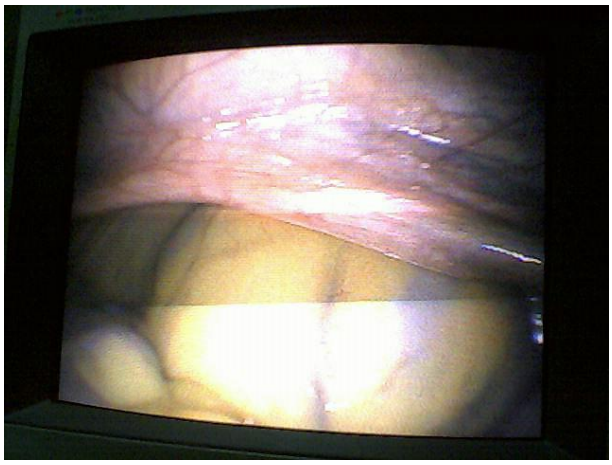

Figure 1. Fibrotic band appearance of uterus and ovaries in laparoscopic investigation

Discussion

It is first defined as vanishing testes syndrome in 1957 (2). As her extarnal genitalia was phenoltypically feminine, vagina blindly ended, internal genitalia as a fibrotic band, gynecomastia absent despite hypergonadotropic hypogonadism and her karyotype was as 46 XY, SRY (+), the patient was accepted as male pseudohermaphroditism. In differential diagnosis of male pseudohermaphroditism the patient might have the diagnosis of testicular unresposiveness to LH, but we excluded the mentioned diagnosis as no testes were encountered. The two other diagnoses, the first; defects in the testosterone biosynthesis in new born and the second congenital enzyme defects in adrenal glands were thought to be inappropriate because hirsutismus, hypercortisolemia were absent and serum electrolites were normal in our case. Absence of both gonads and gynecomastia excluded the diagnosis of end organ resistance to androgenic hormones. Our case did not fit with the diagnosis of true anorchia, because this disease has been seen in male pseudohermaphroditic patients presenting bilateral cryptorchidism, elevated gonadotropin levels and low plasma antimüllerian hormon levels. In DAX 1 duplication, Xp 21 presence must have be seen in chromosomal analysis. The sendromes which were inconsistent with our diagnose and the organs seen in those syndromes are written below; in Fraiser syndrome streak or hypoplastic gonads, in Denys-Dash syndrome dysgenetic and streak gonads, and in SOX 9 deficiency gonads in the form of testes or ovary.

Testicular regression syndrome is presented usually in male fenotype (1). Lou and co-workers reported a series of patients with non-palpable testes; which have % 64 cryptorchidism, % 22,5 complete absence of testis, vas deference and epididim, % 15 only presence of blindly ended vas deference, %25 presence of blindly ended vas deference with the blood vessels in the inguinal canal. These examiners accepted the group with the presence of blindly ended vas deference with the blood vessels in the inguinal canal as vanishing testes group, but did not describe the groups' hormonal and phenotyping features (7).

In another study; the hystopathological examination of the vanishing testes patients with male phenotype having XY chromosome; were evaluated as follows: dystrophic calcification in vas deference and epididim, presence of hemosiderin in dominant vein and plexus pemphiniphormis and vascularised fibrous noddle formation (8). In none of these studies a case of feminine phenotype was described. We concluded that probably in our case who has a diagnosis of testicular regression syndrome, testes became regressed at 8 to 10 weeks of intrauterine life, according to her female fenotype but male genotype with XY chromosome.

As the clinical presentation of testicular regression syndrome, which is discussed among male pseudohermaphroditism causes, is encountered frequently in male phenotype, we decided to present a case of testicular regression syndrome with female phenotype.

References

l. Melvin M, Grumbach and Felix A. Conte. Disorders of sex differentiation. Wilson J, Foster D, Kronenberg H, Larsen R. In: Williams Textbook of Endocrinology **29:** 1396-1397, 1998.

2. Grumbach MM, Barr ML. Cytologic tests of chromosomal sex in relation to sexual anomalies in man. *Recent Prog Horm Res* **14:** 255-334, 1958.

3. Cleary RE, Caras J, Rosenfield R, et al. Endocrin and metabolic studies in a patient with male pseudohermaprodism and true agonadism. *Am J Obstet Gynecol* 1977; **128:** 862-867.

4. Sarto GE, Opitz JM. The XY gonadal agenesis syndrome. *J Med Genet* 1973; **10:** 288-293.

5. Edman CD, Winters A, Porter J, et al. Emriyogenic testiculer regression. A clinical spectrum of XY agonadal individuals. Obstet Gynecol 1977; 49:208-217

6. Coulam CB. Testiculer regression syndrome. *Obstet Gynecol* 1979; **53:** 44-49.

7. Lou CC, Lin JN, Tung TC, Wang KL. Anatomical findings of the vanishing testis. *Changgeng YT Xue Za Zhi* 1994 Jun; **17**(2): 121-4.

8. Susan E. Spires, Stephen Woolums, Andrew R. Pulito, Stephen M. Testiculer Regression Syndrome, A Clinical and Pathologic Study of 11 Cases. Archives of Pathology and Laboratory Medicine: **124:** 5; 694-698, 2003.