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CLINICAL GENETICS

Radio-Tartaglia syndrome: case report

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Abstract

Radio-Tartaglia syndrome is a rare autosomal dominant genetic disorder that is characterized by a global delay in acquisitions. Affected children show intellectual disability, speech delay, hypotonia, motor disorders and variable behavioral abnormalities. Nowadays, only 34 patients are being diagnosed worldwide. In most of these patients heterozygous mutations in the SPEN gene are identified.

Auditory neuropathy spectrum disorder (ANSD) refers to a range of hearing impairments characterized by deteriorated speech perception, despite relatively preserved pure-tone detection thresholds. There are various etiologies ranging from genetic mutations, infectious or inflammatory disease to environmental and idiopathic causes. ANSD may be caused by cochlear presynaptic and postsynaptic lesions or by lesions to ascendant cochlear fibers from the auditory nerve to the brainstem.

Methodology

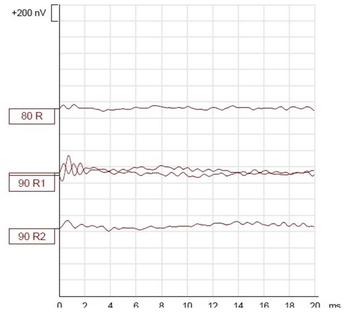
Through our work, we report the clinical case of a 4-year-old child referred to the audiology department of the Marie Curie Children Hospital, Bucharest, Romania for language delay, in the context of a neurodevelopmental disorder.

Results

Faced with this rare disease, the treatment was multidisciplinary in our establishment, including the ENT team, the geneticist, the pediatrician, the neurologist, the neurosurgeon and the ophthalmologist.

On the ENT level we found a normal otoscopy with a type A tympanogram and absent bilateral otoacoustic emissions. Note as risk factors for deafness: prematurity (26 weeks of gestation), birth weight of 1300g and 5-day stay in neonatal intensive care with intubation.

Electrophysiological tests showed abnormal auditory brainstem responses (ABRs) - there was an alteration of the waves with absence of responses up to 90 db. By setting the recording mode to rarefaction and then to condensation, we look for the cochlear microphonic potential (figure 1) - an aspect suggestive of auditory neuropathy. ASSRs were carried out to find hearing thresholds (figure 2). Given the severe bilateral sensorineural hearing impairment, the child was proposed for cochlear implantation. In the meantime, he benefits from hearing aids. Vestibular examination revealed slight right vestibular hyporeflexia which may explain the acquisition of walking around 2 years old.



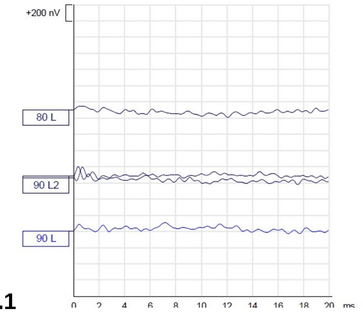
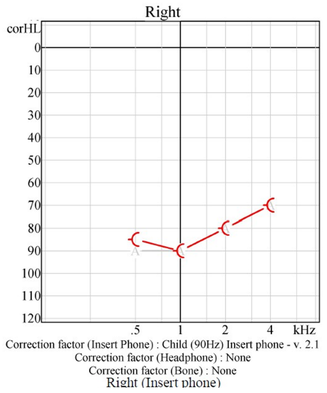


Fig.1



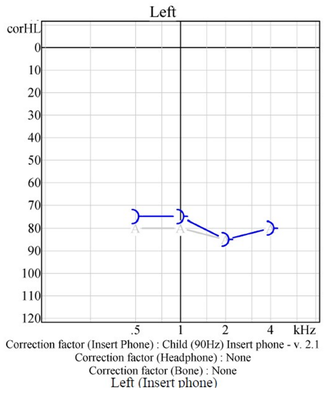


Fig.2

Résultats

Genetic examination identified a heterozygous mutation (VUS: PM2, PM4, PM6) in the SPEN gene. In most cases Radio-Tartaglia syndrome is caused by de novo pathogenic variant, but in our patient the SPEN genetic variant identified was inherited from his father.

The neuropsychological evaluation of the child found a delay in motor and cognitive acquisitions and an autism spectrum disorder. The brain MRI performed showed demyelinating lesions of the white matter and a cyst of the septum pellucidum, without indication for surgical intervention. To complete the assessment, an EEG was considered. Ophthalmological examination revealed retinopathy of prematurity and convergent strabismus

Conclusion

This clinical case shows us the heterogeneity of the clinical manifestations of Radio-Tartaglia syndrome in a young 4-year-old child followed by our team. Even if there is no specific treatment at the moment, the treatment consists of hearing rehabilitation with speech therapy and vestibular rehabilitation, physiotherapy and adjuvant treatment with food supplements of amino acids and vitamins.

Références

SPEN haploinsufficiency causes a neurodevelopmental disorder overlapping proximal 1p36 deletion syndrome with an episignature of X chromosomes in females. Am J Hum Genet. 2021 Mar 4; 108(3): 502–516. Published online 2021 Feb 16. doi: 10.1016/j.ajhg.2021.01.015 Auditory Neuropathy Spectrum Disorders: From Diagnosis to Treatment: Literature Review and Case Reports; Romolo Daniele De Siati,* Flora Rosenzweig, Guillaume Gersdorff, Anaïs Gregoire, Philippe Rombaux, and Naïma Deggouj DOI: 10.3390/jcm9041074

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