

Traboulsi Syndrome in Pakistan

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ABSTRACT

Traboulsi syndrome is characterised by facial dysmorphism, abnormal spontaneous filtering blebs, ectopia lentis and multiple anterior segment abnormalities. The constellation of abnormalities separate it from syndromes related to connective tissue abnormalities which are associated with ectopia lentis. We report five females with distinctive spontaneous filtering blebs, ectopia lentis and other anterior segment abnormalities and no systemic features other than flat cheeks and beaking of nose. The cases are being managed conservatively in the Cornea and Glaucoma departments of Al-Shifa Trust Eye Hospital, Rawalpindi, Pakistan.

Key Words: *Traboulsi, Anterior segment dysgenesis, Spontaneous filtration bleb.*

INTRODUCTION

In mid 90s, six members of a single family were reported with a syndrome having ectopia lentis, spontaneous filtration bleb formation and other anterior segment abnormalities along with distinctive facial dysmorphic features. As this specific combination of features was not observed in any other recorded syndrome; hence, this entity was labelled as a completely separate syndrome known as Traboulsi syndrome.¹ Presence of ectopia lentis and spontaneous bleb formation are seen associated with many ocular and systemic conditions.²⁻⁷ However, the combined presentation of these two signs is considered a unique presentation of its own kind. Although, cases of Traboulsi syndrome have been reported from Afro-Arabian and Arabian ethnicity^{6,8} but to the authors' best knowledge, very few have been reported from the region of the Indian sub-continent.

CASE REPORT

Case 1: A 15-year female was referred to the Cornea Department of Al-Shifa Trust Eye Hospital and presented with a chief complaint of decreased vision, mild ocular discomfort in both eyes and headache for the last 5 months. She had a history of spectacles for last 8 years and did not give any history of ocular trauma or ocular surgery. She had a best corrected visual acuity (BCVA) of 6/18 with -7.00 DS in right eye (RE) and 6/12 with -6.00 DS in left eye (LE). Her anterior segment examination showed bilateral avascular cystic filtration blebs superiorly (Figure 1a). Her anterior chamber (AC) in RE was flat with a keratolenticular touch and central

corneal haze and a non reacting pupil (Figure 1b) due to posterior synechiae (PS) formation. Her LE had a shallow AC with microspherophakic lens (Figure 1c). Intraocular Pressure (IOP) in both eyes was 10 mm/Hg measured with applanation tonometry and taking in account the pachymetry of both eyes. The posterior segments of both eyes were normal.

All required baseline systemic investigations for ectopia lentis and other connective tissue-related disorders were carried out and showed negative results. Based on the ocular features and systemic investigations, the case was diagnosed as Traboulsi syndrome and is being managed with symptomatic treatment in Glaucoma and Cornea departments of the hospital.

Case 2: A 19-year female presented in the Cornea Department of the hospital with chief complaint of decreased vision in both eyes for 7 years. The patient did not report any history of ocular trauma or surgery. She had a family history of ocular disorder as her mother also had visual impairment. Her visual status was <6/60 in RE and presence of only perception of light in LE. Clinical assessment showed presence of filtration blebs superiorly and superonasally in RE and LE, respectively (Figure 2a). Both eyes had a central corneal opacity along with shallow AC and PS (Figure 2b). Lenticular cataractous changes along with phaco-donesis were seen in both eyes. IOP was very low in both eyes (6 mm/Hg) measured with applanation tonometry. No abnormality was observed in the posterior segments of both eyes. Systemically, she had peculiar facial features showing beaking of the nose and elongated face.

After all required systemic investigations related to cardiovascular system, respiratory system and other investigations related to connective tissue disorders were carried out which showed absence of any abnormality, so the case was diagnosed as Traboulsi syndrome. The patient underwent penetrating keratoplasty in RE, which led to some improvement in visual acuity (VA) and is still being managed for any new systemic complaint in the hospital.

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Received: August 01, 2018; Accepted: February 26, 2019

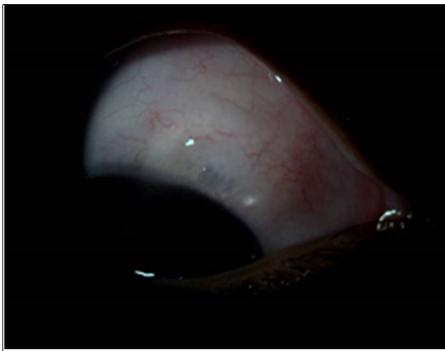


Figure 1a: Avascular filtration bleb along with mild scleral congestion (right eye).

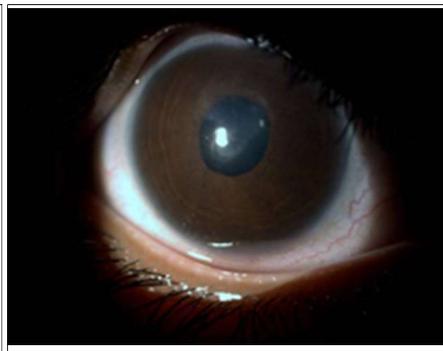


Figure 1b: Microspherophakia and superonasal lenticular subluxation (left eye).

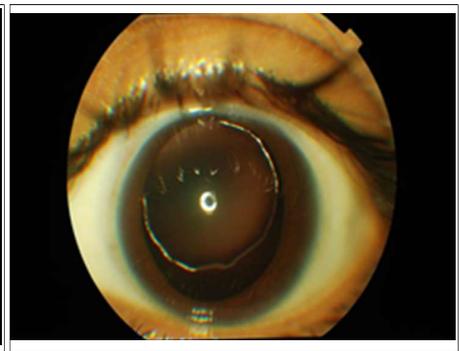


Figure 1c: Central corneal opacification and Iridocorneal adherence (right eye).

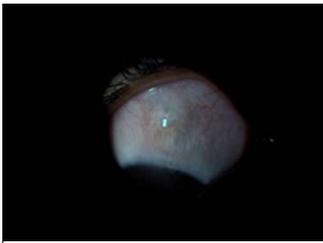


Figure 2a: Avascular cystic bleb (left eye).

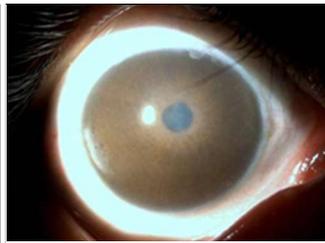


Figure 2b: Mild central corneal opacification, iridocorneal adherence and miosed pupil (right eye).

Case 3: Case 2 patient was asked to bring her mother for eye examination. She had a history of decreased vision in both eyes and ocular discomfort for the last 30 years and did not report any history of ocular trauma or surgery. Her visual status showed a BCVA of <math><6/60</math> on both eyes. Clinical assessment showed bilateral corneal opacification and spheroidal degeneration in LE (Figure 3a and 3b). Avascular cystic filtration blebs were present superonasally in both eyes (Figure 3c) while left eye also had superior scleral thinning and uveal show. AC in both eyes were very shallow with phacodonesis and bilateral poorly reacting pupils and LE showed inferiorly peaked slit shaped pupil. Ultrasonography showed normal posterior segments in both eyes. Systemic investigations were carried out and were normal, so it was confirmed that her mother also had Traboulsi syndrome.

Case 4: A 25-year female presented to the hospital with a complaint of sudden decrease in vision in RE since

one month along with bilateral ocular discomfort for two years. She had a history of decreased vision in both eyes for 7 years and did not present any history of ocular trauma, although she had undergone penetrating keratoplasty three years back in her left eye. Her visual status was very low and she only had a positive perception of light in both eyes. Clinical examination of her eyes showed bilateral avascular cystic filtration blebs present superiorly along with anterior staphyloma in LE. She had band keratopathy in her RE (Figure 4a) and hazy corneal graft in LE (Figure 4b). AC was flat in RE and very shallow in LE along with bilateral hypotony. PS was also observed in LE. She was aphakic in RE. As there was no view of the posterior segment, so B-scan ultrasonography was done in both eyes, which showed bilateral flat retinae in both eyes and dislocated crystalline lens in the right vitreous cavity (Figure 4c). Her facial features showed beaking of nose and abnormally flat cheeks.

All the required systemic investigations were carried out for the diagnosis of Traboulsi syndrome. She is being managed in the Cornea Department since then.

Case 5: A 20-year female presented to the hospital with a complaint of bilateral decreased vision and ocular discomfort for the last two years. She had no previous history of ocular trauma or surgery. Clinical assessment showed bilateral avascular cystic filtration blebs superiorly in both eyes along with scleral thinning and



Figure 3a: Central corneal opacification and shallow anterior chamber (right eye)



Figure 3b: Corneal opacification, inferiorly peaked pupil and spheroidal degeneration (left eye).

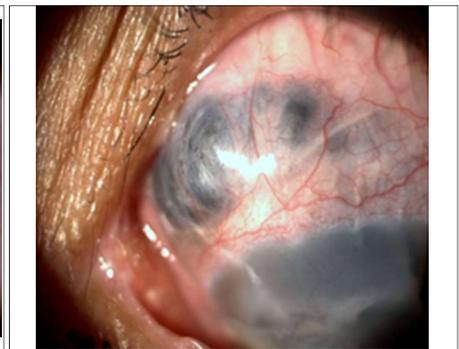


Figure 3c: Avascular cystic bleb (right eye).



Figure 4a: Scleral thinning, uveal show and filtration bleb (right eye).



Figure 4b: Opaque corneal graft (right eye).

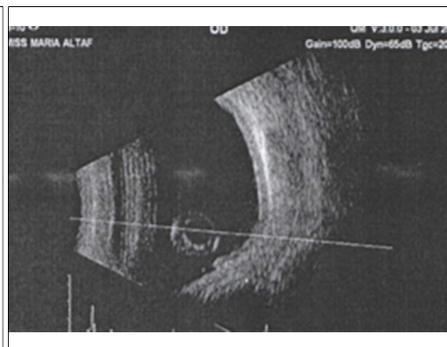


Figure 4c: B-scan of right eye depicting dislocated crystalline lens in vitreous (right eye).

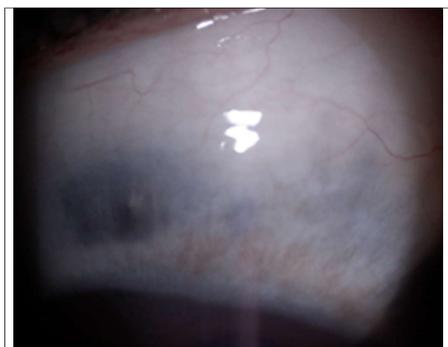


Figure 5a: Filtration bleb and uveal show (right eye).

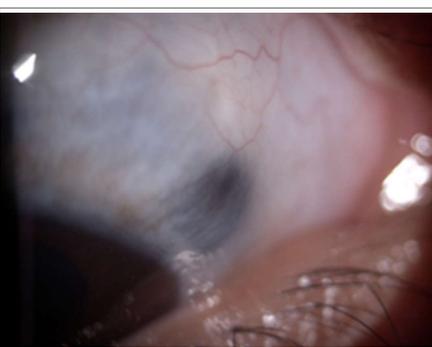


Figure 5b: Uveal show and filtration bleb (right eye).

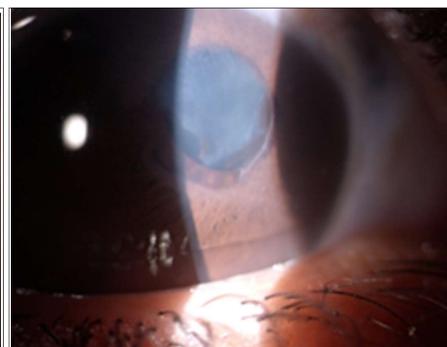


Figure 5c: Posterior synechiae and non-reactive pupil (right eye).

uveal show (Figure 5a and 5b). Peripheral iridocorneal adherence was seen in both eyes. RE showed non-reactive irregular pupil and shallow AC. LE also had a shallow AC but pupil had normal reflexes and was regular. LE had subluxated lens and a cataractous lens was seen in RE. Applanation tonometry showed hypotony in both eyes with normal posterior segments.

After ruling out all possible conditions through detailed systemic investigations, the patient was diagnosed with Traboulsi syndrome and is being managed in Corneal Department symptomatically.

DISCUSSION

Facial dysmorphism, lens dislocation, anterior segment abnormalities and spontaneous bleb formation (FDLAB) syndrome, most commonly known as Traboulsi syndrome, was considered a separate syndrome from other connective tissue disorders or ectopia lentis-related syndromes. Although features like autosomal recessive inheritance and ectopia lentis show some similarity with Marfan syndrome, but features like absence of aortic valve dilatation or mitral valve prolapse and normal metacarpal index provide more striking evidence of a completely distinct entity.⁶⁻⁸

Spontaneous bleb formation has been reported with inflammatory and degenerative diseases like Scleritis,⁹ and ectatic states like Pellucid marginal degeneration,¹⁰ and the first patient of spontaneous bleb formation was

reported associated with Axenfeld Reiger syndrome.⁶ Proposed mechanisms have been scleral thinning, leading to a focal shunt between AC and subconjunctival space or break in Descemet's membrane close to the limbus, leading to influx of aqueous humor into the stroma. The excessive hydrokinetic pressure opens a shunt from the corneal stroma into the conjunctival stroma leading to subconjunctival space. The hypothesised mechanism related to Axenfeld syndrome was increased IOP, leading to limbal rupture establishing communication into the subconjunctival space. In the case of Traboulsi syndrome, a combined mechanism based on the above mentioned mechanisms can be proposed.

Recent genetic testing has shown that mutations in ASPH gene are seen in Traboulsi syndrome. These mutations are related to severe decrease in the activity of aspartyl/asparaginyl β -hydroxylase, which plays an important role in the functioning of epidermal growth factor. This mutation has been proposed to be the causative factor for facial dysmorphism, ectopia lentis, scleral thinning and other anterior segment abnormalities.⁸ We hypothesise that as ectopia lentis or other lens-related abnormalities are present virtually in all cases of FDLAB syndrome, a sharp increase in IOP related to these abnormalities puts pressure on already weakened sclera, which gives way in the limbal region forming a sub-conjunctival cystic filtration shunt.

Studies have reported that early removal of subluxated lens leads to a better long term prognosis;⁷ but to our experience, once the eyes have gone into hypotony and a filtration bleb has been completely established, incisional surgical procedures do not carry a good prognosis as shown in Case 2 and Case 4. This might be because of a weak scleral coat which is unable to cope with the mechanical insult induced by incision.

In conclusion, FDLAB syndrome is a rare anomaly which has not been reported from this region of the world previously. These are the first cases reported from this region. Treatment of these cases should encircle around best possible management in accordance with the symptoms of patients as well as decreasing the risks of possible complications, which can worsen the visual level of the patient.

The authors recommend that further studies should be carried out to understand the genetic factors related to this condition as well as an environmental factor which triggers the cascade of changes involved in the early stages of this condition. Studies are also required regarding best treatment options for this condition.

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