Abstract: 17 year old female presented with primary amenorrhea, physical examination and karyotyping were helpful in making the diagnosis of Partial Androgen insensitivity Syndrome. This case is presented to emphasize the importance of the need for awareness among the physicians for early diagnosis of Androgen insensitivity Syndrome (AIS) and for its successful outcome.

Keyword: AIS, Androgen receptor gene, Ambiguous genitalia, Gonadectomy.

Introduction
Androgen insensitivity Syndrome (AIS) is an X-linked recessive condition due to mutation of Androgen receptor (AR) gene. Incidence is almost 1 in 20000 genetic males, resulting in the partial or complete inability of cells to respond to androgens, thus affecting masculinization of male genitalia in the developing male fetus and secondary sexual characters at puberty. The degree of failure of virilization can either be complete, resulting in Complete Androgen insensitivity Syndrome (C AIS) or partial, resulting in Partial Androgen Insensitivity Syndrome (PAIS) depending upon the residual androgen receptor function.

This is the third most common cause of primary amenorrhea, in a phenotypic female after gonadal dysgenesis and mullerian agenesis. Case description 17 year old phenotypically female presented with the complaint that she hasn't had her menarche yet. The patient had no significant family history or past medical history. On physical examination, she was tall stunted, had Tanner stage III breasts with absent axillary hair and sparse pubic hair. Genital examination revealed a hypertrophied clitoris resembling a short penis with hypertrophied labia majora and absent vaginal introitus. Bilateral inguinal swelling was observed. No cough impulse. Other systems examinations were normal. USG abdomen revealed absent uterus with no evidence of ovaries. Her buccal smear was taken for Barr body which was found to be negative. She had elevated testosterone levels 1301 ng/dL (6.0 -86.0 ng/dL), LH 24.78 U/L (2.0 – 15.0 U/L), FSH 9.16 U/L (3.0 – 20.0 U/L). MRI abdomen revealed features of mulle- rian agenesis with testis in the inguinal canal. Karyotyping was done, which revealed 46XY genotype. This confirmed the diagnosis of Androgen
Insensitivity Syndrome. She was counseled about the risks of malignant transformation of intra abdominal testis and to undergo gonadectomy.

karyotype - 46 XY

Discussion

Androgens are responsible for male sex differentiation during embryogenesis. The differentiation of male external genitals into penis, scrotum and penile urethra occurs between 9th and 13th week of pregnancy and this requires adequate amount of testosterone and its conversion to dihydrotestosterone through the action of 5 alpha reductase in target tissues. Actions of DHT require the presence of functional androgen receptors that activates the transcription of specific genes in target tissues. Thus any abnormality in production or action of androgens between 9-13 weeks of intra uterine life results in incomplete or absent virilization leading to male pseudohermaphroditism, the development of secondary sexual characters at puberty is also affected. So mutations in Androgen receptor (AR) gene cause X linked Androgen Insensitivity Syndrome. Depending on the type and extent of mutations of AR gene the phenotype varies. Three forms namely Complete Androgen Insensitivity syndrome (CAIS), Partial Androgen Insensitivity syndrome (PAIS) and Mild Androgen Insensitivity syndrome (MAIS) are identified.

The patient has well developed breasts because androgens produced by the testis are converted to estrogens peripherally which stimulates breast development. The patient will have blind vaginal pouch and testis may be found in inguinal canal or labial pouch. The female phenotype will have primary amenorrhea and the diagnosis is made by chromosomal karyotyping. Like any cryptorchid testis the incidence of malignancy is high. Hamartomas develop in 63% of AIS cases, sertoli cell adenomas in 23%, malignant tumours occur in 9% of these patients. Management includes removal of testis after puberty when feminization is complete, to prevent testicular malignancy, or prepubertal gonadectomy followed by estrogen replacement therapy and vaginal dilation at the time of marriage to avoid dyspareunia. This disorder can result in severe psychological trauma and confusion about gender identity. Though they should be counseled that they are infertile, they should be given assurance that they are completely female in their gender identity. Psychological counseling should be given.
With proper therapy and re-assurance they can lead a functional and normal life.

**Conclusion:** Androgen Insensitivity syndrome (AIS) constitutes one of the common causes of ambiguous genitalia. Systematic disclosure of diagnosis of Androgen Insensitivity syndrome (AIS) in an empathic environment with both professional and family support is encouraged. Genetic counseling also has a role to play. Karyotyping of family members is advocated because of familial tendencies.

**References:**
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