CASE REPORT

MCKUSIK KAUFMAN SYNDROME

Faisal Raza Malik, Awais Tahir, Huma Bashir

Department of Paediatrics, Foundation University Medical College, Fauji Foundation Hospital, Rawalpindi, Pakistan

A 12-years-old male child presented with polydactyly and syndactyly of hands, hypospadias, AND undescended testes. He was a known case of Tetrology of Fallot. One important differential in our case was Bardet-Biedl syndrome, but it was ruled out due to lack of evidence of central obesity, mental retardation and retinitis pigmentosa. At this time, there is no molecular testing available to distinguish these two syndromes.

Keywords: Mckusik Kaufman syndrome, polydactyly, syndactyly, hypospadias

INTRODUCTION

McKusick-Kaufman syndrome (MKKS) is a very rare genetic disease in different families. The reason for this is a genetic mutation in 20p12.[1] Classically there is an association of postaxial polydactyly, hydrocolpos in females or genital abnormality in males and sometimes cardiac malformation.[2] In moderate cases, the more frequent malformations are genital, urinary or intestinal (Hirschprung disease, oesophageal atresia, anorectal stenosis, imperforate anus) and retinitis pigmentosa.[3] This syndrome exists in both sexes but it is more frequent in females. In males the features are limited to finger abnormalities, sometimes with genital anomalies such as hypospadias and micropenis.[4] Mutations in the MKKS gene have also been shown to cause some cases of Bardet-Biedl syndrome (BBS) which is characterised by obesity, pigmentary retinopathy, polydactyly, renal abnormalities and hypogenitalism with secondary features of hypertension and diabetes. Although there is an overlap in clinical features between MKKS and BBS, MKKS patients are not obese and do not develop retinopathy or learning disabilities.[5]

A case of a patient with combination of postaxial polydactyly (Figure-1), genital abnormalities and congenital heart defect is described.

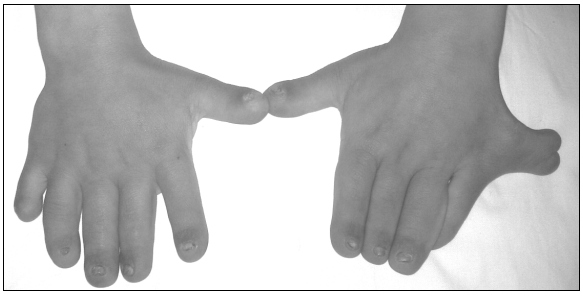

Figure-1: Polydactyly and syndactyly of hands

CASE SUMMARY

A 12 years old male child who was a product of consanguineous marriage, presented to our department with c/o hand and genital abnormalities. When detailed history was taken, it was found that he is a known case of Tetrology of Fallot (ToF) since 22nd day of life. BT shunting was done at 5 years of age. There was no history of seizure, anhydrosis or any visual problems. He was mentally normal child. On examination he had postaxial polydactyly and syndactyly of hands. He was short statured and had hypospadias and undescended testes. On CVS examination, scar mark of BT shunt was visible. Fundoscopy was normal with no evidence of retinitis pigmentosa. On the basis of history and examination our differential diagnosis was McKusick-Kaufman syndrome and Bardet-Biedl syndrome (BBS). As our patient had no evidence of central obesity, mental retardation and retinitis pigmentosa, BBS was ruled out and final clinical diagnosis of McKusick-Kaufman syndrome was made. Presently, there is no molecular testing available to distinguish these two syndromes.

DISCUSSION

McKusick-Kaufman syndrome is a rare syndrome comprised of multiple congenital anomalies, including postaxial polydactyly, congenital heart malformation, and hydrometrocolpos. It is more frequent in females and inherited in an autosomal- recessive pattern. The syndrome was originally described by McKusick in the Amish population.[6] The most commonly reported genital malformations include distal vaginal agenesis and transverse vaginal membranes, giving rise to hydrometrocolpos. That is, abnormal Mullerian canalization during embryogenesis is a more common association than defects in Mullerian fusion. Upper reproductive tract anomalies are not as common as vaginal agenesis in this syn-drome.[7] BBS has significant overlap with McKusick-Kaufman syndrome, because they are allelic to each other. BBS is characterized by retinitis pigmentosa, the hallmark feature, along with postaxial polydactyly, learning disability, childhood central obesity, and hypogenitalism. The syndrome was first described in1920, and the diagnosis required at least 4 of the 5 abnormalities aforementioned.[8] Despite the similarity of the 2 syndromes, especially in early childhood, it is important to distinguish them and avoid premature misdiagnoses. MKKS has a much more favourable prognosis than BBS. Importantly, children diagnosed with MKKS require close follow up for the

development of retinal dystrophy, obesity, and learning difficulties.[6,7] Both MKKS and BBS are associated with mutations in the MKKS or BBS6 genes on chromosome 20 p12.[6,8,9] This mutation was common to both MKKS and BBS6.[10] MKKS is often diagnosed early in young children with vaginal agenesis and postaxial polydactyly, whereas BBS is usually diagnosed in teens.[6] Interestingly, BBS is characterised by both congenital defects and progressive abnormalities such as retinitis pigmentosa. The development of retinal dystrophy is age-dependent and most often tends to develop by age. Obesity usually begins in childhood and worsens with age. Of the limb abnormalities, polydactyly and brachydactyly are seen most often, but syndactyly, clinodactyly, and sandal-gap toes are also reported.[10] A genetic consultation is therefore obligatory. As the risk of recurrence is 25%, it is essential to explain this to the parents in order to offer a detailed sonographic screening during pregnancy. Patients with MKKS may present with different clinical pictures and ages. Our patient presented with postaxial polydactyly of hands and feet, hypospadias, undescended testes and congenital heart defect (ToF). Patients with MKKS need to be closely followed up because of their resemblance with BBS and the probability of the development of renal insufficiency, mental retardation and ocular signs. This is due to the fact that the features which may change the diagnosis to BBS usually develop at a later age. Presently, there is no molecular testing available to distinguish these two syndromes.

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Address for Correspondence:

Dr. Faisal Raza Malik, Department of Paediatrics, Foundation University Medical College, Rawalpindi, Pakistan.
Email: faisalrazamalik@hotmail.com