ABSTRACT
Complete Androgen insensitivity syndrome is a disorder of hormone resistance characterized by a female phenotype in an individual with an XY karyotype. The pathogenesis of CAIS involves a defective androgen receptor gene located on X-chromosome at Xq11-12 and end organ insensitivity to androgens, although androgen concentrations are appropriate for the age of the patient. There are three major types of androgen insensitivity syndrome: Complete androgen insensitivity syndrome, minimal androgen insensitivity syndrome, and partial androgen insensitivity syndrome. Management of androgen insensitivity syndrome includes multidisciplinary approach and involves gonadectomy to avoid gonadal tumors in later life. Hormone replacement therapy (HRT) and psychological support are required in long-term basis.

KEY WORDS: Complete androgen insensitivity syndrome, female phenotype, hormone replacement therapy, 46XYKaryotype

INTRODUCTION
Androgen insensitivity syndrome (AIS) is an X-linked recessive condition resulting from failure of normal masculinization of the external genitalia in chromosomally male individual. AIS is divided into three categories that are differentiated by the degree of genital masculinization: Complete androgen insensitivity syndrome (CAIS) is indicated when the external genitalia is that of a normal female, mild androgen insensitivity syndrome (MAIS) is indicated when the external genitalia is that of a normal male, and partial androgen insensitivity syndrome (PAIS) is indicated when the external genitalia is partially, but not fully masculinized. Both individuals with partial androgen insensitivity syndrome and complete androgen insensitivity syndrome have 46 XY karyotypes.[1-3]

CASE REPORT
A 17-year-old female patient presented to this tertiary care teaching Hospital with the complaint of primary amenorrhoea. On examination, she was of average built, height: 158cm, weight: 64 kg, BMI: 25.7 kg/m². Breast-tanner stage III, sparse pubic hair (Quigley’s grade -6), and no Hirsutism or masculinisation. Examination of genitalia revealed well-developed labia majora, clitoris, and poorly developed labia minora and 4 cm deep blind ended vagina [Figure 1]. Urethral orifice and anus were normal. Examination of the right inguinal region revealed 3 × 2 cm oval firm mass in inguinal canal and in the left inguinal region similar mass was felt at the level of internal inguinal ring.

Ultrasonography of the abdomen and pelvis revealed the absence of uterus and bilateral ovaries. Ultrasound examination of the inguinal region revealed well-defined, 3 × 2 cm oval masses bilaterally and echo texture of the masses were like that of testis. MRI scanning of the pelvis revealed normal-sized testes bilaterally in the inguinal canals [Figure 2]. Uterus and ovaries were not visualized. Karyotyping revealed a 46 × Y pattern [Figure 3]. Her FSH was 4.19 mlU/ml (reference range for normal adult male: 1-12 mlU/ml), LH was 20.7 mlU/ml (reference range 2-12 mlU/ml), serum testosterone was 321.64 ng/dl (Reference range 300-1000 ng/dl for normal adult male) and Estradiol was 53.36 pg/ml.
After standard preoperative preparation, operative laparoscopy was performed under general anesthesia. Pelvic and abdominal inspection revealed no internal genitalia except bilateral gonads appearing as testis located in the inguinal canals at the level of internal inguinal ring [Figure 4]. The pedicles of the gonads were coagulated with bipolar diathermy and cut with laparoscopic scissors. To prevent the spillage of cells and contamination, gonads were placed in endobags and removed intact after extending the port [Figure 5]. No complications occurred during the operation. The patient was discharged on the following day after surgery.

The histopathological examination of the gonads revealed thickened tunica albuginea, seminiferous tubules with primary and secondary spermatogonia and sertoli cells. Intertubular Leydig cells were seen along with peritubular fibrosis [Figure 6].

DISCUSSION

The first medical report on AIS was published in 1953 by JM Morris an American Gynecologist. The incidence of AIS was reported as 1:20000 to 1:62000.[3] It accounts for approximately 10% of cases of primary amenorrhea, ranking third after gonadal dysgenesis and the congenital absence of the vagina. AIS is a disorder of androgen receptor function and represents the most common detectable cause of male pseudohermaphroditism.[4] In CAIS, the typical mode of presentation is an adolescent female who has breast development with pubertal growth but with no menarche and absence or scanty growth of pubic and axillary hair. CAIS may also be present in early childhood with the appearance of bilateral inguinal or labial swellings. In a female child with inguinal hernia the possibility of CAIS must always be kept in mind. In fact a case of CAIS was diagnosed during hernia repair in a 3-year-old girl.[5] This case was a typical case of CAIS as genitalia looked like that of a normal female. The position of the testes in CAIS varies from individual to individual. According to published data in 50% to 70% of cases the position of
Testes are intra-abdominal, in 20% of cases inguinal and in 10-30% cases one testis is intra-abdominal and second testis is inguinal. Rarely testes may be seen in retroperitoneum. The breast development in the case of CAIS is as a result of conversion of testosterone to Estradiol. In AIS, bilateral undecended testes carry a risk for malignancy and the risk increases after puberty. Common testicular tumors seen in this syndrome are germ cell tumors, (seminoma) sex cord tumors, Sertoli cell tumors, leydig cell tumors and hamartomas. For individuals with complete androgen insensitivity syndrome, the standard of care is orchidectomy to prevent possible malignant transformation of the testes. Surgery is contemplated during the late teenage years or early twenties as later orchidectomy allows pubertal development to occur spontaneously with the production of estrogen from the aromatization of the high levels of testosterone normally produced. Vaginal lengthening procedures can also be undertaken at this time and patient can actively participate in treatment decisions. Laparoscopic procedures allow better visualization of abdomen and pelvis compared to laparotomy are minimally invasive with faster recovery times. Hormone replacement therapy (HRT) is required for women with androgen insensitivity syndrome after gonedectomy to support the development and maintenance of secondary sexual characteristics and to prevent osteoporosis.

Many patients require emotional and psychological support to resolve psychosexual identity issues raised by the diagnosis of androgen insensitivity syndrome. There is need for emphasis on openness in disclosure to both patient and the family. Psychological support should be available to both patient and family on a long-term basis from the time of diagnosis. Contact with other individuals who have androgen insensitivity syndrome is another source of psychological and emotional support for the patient. Formation of Androgen Insensitivity Syndrome Support Groups (AISSG) as in the developed countries will help in building self confidence in these patients.

CONCLUSION

In this case, CAIS was diagnosed on the basis of history of primary amenorrhoea and clinical gynecologic examination. Ultrasonography and MRI imaging of the pelvis helped in the localization of gonads in inguinal canals. As patient was in postpubertal age group and willing for surgery, laparoscopic gonedectomy was carried out to prevent malignant transformation of gonads. HRT was initiated and the patient is being followed up by a multidisciplinary team of doctors for psychological and emotional support.

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