



# A FAMILIAL CASE OF COMPLETE ANDROGEN INSENSITIVITY SYNDROME

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## BACKGROUND:

Complete androgen insensitivity syndrome (CAIS) is a condition that results in the **complete inability of the cell to respond to androgens** and falls within the category of **46,XY disorder of sex development (DSD)**.

CAIS is characterized by **female external genitalia** in a **46,XY karyotype individual** with **normal testis development but undescended testes** and unresponsiveness to age-appropriate level of androgens.

The **typical presentation** is **primary amenorrhea** in an adolescent female, but CAIS can also present in infancy with an inguinal hernia or labial swelling containing a testis.

CAIS is **inherited** in an **X-linked recessive pattern** and the diagnosis can be confirmed by **androgen receptor (AR) gene** sequencing.

About two-thirds of all cases of CAIS are inherited from mothers; the remaining cases result from de novo mutations.

## CASE REPORT:

We report the case of a **12-year-old girl**, who we **diagnosed as affected by CAIS when she was 1 year old**, because of **bilateral inguinal hernia containing testis, complete female phenotype** and **XY karyotype**.

Her parents chose early **bilateral gonadectomy** because of the fear of cancer risk, when she was 2 years old.

At **12 year-old**, on physical examination, the patient was a **complete female girl without signs of puberty** (Tanner 1 breasts and Tanner 1 pubic hair).

She began **hormonal replacement therapy (HRT)** with estradiol transdermal patch, to induce development of secondary sex characteristics.

**Molecular analysis of AR gene revealed a nucleotide deletion in exon 1 (c.1112delT) leading to a premature stop codon after 108 amino acid (p.Leu371Argfs\*108).**

This **new mutation** was not yet reported in the Androgen Receptor Gene Mutations Database and is predicted to produce a shorter androgen receptor (protein).

**AR gene analysis revealed that her mother and her sister (karyotype 46,XX) are carriers of the same mutation.**

An in-depth medical family history allowed us to identify three sisters of the mother, all married but childless.

Genetic counseling was performed. **All the three sisters of the mother have 46,XY karyotype.**

**CONCLUSIONS:** Our case confirms that CAIS affected families should be offered genetic counseling in order to be informed of the risk of recurrence and to identify other potential carriers or affected relatives in the family.