Kabuki 47,XXY syndrome: a case report

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Klinefelter syndrome is the most common sex chromosome disorder (prevalence: 1/600 newborn males), characterized by at least one extra X chromosome.
If the diagnosis is not made prenatally, the disorder can remain unknown until pubertal or adult age.

Kabuki syndrome is a rare, dysmorphic syndrome (1:32000 newborn) characterized by distinctive facial features, multiple anomalies and mental retardation.
About 50-80% of cases are due to *de novo* or autosomal dominant *MLL2* or *KMT2B* gene mutation (point mutation, deletion, duplication) located on 12q13.12; less frequently, deletions or point mutations involving the *KDM6A* gene, located on Xp11.3, are implicated.

Various autosomal and sex chromosome aberration have been reported in patients with Kabuki syndrome:

Autosomal chromosome	Sex chromosome
dup(1)(p13.1p22.1)	pericentric inversion of Y
t(3;10)(p25:p15)	ring Y
inv(4)(p12pter)	ring X
der(6)t(6;12)(q25.3;q24.31)	45,X
t(15;17)(15q;21q)	isochromosome X
dup8p22-8p23	
pseudodicentric chromosome 13	

CASE REPORT

We describe a 1-year-old boy affected by both Klinefelter and Kabuki syndromes

Clinical history:

He was born at 38 weeks of gestational age by cesarean section and underwent neonatal resuscitation with O_2-administration.
At birth:
• weight and length at the 50th percentile
• head circumference at the 35th.

Progressive postnatal weight growth retardation (associated with normal height velocity) and recurrent aspiration pneumonia needed enteral nutrition by percutaneous gastrostomy.

Clinical features:

• Microcephaly
• Distinctive facial appearance (big eyes with long palpebral fissures, long cilia, anteverted nostrils, extroverted lower lip with pits, cupped ears, and operated cleft palate)
• Persistence of fetal fingertip pads
• Eczema
• Congenital heart disease (atrial septal defect)
• Hypotonia
• Joint and cutaneous laxity
• Normal male genitalia
• Mild development delay

Abdominal ultrasound showed normal kidneys and liver.

Cytogenetics: Karyotype was 47,XXY
Sequence analysis of the Kabuki genes showed a heterozygous c.721delC *de novo* mutation (L241CfsX260) of the *MLL2* gene.

**An association between Klinefelter and Kabuki syndromes has not yet been described.
These two genetic conditions casually coexist in our patient,
probably due to the relatively high prevalence of the first.**