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Tanveer Anjum Chaudhry
Aga Khan University

Mirza Umair Khalid
Aga Khan University

Taimur Saleem
Aga Khan University

Khabir Ahmad
Aga Khan University

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Blepharophimosis-Ptosis-Epicanthus Inversus Syndrome in A Pakistani Pedigree

Tanveer Anjum Chaudhry, Mirza Umair Khalid*, Taimur Saleem* and Khabir Ahmad

ABSTRACT

Blepharophimosis-ptosis-epicanthus inversus syndrome (BPES) is a rare developmental ocular disorder. We report this condition affecting 4 members of a Pakistani family across three generations. A 2-year-old girl was brought to the clinic by her father for the correction of her shortened palpebral fissures. Examination findings were consistent with BPES. The girl's father, paternal grandfather and paternal aunt also had identical features. The distance between the medial canthi of the index case was 30 mm, and the lengths of vertical and horizontal palpebral fissure were 6 mm and 20 mm, respectively. BPES must be considered an important differential diagnosis in patients presenting with blepharoptosis and blepharophimosis.

Key words: *Blepharophimosis. Blepharoptosis. Epicanthus inversus. Pakistan. Pedigree.*

INTRODUCTION

Blepharophimosis-ptosis-epicanthus inversus syndrome (BPES), a rare developmental eye condition, is characterized by shortened horizontal palpebral fissures (blepharophimosis), impaired function of levator palpebrae superioris of upper lid (ptosis), a vertical skin fold arising from the lower eyelid that inserts medially in the upper lid (epicanthus inversus) and an increased inner canthal distance (telecanthus).¹

In a Chinese study, the vertical fissure length was reported from 2 to 4 mm, the horizontal fissure length from 13 to 22 mm, and the inner-canthal distance was reported between 35-39 mm.²

BPES has largely been reported as a hereditary autosomal dominant entity. Genetic studies done in Indian and Chinese populations have implicated mutations in the Forkhead transcription factor FOXL2 (chromosome 3q) as responsible for BPES.³⁻⁷

BPES can be categorized into two types, based on the variable expressivity of female infertility, which is present in type-1 but absent in type-2 BPES.²

Here we report a case of BPES in a Pakistani family with three other members having the same syndrome across multiple generations.

CASE REPORT

A 2-year-old girl child was brought to the ophthalmology clinic by her father who sought consultation for the

correction of her shortened palpebral fissures. Detailed history of the girl showed that the condition had been present since birth. Her antenatal, natal and postnatal histories were otherwise unremarkable.

On physical examination, the girl had bilateral blepharoptosis with a broad and flat nasal bridge. There was a vertical skin fold arising from the lower eyelid that inserted medially in the upper lid (epicanthus inversus). The distance between the medial canthi was 30 mm (telecanthus). Bilaterally, the length of the vertical palpebral fissures was 6 mm whereas that of the horizontal palpebral fissures was 20 mm (blepharophimosis). Hence, both the vertical and horizontal palpebral fissures were shorter than the normal measurements for this age. Rest of the ocular and detailed systemic examinations did not reveal any significant findings. The ocular movements and alignment were normal. Her father, who accompanied her on this visit, was also subsequently examined. His ocular features were identical to those observed in his daughter. The distance between the medial canthi was 40 mm, whereas the lengths of his vertical and horizontal palpebral fissures were 7 mm and 23 mm respectively. Snellen visual acuity, ocular movements and alignment, slit lamp and fundus examinations were normal for the patient's father. His systemic examination was also unremarkable.

The father was interviewed in detail and asked about the history of this condition in the family. According to him, the girl's paternal grandfather and one paternal aunt also had identical ocular features (shown in Figure 1). The family belongs to Karachi and is Urdu-speaking. The family tree of the girl is shown in Figure 2. The affected paternal aunt of the girl was not married.

Based on the constellation of these findings, a diagnosis of hereditary BPES was reached for the girl and other family members. The option of surgical correction of

Section of Ophthalmology, Department of Surgery/Medical Student, The Aga Khan University, Karachi.*

Correspondence: Dr. Tanveer Anjum Chaudhry, 134/11, P-Street, DHA Phase VII, Karachi.
E-mail: tanveer.chaudhry@aku.edu

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blepharoptosis for the patient was discussed with her father; however, it has been deferred until the patient is older.

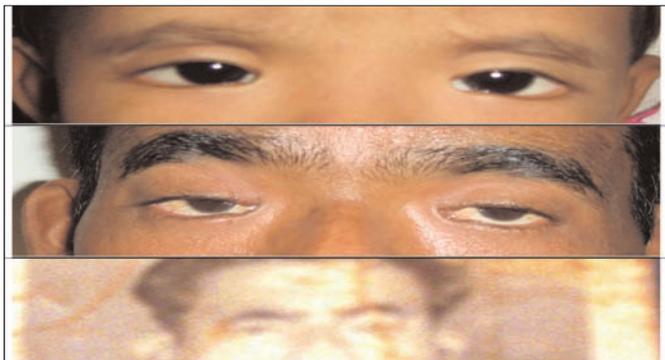


Figure 1: Ocular features consistent with BPES seen in patient, her father and paternal grandfather.

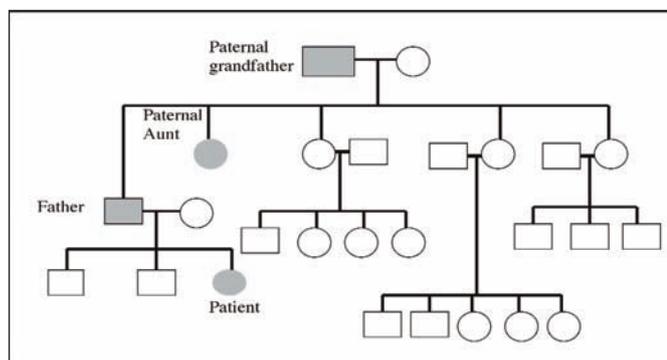


Figure 2: Family tree of patient with BPES. The patient, her father, paternal aunt and paternal grandfather are all affected by BPES (represented by shaded circle/square). Children of all other paternal aunts are normal.

DISCUSSION

Von Ammon first used the term “blephaerophimosis” in 1841, and Vignes first associated blepharophimosis with blepharoptosis and epicanthus inversus in 1889. Since then, BPES cases have been sporadically reported in literature.¹ In this report, 4 members of the same family were affected across 3 generations. In a Chinese study, 12 affected patients were identified across 4 generations in a single family.³ Moreover, the ocular measurements—the vertical and horizontal fissures lengths—of this case closely matched those reported in another Chinese study.²

BPES may also be rare in Pakistan, but it remains to be seen how rare this condition is because of lack of BPES-specific published literature in the country.

In a 10-year, case series of 101 patients of BPES from the United Kingdom,⁹ 31 patients had a positive family history of the condition. This underscores the importance of subjecting patients to a thorough family history. In the UK study,² there was a 5:1 predominance on the father’s side. In this case, the paternal grandfather and paternal aunt were affected in addition to the patient’s father; showing the predominance of the condition on the

father’s side. In the same study, it was noted that 27 cases presented for oculoplastic consult by 18 months of age and another 25 cases by the age of 5 years.⁸ This patient presented for the consultation at 2 years of age.

The management of blepharophimosis is primarily surgical and over the years, the surgery for BPES have evolved from a multi-staged approach to one that involves fewer stages.⁹ However, absolute consensus on the most appropriate and effective approach is still lacking. Surgery has been deferred in this patient for the time being; however, the patient’s father has been encouraged to maintain regular follow-ups.

Blepharophimosis can either present in the constellation of BPES or can be associated with other developmental ocular as well as systemic abnormalities.¹ Therefore, a thorough and complete physical examination, in addition to a thorough family history of the patient, is necessary. BPES must be considered an important differential diagnosis in any patient presenting with ptosis and blepharophimosis. If available, molecular characterization and genetic evaluation may be useful for a more definitive diagnosis and genetic counseling. Family pedigree construction is also important to identify the pattern of inheritance of the condition.

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