

## P-09

### MALE INFERTILITY AND CHROMOSOME ABERRATIONS: TWO CASE REPORTS

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Infertility affects approximately 10%-20% of couples, male factors contributing about half of the cases. The most frequent male factors are azoospermia and severe oligozoospermia, affecting about 10% of individuals; excluding obstructive causes, genetic etiology is the most common cause of infertility. The mechanisms that induce male infertility are not clear, but it is known that a variety of chromosomal alterations may be responsible. Sex chromosome abnormalities are among the most frequent problems (e.g., Klinefelter Syndrome; 46,XX Male Syndrome), but a wide range of structural autosomal and/or sex chromosome abnormalities are also found (Yq microdeletions, translocations and inversions). Peripheral blood karyotype is recommended, but this analysis may need to be complemented by fluorescence *in situ* hybridization (FISH) studies; these include *SRY* gene probes and/or other molecular studies, which may be fundamental to establish an accurate diagnosis.

We report on two patients referred to our Medical Genetics Centre: Patient 1: male aged 47, with azoospermia; Patient 2: male aged 36, with severe oligoasthenospermia and irrelevant family history.

The cytogenetic analysis revealed, in patient 1, 46,XX; and in patient 2, mos 47,XXY,[2]/46,XY[48]. In patient 1, FISH for the *SRY* gene revealed that this gene was located in the X chromosome.

Males presenting with 46,XX karyotype are referred as "XX Male Syndrome" or "la Chapelle Syndrome".

The incidence of this syndrome is very low. One of the X chromosomes contains the *SRY* gene and therefore the patient is phenotypically male, but genetically of female constitution. Most XX males derive from a crossing over between Xp and Yp during paternal meiosis, so that the *SRY* gene is translocated into the X chromosome.

Klinefelter Syndrome (also known as 47,XXY) is one of the most common sex chromosome aneuploidy in humans with a prevalence of about 1 in 600-1000 males. About 20% of patients with Klinefelter Syndrome are mosaics and 47,XXY/46,XY is the most common variant. Genetic testing in patients with azoospermia or severe oligozoospermia was not considered very relevant, as the vast majority of these patients would not be able to reproduce. Currently, however,

genetic testing has expanded because of the development of *in vitro* fertilization techniques, which makes it obligatory to consider the possibility of pregnancies in men previously considered "infertile". The authors emphasize the importance of cytogenetic studies as a main approach to evaluate male infertility and the implications on future generation.