KARYOTYPE AND PHENOTYPE INCONGRUENCY:

A CASE OF SWYER SYNDROME

Diana Rose M. Amodia, M.D. and Anna Belen Ignacio Alensuela, M.D.

Far Eastern University - Nicanor Reyes Medical Foundation
Jose Reyes Memorial Medical Center Consortium

INTRODUCTION

Disorders of Sexual Development (DSD) are characterized by discrepancy between the appearance of the external genitalia and the gonadal and chromosomal sex. Swyer Syndrome is a rare form of a 46, XY DSD and is caused by gene mutations, primarily involving the sex determining region on the Y chromosome (SRY) gene, resulting in fibrous streak gonads that fail to produce anti-mullerian hormone (AMH). [1] This leads to persistent mullerian structures and a female phenotype. Thus, patients with this syndrome are typically raised as girls and present during puberty with primary amenorrhea. Aside from the psychosocial and psychosexual complexities that they would have to face, they are at increased risk of developing cancer of the underdeveloped gonads as well as prolonged hypoestrogenemia that may lead to osteoporosis and its long term complications. This case describes a 32 year old patient who, despite the delayed gonadectomy, did not develop a gonadal tumor, but suffered the consequences of hypoestrogenemia and identity crisis.

CASE REPORT

J.L., 32 year old, single, presented with primary amenorrhea, no breast development but with uterus and normal female genitalia.

15 years PTA (Age 18)

- ❑ Initial consult for primary amenorrhea
- ❑ (-) signs and symptoms of puberty
- ❑ (-) Progesterone challenge test
- ❑ Lost to follow up

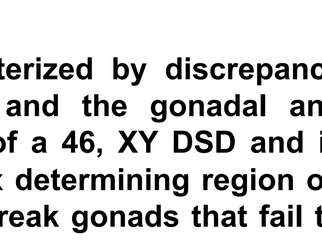


Figure 1. Index Case

1 year PTA (Age 31)

- ❑ (-) Breast development (+) uterus
- ❑ Hypergonadotropic hypogonadism
- ❑ 46 XY Karyotype
- ❑ DEXA: osteoporosis
- ❑ Medications: Estradiol gel, Alendronic acid, Calcium, Calcitriol
- ❑ Developed identity crisis

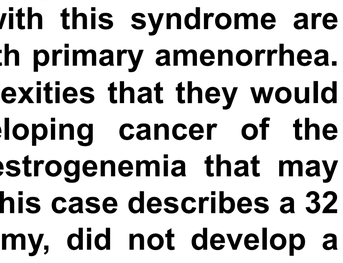


Figure 2. 46 XY Karyotype

7 months PTA (Age 32)

- ❑ Onset of menses
- ❑ Estradiol gel shifted to low dose oral contraceptive pills (Drosperinone + Ethinyl estradiol)

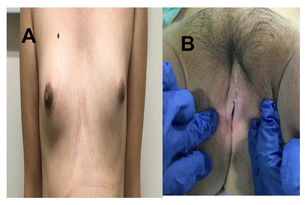


Figure 3. Tanner Stage 2 breast (A) with Tanner Stage 4 pubic hair (B)

First Hospital Day

- ❑ Laparoscopic Gonadectomy done
- ❑ Intra-operative Findings:
  - ➢ Small uterus (3 x 3 x 3 cm)
  - ➢ Small bilateral gonads
    Right: 1 x 0.5 x 0.5 cm
    Left: 1 x 0.5 x 0.5 cm

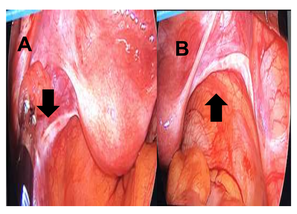


Figure 4. Small uterus with the right (A) and left (B) gonads

At Present

- ❑ Histopathology: Gonadal streak
- ❑ Hormone therapy continued
- ❑ Regular check up with endocrinologist
- ❑ Referred for psychological counseling

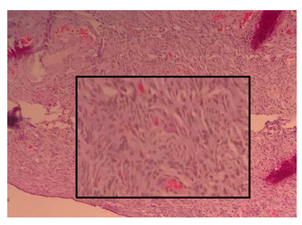
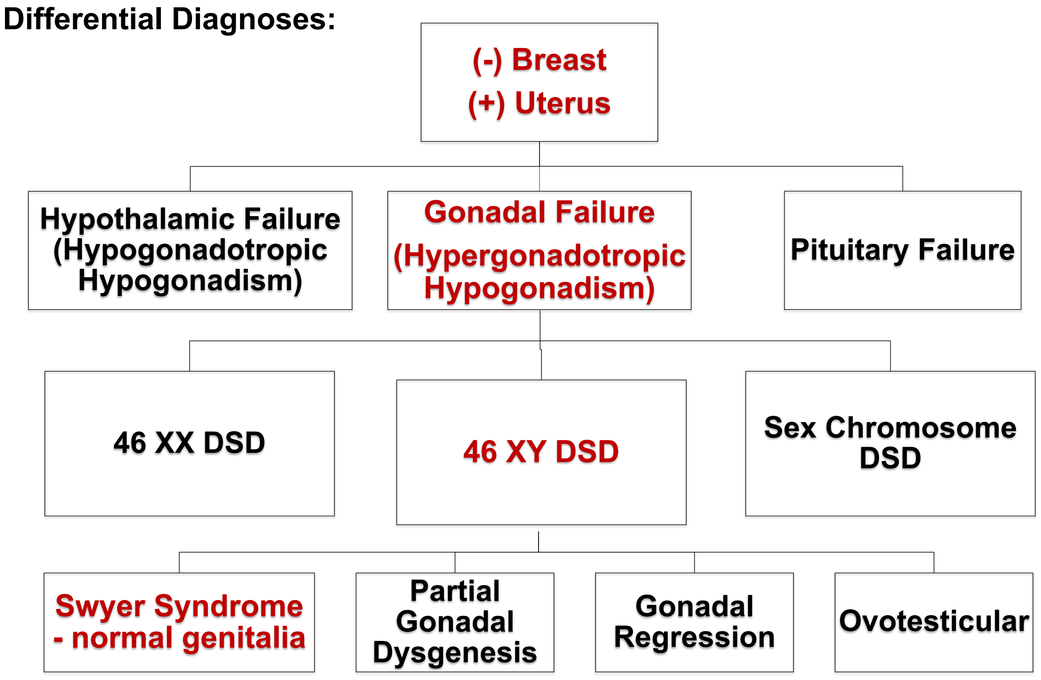


Figure 5. Histopathology: Bilateral ovarian streak

DISCUSSION

Swyer Syndrome occurs in 1: 80, 0000 – 100, 000 people. [2-3] Gene mutations, primarily involving the SRY gene, results in dysgenetic gonads that do not produce AMH or androgens. Individuals with Swyer syndrome, such as in this case, are phenotypical females that present during adolescence for delayed puberty and primary amenorrhea with normal female external genitalia and Mullerian structures. Hypergonadotropic hypogonadism and the presence of 46, XY karyotype establish the diagnosis.

Differential Diagnoses:



Management:

❑ Hormone Therapy
- ➢ For induction and maintenance of pubertal development
- ➢ For prevention of hypoestrogenemia (osteoporosis)

❑ Gonadectomy
- ➢ Indicated due to the increased risk of neoplastic transformation in the dysgenetic gonads [4]

❑ Psychosocial and psychosexual management
- ➢ Gender dysphoria or social isolation should be addressed [5]

CONCLUSION

- ❑ Swyer Syndrome is a rare form of 46, XY DSD that presents with primary amenorrhea, delayed puberty, and hypergonadotropic hypogonadism.
- ❑ Diagnosis and management are complex and require a multidisciplinary team for optimal care of the patient.
- ❑ Early diagnosis is emphasized because of the higher risk of gonadal malignancy and to allow early hormonal treatment to induce and maintain secondary sexual development and prevent the devastating effects of prolonged hypoestrogenemia such as osteoporosis and other complications.
- ❑ Psychosocial and psychosexual issues should be addressed for the holistic care of the patient.

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