

Short Communication

Oculodentodigital Dysplasia with Massive Brain Calcification and a New Mutation of GJA1 Gene

Gemma Tumminelli^a, Ilaria Di Donato^a, Valentina Guida^b, Alessandra Rufa^a, Alessandro De Luca^b and Antonio Federico^{a,*}

^aDepartment of Medicine, Surgery and Neurosciences, University of Siena, Siena, Italy

^bIRCCS-Casa Sollievo della Sofferenza, Mendel Institute, Rome, Italy

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Abstract. Oculodentodigital dysplasia (ODDD) [MIM 164200] is a rare disorder caused by mutations in the gap junction alpha 1 (*GJA1*) gene encoding for connexin 43 (Cx43). Typical signs include type III syndactyly, microphthalmia, microdontia, and neurological disturbances. We report a 59-year-old man having clinical symptoms and signs suggestive of ODDD, with some rarely reported features, that is the presence of gross calcifications of basal ganglia and cerebellar nuclei. Mutation analysis of *GJA1* gene identified an unreported heterozygous missense mutation [NM_000165.3:c.124 G>C;p.(Glu42Gln)], which may be thought to alter the brain microvessels leading to massive calcifications, as in primary familial brain calcification.

Keywords: Basal ganglia calcification, GJA1 gene, oculodentodigital dysplasia

INTRODUCTION

Oculodentodigital dysplasia (ODDD; MIM 164200) is an autosomal dominant disorder affecting the development of face, eyes, teeth, and limbs. Typical signs include type III syndactyly, microphthalmia, microcornea, microdontia, and enamel hypoplasia. Some patients develop neurological symptoms, such as spastic paraparesis, ataxia, neurogenic bladder dysfunction, and occasionally mental retardation. The disease results from mutations in the gap junction alpha 1 (*GJA1*) gene located on chromosome 6, encoding for connexin 43 (Cx43). Almost 250 cases and 73 mutations in the *GJA1* gene have been reported so far [1–3].

Here, we describe a new case of ODDD with massive brain calcifications and a new mutation of *GJA1* gene.

CASE REPORT

A 59-year-old man was admitted to our unit because of progressive gait disturbances and unsteadiness started five years earlier. He had also developed concomitant incontinence of sphincters. He was born with bilateral type III syndactyly of the third, fourth, and fifth finger, surgically corrected at the age of 1, and bilateral syndactyly of second and third toe. Microdontia, frequent caries, and premature teeth loss were present associated with decreased visual acuity since childhood. He underwent a surgical correction of bilateral glaucoma at 38 years old and of bilateral cataract at the age of 42 followed by blindness. He was affected by bipolar disorder. He was born by non-consanguineous

*Correspondence to: Prof. Antonio Federico, Department of Medicine, Surgery and Neurosciences, University of Siena, Viale Bracci 2, 53100 Siena, Italy. Tel.: +39 0577 585763; Fax: +39 0577 40327; E-mail: federico@unisi.it.