CHAPTER 25

46 XY DISORDERS OF SEX DEVELOPMENT AND TESTES

Esra DÖĞER [1]

Aysun BİDECİ[2]

INTRODUCTION

Disorders of sex development (DSD) are conditions in which there are discrepancies between an individual's chromosomes, gonads or external genitalia. 46,XY DSD present with a wide spectrum of clinical findings. The external genitalia can range from a suspicious appearance to a completely female appearance. In the majority of cases the gonads are testes, but in some cases there is gonadal dysgenesis or agenesis. Müllerian and Wolffian duct structures may be seen together or separately. Cases with no virilization have a completely female external genital structure and the presenting complaints include absence of breast development at puberty or primary amenorrhea (1).

GONAD AND EXTERNAL GENITALIA DEVELOPMENT IN MALE

Differentiation of the bipotential gonad in the direction of the testis starts with the activation of the steps triggered by the SRY gene on the Y chromosome at a critical time and dose. In 46 XY individuals, disruption in any of these steps leads to defects in both testicular formation and development of male internal and external genital structure (2,6).

[1] MD, Pediatric Endocrinology, Gazi University Faculty of Medicine, esradoger@gmail.com, ORCID iD: 0000-0003-0802-3955

[2] Prof. MD, Pediatric Endocrinology, Gazi University Faculty of Medicine, bideci@gazi.edu.tr, ORCID iD: 0000-0003-0302-414X

use, gestational diabetes and exposure to environmental chemicals, hypogonadotropic hypogonadism, AIS, rarely insulin-like factor 3 (INSL3) and its receptor (LGR8/GREAT) mutations play a role in the etiology (25). Orchidopexy is usually the treatment of choice for undescended testicles. To prevent testicular cancer in adulthood, orchiopexy before puberty significantly reduces the risk of testicular cancer. To prevent infertility, orchiopexy is recommended before the age of 1 year (26).

Persistent Müllerian Duct Syndrome

Persistent Müllerian duct syndrome is the detection of Müllerian structures in a patient with normal male external genitalia as a result of AMH or AMH receptor type 2 gene variations. Müllerian structures are usually detected during orchiopexy in patients presenting with undescended testis. AMH levels are low in patients with mutations in the Anti-Müllerian Hormone gene, whereas AMH levels are high in patients with mutations in the AMHR-2 gene. LH concentrations are normal because testosterone production is not affected. In this syndrome, undescended testicular development occurs by mechanical effect due to the attachment of the testicle to the fallopian tube and uterus (2, 27).

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