PACS1 Related Syndrome

https://pubmed.ncbi.nlm.nih.gov/37064331/

Introduction:

PACS1

-related neurodevelopmental disorder (

PACS1-

related NDD) is caused by pathogenic variants in the

PACS1

gene and is characterized by a distinctive facial appearance, intellectual disability, speech delay, seizures, feeding difficulties, cryptorchidism, hernias, and structural anomalies of the brain, heart, eye, and kidney. There is a marked facial resemblance and a common multisystem affectation with patients carrying pathogenic variants in the

WDR37

and

PACS2

genes, although they vary in terms of severity and eye involvement.

Case presentation:

Here, we describe 4 individuals with

PACS1

-related NDD from Mexico, all of them carrying a de novo

PACS1

variant c.607C>T; p.(Arg203Trp) identified by exome sequencing. In addition to eye colobomata, this report identified corneal leukoma, cataracts, and tortuosity of retinal vessels as ophthalmic manifestations not previously reported in patients with

PACS1

-related NDD.

Discussion:

We reviewed the ocular phenotypes reported in 74 individuals with

PACS1

-related NDD and the overlaps with

WDR37-

and

PACS2

-related syndromes. We found that the 3 syndromes have in common the presence of colobomata, ptosis, nystagmus, strabismus, and refractive errors, whereas microphthalmia, microcornea, and Peters anomaly are found only among individuals with

PACS1

-related NDD and

WDR37

syndrome, being more severe in the latter. This supports the previous statement that the so-called

WDR37

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PACS1

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PACS2

axis might have an important role in ocular development and also that the specific ocular findings could be useful in the clinical differentiation between these related syndromes.