



CATARACT SURGERY IN A PATIENT WITH SUPERIORLY LOCATED KERATOCONUS

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INTRODUCTION:

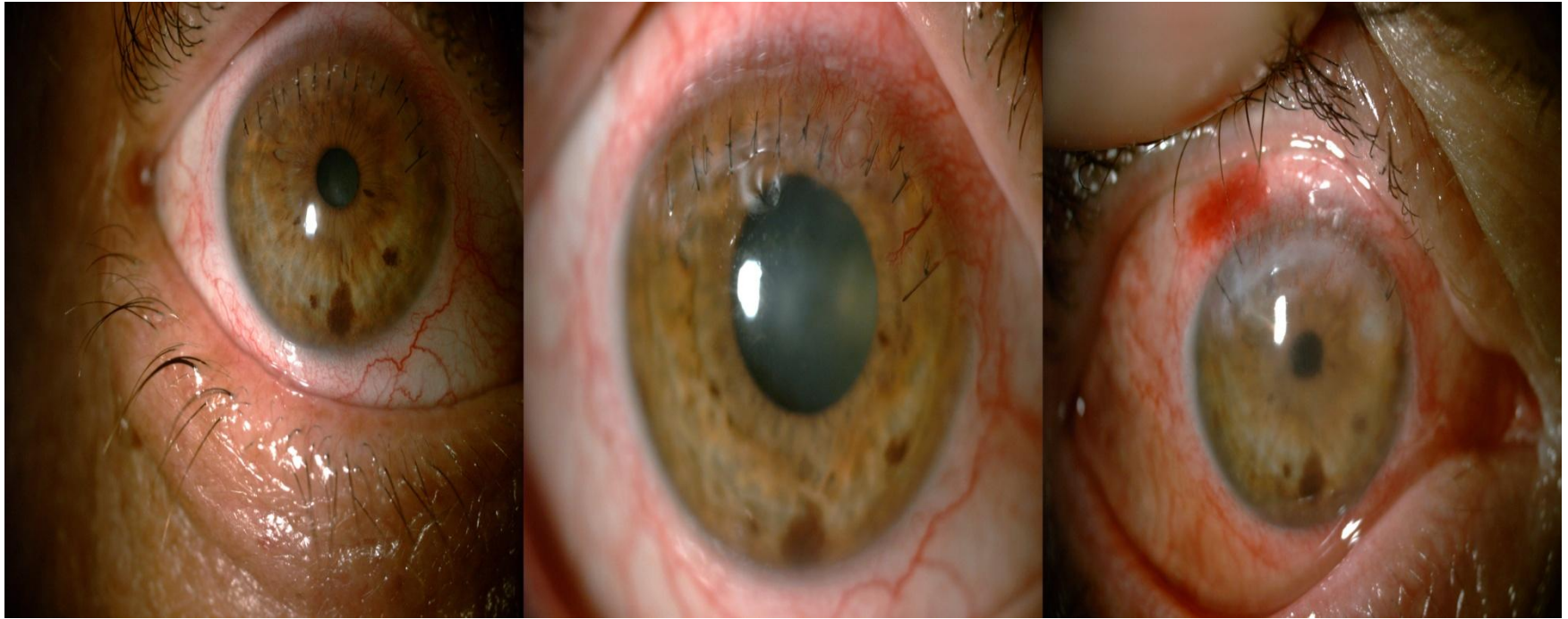
- Pellucid marginal degeneration (PMD) is a rare disorder of the peripheral cornea, which is difficult to discriminate from keratoconus, though it is claimed by many authors as a peripheral form of keratoconus causing corneal thinning and generally located at the inferior quadrants of the cornea, however the involvement can include superior, temporal and nasal sides of the cornea [1]. It can be associated with atopic dermatitis and keratoconjunctivitis [2]. It occurs in the fourth or fifth decade and can cause irregular against-the rule astigmatism with crescent like thinning of the affected corneal zone [3]. There are some methods described in the treatment of PMD such as wearing contact lenses, which can be sometimes difficult to fit, or surgical treatments like lamellar keratoplasty, central penetrating keratoplasty and wedge corneal resections with limbal relaxing incisions. [4-5]
- In this case, we report a patient with superiorly located keratoconus resembling PMD who underwent a surgery by partial corneal wedge resection and primary suturation before a consequent cataract surgery.



METHODS:

- A 75 years old man presented to our clinic with low vision in his both eyes. His corrected visual acuity was hand motion in the right eye (with pinhole) and 5/100 in the left eye (with +3,50 +6,0 axis 175). Ocular examination showed presence of papillary reaction and severe allergic conjunctivitis in both eyes and bilateral superior cone formation due to rubbing. Intraocular pressure measurements were 10mmHg in the right eye and 14mmHg in the left eye. He had grade 3 nuclear sclerosis in the right eye graded with scheimplug photography. His fundus examination was normal. However, his refraction, keratometry and biometry couldn't be measured in that eye due to abnormal superior corneal disorder. Pentacam analyses showed cone formation in the superior cornea resembling superior pellucid corneal marginal degeneration. We planned a crescent like wedge resection on the superior cornea and after primary suturation the cornea was left to develop scar formation that would tighten the superior corneal quadrant. Our aim was to obtain a keratometric and biometric measurement before the cataract surgery. A 120 degree crescent incision on the superior cornea with a 19 gauge stiletto knife was made and a corneal tissue on the $\frac{3}{4}$ depth of the cornea with 1mm width and 3mm length was removed, then cornea was sutured with 10-0 nylon sutures and the sutures were buried.



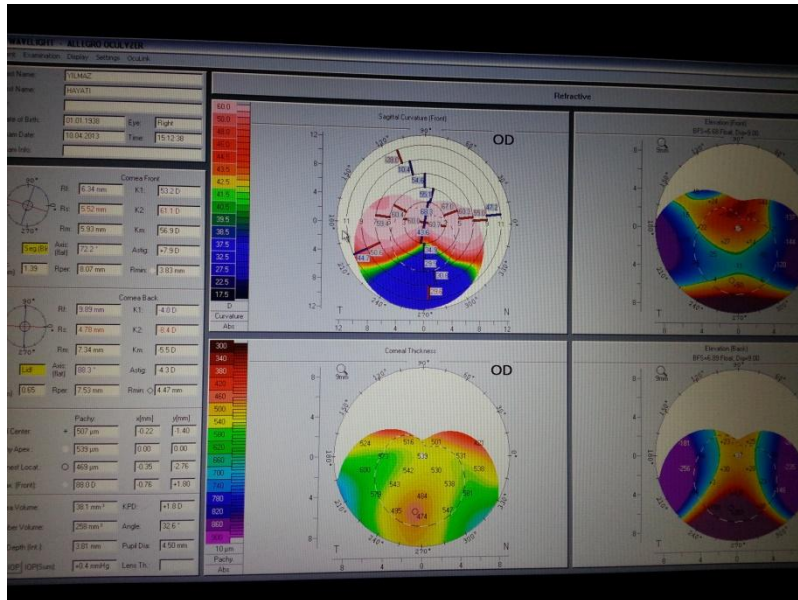


Post operative 1. day
after wedge resection

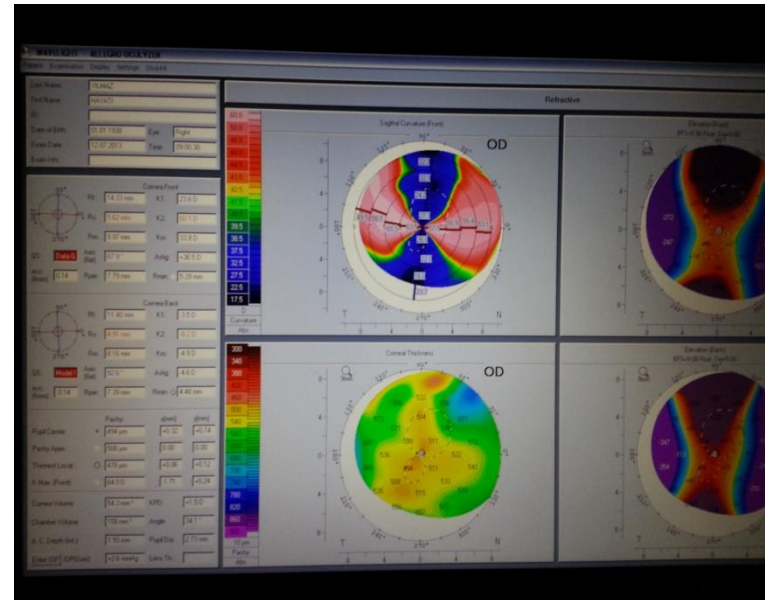
Post operative 3rd
week after wedge
resection with nuclear
sclerosis and
developed scar
formation

After cataract
surgery with
tightened superior
cornea due to scar
formation





Pentacam analyses before wedge resection



Pentacam analyses after wedge resection



RESULTS:

- After 6 weeks of follow up we took out the corneal sutures and noticed that there was a scar formation occurred along the resection site and patient's visual acuity in the right eye was increased to 20/100. We could be able to measure the biometry, refraction and keratometry before cataract surgery. With the biometry obtained we could be able to calculate the intraocular lens power and then we performed phacoemulsification and intraocular lens implantation without any complication. Patient's final visual acuity two weeks after cataract surgery was 20/50 with a steeper superior cornea formation.



DISCUSSION:

- Pellucid marginal degeneration is a rare corneal ectatic disorder of the peripheral thinning cornea without inflammation [6]. PMD generally occurs at four clock hour quadrants of the inferior cornea and rarely involves other quadrants including superior corneal site [3]. It can be associated with atopic dermatitis and keratoconjunctivitis like in our patient and PMD formation may be explained by abnormal rubbing hypothesis causing keratectasia due to severe allergic conjunctivitis [2,7].
- In addition to PMD, our patient also had a grade 3 cataract which reduces the visual acuity, but the main problem in this case was to obtain a reliable keratometry to calculate the intraocular lens power which will be used in cataract surgery. Firstly, we planned a crescent like wedge resection in order to threat PMD zone, then we obtained a reliable keratometry to calculate intraocular lens power and performed phacoemulsification.
- PMD can be treated with wearing soft or rigid contact lenses, but in advanced cases it's difficult to manage treatment only by contact lenses, so surgical techniques should be required such as wedge resection, lamellar crescent resection, intracorneal rings or grafting techniques like lamellar or penetrating keratoplasty [1,8]. We performed lamellar crescent wedge resection and primary suturation to avoid the risks of penetrating keratoplasty.
- In conclusion, lamellar crescent resection and primary suturation is an effective way of treating pellucid marginal degeneration.



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