

Keratoconus-Challenges of Management in a Low-Resource Setting – A Case Report

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Introduction: Keratoconus (KC) is a bilateral, non-inflammatory, progressive disorder in which central or paracentral corneal stromal thinning, apical protrusion and irregular astigmatism occur^{1,2}. The cornea is a transparent avascular structure forming the anterior 1/6th of the outer fibrous coat of the eye that serves protection and 3/4 of the refractive power of the eye. Its thickness

averages 520microns centrally and 700microns peripherally³.

Case Report: Mr. S.Z., an 18year old JSS2 student presented with a 4year history of severe itching of the eyes associated with redness, tearing, sandy sensation and stringy discharge + a 2year history of painless, progressive blurring of vision with no prior ocular, medical or family history of note. He is the 5th of 7 children of his mother in a polygamous setting. Examination revealed a young man with arachnodactyly, height of 160cm, arm span of 170cm (arm span to height ratio 0.7), and pectus excavatus. Other CVS, RS and abdominal examinations were essentially normal. An assessment of Keratoconus with background vernal conjunctivitis in a marfanoid patient was made.

Ocular examination:

VA	RE 6/36 6/18 with PH N10	LE 6/60 6/36 with PH N10
Lids	Hyperpigmentation	Hyperpigmentation Munson's sign +ve
Conjunctiva	Brownish	Brownish
Cornea	Limbal papillae Pseudogerontoxon Mild protrusion of central cornea Fine vertical lines in stroma(Vogt's striae)	Limbal papillae Pseudogerontoxon Marked protrusion of central cornea + thinning. Fine vertical lines in stroma (Vogt's striae)Rizzutti's sign +ve
AC	Deep	Deep
Pupils	RCR	RCR
Lens	Transparent	Transparent
Dilated Funduscopy	Corneal haze Pink NRR CDR 0.3 Peripheral retina -Normal Macula -Normal	LE Corneal haze Pink NRR CDR 0.4 Peripheral retina -Normal Macula -Normal
IOP (Perkins)	18mmHgPulsating mires	18mmHgPulsating mires
CCT	494um	247um
Refraction	Objective: -3.25/-0.25*195 Subjective: -3.00/-0.25*195	Objective: Dull reflex Subjective: -3.00/-0.25*195



Differential diagnoses included Pellucid marginal degeneration, and Keratoglobus. He was counselled on the nature, prognosis and treatment options; prescribed spectacles, and placed on betnesol and sodium chromoglycate.

Discussion: The prevalence of keratoconus was found by Ajaiyeoba et al to be 0.2% in a study in school children in 2006 in Ilesha Nigeria⁴; and more recently in 2014 to be 0.37% by Malu et al in a hospital clinic in Jos Nigeria⁵. A connection between KC and Marfan's syndrome was implied in a preliminary report by Welder et al in 2010⁶. Other studies report a high association of eye-rubbing, atopy and keratoconus^{7,8,9}. Treatment for early cases include spectacles, contact lenses and intacs; for later stages - corneal collagen cross-linking, phakic IOLs and keratoplasty^{1,2}. Challenges in low socio-economic settings include delayed presentation, restricted management options, paucity of diagnostic/monitoring equipment, scarcity of keratoplasty centres, high cost of treatment and lack of health-care subsidy. We therefore recommend detailed evaluation of patients presenting with allergy symptoms and improvement of health-care facilities, funding and socioeconomic conditions by government.

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