REFERENCES

[1]Schinzel A, Riegel M, Baumer A, Superti-Furga A, Moreira LM, et al. Long-term follow-up of four patients with Langer-Giedion syndrome: clinical course and complications. Am J Med Genet 2013, v. 161A: 2216-25.

[2]Bühler EM, Malik NJ. The tricho-rhino-phalangeal syndrome(s): chromosome 8 long arm deletion: is there a shortest region of overlap between reported cases? TRP I and TRP II syndromes: are they separate entities? Am J Med Genet. 1984, v. 19: 113-9.

[3]Maas SM, Shaw AC, Bikker H, Lüdecke HJ, van der Tuin K, et al. Phenotype and genotype in 103 patients with tricho-rhino-phalangeal syndrome. Eur J Med Genet. 2015, v. 58: 279-92.

[4]Plaza-Benhumea L, Valdes-Miranda JM, Toral-López J, Pérez-Cabrera A, Cuevas-Covarrubias S. Trichorhinophalangeal syndrome type II due to a novel 8q23.3-q24.12 deletion associated with imperforate hymen and vaginal stenosis. Br J Dermatol. 2014, v.171: 1581-3.

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ABOUT US

Chromosome Disorder Outreach provides support and information to anyone diagnosed with a rare chromosome change, rearrangement or disorder. CDO actively promotes research and a positive community understanding of all chromosome disorders.

CDO is a 501c3 organization founded in 1992.

8q24
Langer-Giedion syndrome

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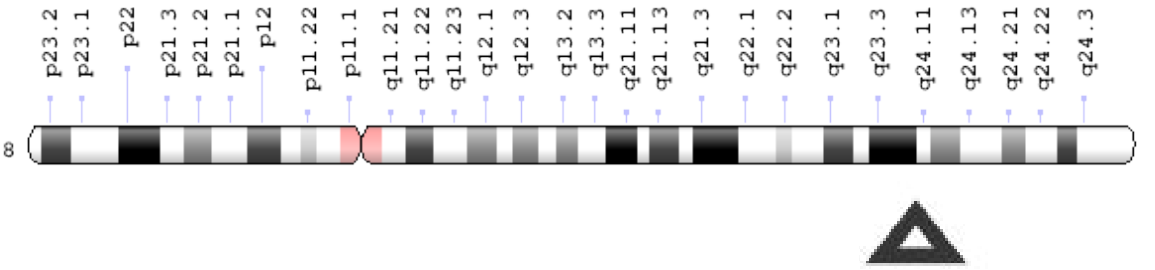
In 1969 Langer and Giedion independently described patients who above the usual phenotype of TRPS-I revealed multiple exostoses – benign bone tumors[1]. These exostoses may appear in different bones producing pain and cosmetic problems. Moreover, these patients usually reveal delays in psychomotor development. This condition (the association of TRPS-I traits, exostoses and intellectual disability) was coined Langer-Giedion syndrome (or trichorhinophalangeal syndrome type II).



A combination of short stature, abnormalities of sparse thin scalp hair, bulbous nose, dysmorphic features (large protruding eras, elongated upper lip, long flat philtrum), and skeletal defects (cone-shaped phalangeal epiphyses and sometimes dislocation of the hips) is known as trichorhinophalangeal syndrome type I (TRPS-I). This disorder is an autosomal dominant condition. The mental development of patients with TRPS-I syndrome is usually normal.

In 1984 it was found that patients with Langer-Giedion syndrome have small deletions in the long arm of chromosome 8 (8q24)[2]. It was shown that a critical segment of 8q24 necessary for the occurrence of LGS includes at least three genes: TRPS1, EXT1 and RAD21. TRPS1 is a gene responsible (when mutated) for trichorhinophalangeal syndrome type 1. Deletion of the EXT1 gene is the cause of the exostoses. The RAD21 gene is considered to be involved in intellectual development. From the genetic point of view, Langer-Giedion syndrome is a classic consecutive deletion syndrome – a condition, where each main symptom is caused by deletion of one specific gene. The persons who have deletions of EXT1 but not TPRS1 show exostoses, but do not have dysmorphic features, typical for Langer-Giedion syndrome, or intellectual disability. Of course, most patients have deletions involving some additional genes (more proximal or more distal to the critical segment). This explains why many patients have some characteristics (microcephaly, missing or additional teeth, aplastic skin of the scalp, preauricular tags, polydactyly, partial syndactyly, absent tibia, heart defects [mostly defects of the atrial septum], annular pancreas, hydronephrosis, imperforate hymen) which are in addition to the typical clinical manifestations of TRPS-II[1, 3-4].

Patients with Langer-Giedion syndrome usually do not have life-threatening birth defects, and life expectancy is basically normal.

Molecular cytogenetics is essential for the diagnosis of Langer-Giedion syndrome because in many patients deletions are relatively small and cannot be recognized upon “standard” cytogenetic examination.