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Peter's anomaly and the clinical implications of rare genetic ocular diseases on the patient

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Peters' anomaly is a very rare genetic autosomal recessive ocular malformation that can be associated with systemic abnormalities resulting in a significant reduction in the quality of life for patients. Rare genetic ocular diseases are repeatedly missed upon examination and subsequently under-diagnosed resulting in often preventable complications such as glaucoma, cardiac and functional impairments in patients. Behind the goal of academic research should be the question: "Why are we doing this?" With the intent of improving the base standard of clinical medicine through improved awareness, diagnostics, examination skills and understanding of patho-physiological processes of rare ocular disease; our academic research in ocular medicine is about improving quality of life. We analyze the impact of rare genetic ocular diseases by examining specific genes and coordinating emerging treatments in biomedicine to match the expectations of the patient and the constantly evolving standard of clinical care.

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Paired arcuate and modified circular keratotomy in Keratoconus

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Aim: To reduce astigmatism, increase corneal volume and improve visual acuity.

Methods: A retrospective, single-surgeon, single centre, clinic-based study of a surgical procedure on twenty-four eyes of fourteen patients diagnosed with stage-III or stage IV keratoconus. Paired arcuate keratotomy coupled with modified circular keratotomy was performed at a single center by a single surgeon as an outpatient procedure with local anesthetic in a minor surgery room. Modified circular keratotomy was performed 7 mm from the papillary centre with depth of incision ranging between 70% and 90% of corneal thickness. Arcuate keratotomy was performed 2.5mm from the papillary centre with the depth of incision at 90% of corneal thickness. Angular length of the arcs ranged between 60° and 120° depending on the astigmatic power of the cornea.

Results: Astigmatism decreased in 87.5% of the 24 treated eyes, increased in 8.33% and did not change in 4.17%. Corneal volume increased in 91.66% of the 24 eyes and decreased in 8.34%. Visual acuity improved in 100% of the eyes; there was a mean improvement of 59% from preoperative visual acuity, 8.34% of the treated eyes reaching a visual acuity of 1.0 (20/20) with correction. No complications occurred during or after surgery. No suturing was performed and there was no rupturing at incision sites. There was statistical significance difference between pre-sph against post-sph (P=0.001). Also between pre.cyl against post.cyl (P=0.005), there was no significance difference between pre-axis against post-axis (P=0.05).

Conclusion: Paired arcuate keratotomy coupled with modified circular keratotomy should be considered as an intervention before performing keratoplasty.

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