# Multiple Y Syndrome (XYYY)

Case of the month series 0901

## Case

A family with a 6yr old child was sent for genetic counseling. The child had above average height with mild dysmorphic features. He had markedly incurved little fingers on both hands, long face, large ears and small testes. His cognitive abilities were below average and his performance in school was poor.

Parents were not related to each other and were planning to conceive again. They were anxious about the child's development and risk for future pregnancies.

## Diagnosis

Chromosomal analysis of the child recommended by genetic counselor revealed **Multiple Y syndrome** with three Y chromosomes instead of one. Karyotype is designated as **48,XYYY**. It is a rare condition with unknown incidence. The presence of a Y chromosome leads to male differentiation in humans. Generally XYYY males have been identified by chromosomal studies performed because of radioulnar synostosis, lack of sexual desire, infertility, azoospermia, mild cognitive impairment, or mental illness.

## Phenotype and Clinical features of XYYY

**Main features**

Multiple Y syndrome physical appearance is characterized by above average height, absence of major malformations and psychomotor retardation.

**Craniofacies**

Cranio-facial features are mostly normal. Prominent glabella, larger teeth and large pinnae may be present.

**Facial features**

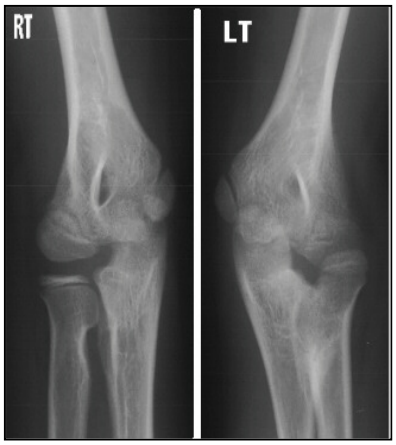
Facial features will include long face, large ears, epicanthal folds, flat nasal bridge, full lower lip, long philtrum, high palate, and short neck. Café-au-lait spots (pigmented birth marks) have been reported.

**Limbs**

There are no characteristic dermatoglyphic or other anomalies. However, radioulnar synostosis and restricted supination of the elbows may limit some movements.

**Nervous system**

No central nervous system malformations occur as a part of multiple Y syndrome. However, EEG abnormalities have been reported. Hypotonia and delayed motor milestones with poor cognitive performance is noted. Aggressive behavior, temper tantrums, attention-deficit, speech difficulties and hyperactivity disorder may be more common in school age children.




**Radioulnar Synostosis**

Fusion of the two long bones of the forearm near the elbow

**Sexual development and fertility**

Although sexual maturation is normal with an extra Y, XYYY males are reported to have lack of sexual desire, testicular atrophy, azoospermia and infertility. XYYY boys should be evaluated by an endocrinologist at puberty.

## Recurrence risk and Genetic Counseling

Multiple Y syndrome is mostly de novo (new event) in nature and recurrence risk is almost nil. Parents' chromosomes were also analyzed and proved to be normal. Availability of prenatal diagnostic options was discussed with family in the counseling session.

GeneTech, 1st floor Amogh Plaza, Greenlands, Hyderabad, 500 016 **Tel**: +91-40-23400932, 23406178
**Fax**: +91-40-23407943 **Customer Care**: 9848041127 **Web site**: http://www.genetech.co.in