46,XY Complete Gonadal Dysgenesis: A Case Report

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Introduction: 46,XY complete gonadal dysgenesis (Swyer syndrome) is a rare cause of sex differentiation disorders. This syndrome is caused by defects during embryogenesis' sex determination and presents with 46,XY sex-reversed female phenotype, uterine hypoplasia, bilateral streak gonads, and hypergonadotropic hypogonadism.

Case: A 16-year-5-month-old female patient presented with primary amenorrhea and absent breast development, axillary and pubic hair. Physical examination revealed a weight of 42.5 kg [<3rd p, -2.02 standard deviation score (SDS)], a height of 152 cm (3rd-10th p, - 1.68 SDS), and normal vital signs. Genital examination disclosed female external genitalia with no cliteromegaly, hirsutism, or acne. The target height was 148 cm, and bone age revealed 12 years. Follicle-stimulating hormone, luteinizing hormone, estradiol, and total testosterone levels were respectively 115.7 mIU/mL, 29.78 mIU/mL, <5 pg/mL, and 0.029 ng/mL. Ultrasound imaging revealed uterine hypoplasia, bilateral streak gonads, and horseshoe kidneys. As karyotype analysis revealed 46,XY and SRY + was detected by quantitative fluorescent polymerase chain reaction, Swyer syndrome (complete gonadal dysgenesis) was diagnosed. Prophylactic bilateral gonadectomy was performed to prevent development of gonadoblastoma. No evidence of neoplasia (gonadoblastoma) was observed in the gonadectomy material; gonad karyotype analysis revealed 46,XY.

Conclusion: We emphasize the importance of karyotype analysis in patients with delayed puberty and primary amenorrhea. Prophylactic bilateral gonadectomy should be kept in mind for complete gonadal dysgenesis to prevent the development of gonadal malignancy.

Key words: Complete gonadal dysgenesis, Swyer syndrome, primary amenorrhea, sex differentiation disorders, gonadoblastoma

Screening of *PROP-1*, *LHX2*, and *POU1F1* Mutations in Patients with Ectopic Posterior Pituitary Gland

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Objectives: Ectopic posterior pituitary gland (EPP) or pituitary stalk transection syndrome is characterized by an abnormal pituitary stalk and hypoplasia of the anterior hypophysis. The genetic mechanisms involved in the development of EPP remain uncertain. The aim of this study is to determine whether three mutations - *PROP-1*, *LHX2*, and *POU1F1* - are associated with the risk for and the characteristics of EPP.

Methods: In the Endocrinology Outpatient Clinic of Dr. Behçet Uz Children's Hospital, 27 patients with EPP were submitted to sequencing analysis of the *PROP-1, LHX2*, and *POU1F1* genes.

Results: Growth hormone, thyrotropin, corticotropin, gonadotropin, and vasopressin deficiency were observed respectively in 22 (81.5%), 23 (85.2%), 17 (63%), 14 (51.9%), and 2 (7.4%) patients. 13 patients (48.1%) presented with hyperprolactinaemia. 14 patients (51%) had a history of birth dystocia, and 12 cases (42.1%) had a history of breech presentation. Central nervous system abnormalities in patients with EPP included five cases with corpus callosum agenesis, one case with schizencephaly, and one case with Chiari type 1 malformation. We identified a homozygous S109X mutation in exon 2 in one male patient with EPP and two different *PROP-1* gene polymorphisms (A142T or c.109+3 G>A polymorphism) in 9 patients.

Conclusions: Our results suggest that *PROP-1* gene abnormalities might explain the genetic mechanisms involved in the development of EPP.

Key words: *PROP-1* mutation, ectopic posterior pituitary gland, ectopic neurohypophysis, multiple pituitary hormone deficiency