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Bilateral Cataract Surgery in Posterior Polymorphous Corneal Dystrophy

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Abstract

Posterior polymorphous corneal dystrophy (PPCD) is an autosomal dominant corneal dystrophy and usually non-progressive which is characterized by metaplasia and excessive growth of the corneal endothelium and Descemet's membrane defects. Biomicroscopic slit lamp examination shows isolated or confluent vesicles and bands like lesions are observed. The patients are usually asymptomatic corneal edema was observed in some advanced cases. The evaluation of 38-year-old male patient who admitted to our clinic and it was observed every 2 cornea PPCD that the accompanying dense nuclear sclerosis cataracts. In this study, we aimed to share the results of uncomplicated cataract surgery.

Keywords: Phacoemulsification, Cataract, Posterior polymorphous dystrophy.

Introductıon

Posterior polymorphous corneal dystrophy (PPCD) firstdescribed by Koeppé in 1916 withwide corneal and anterior segment anomaly [1]. It is characterized by overgrowth and defects in the descemet membrane, metaplasia in the corneal endothelium [2].This disease is an autosomal dominant and usually non-progressive corneal dystrophy. Slit lamp biomicroscopy shows vesicles and band-like lesions that tend to be isolated or associated [3-7].

Corneal abnormalities occur at the level of the descemet membrane and endothelium in PPCD cases. They appear vesicle-like lesions, band lesions, and diffuse opacities in three main patterns [4-7].

In this case report, we investigated PPCD in both eyes and cataract surgery applied to a 38 year old male patient with bilateral dense nuclear sclerosis.

Case Report

A 38-year-old man with complaints of reduced visual acuity since childhood applied to our clinic for complaints of diminishing sight during the last six months and difficulty in daily work.

When systematical evaluation was made before the ophthalmologic examination, it was learned that there was no past operation in the history and there was not a known systemic disease.

In the detailed ophthalmologic evaluation, it was observed that the best corrected visual acuity was in the level of finger counting from 1 meter in the right and left eyes. Both eye intraocular pressures (Goldmann applanation tonometry) were observed to be within normal limits (16/18 mmHg) and no pathology was found on fundoscopic evaluation. Endothelial cell density was measured by specular microscopy and found

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to be 600 in the right eye and 890 cells / mm2 in the left eye. Central corneal thickness was measured with an ultrasonic pachymeter and it was observed to be 510 microns in the right eye and 521 microns in the left eye (Figures 1 and 2).

As a result of the evaluation of the patient, cataract surgery and intraocular lens implantation surgeries were planned for a month interval. Assessment done one month after the surgerythe best corrected visual acuity in both eyes was found to be 0.3 in comparison with the Snellen chart (Figures 3 and 4). Intraocular pressures were found to be 15 mmHg in the right eye and 16 mmHg in the left eye. Specular microscopy values were 540 in the right eye and 820 cells / mm2 in the left eye. Central corneal thicknesses were 530 microns in the right eye and 540 microns in the left eye (Figure 2).

Disscussion

PPCD may also occur asymmetrically although it is a bilateral disease. The majority of cases are stable and asymptomatic, and they are noticed incidentally. In the other rare case, the disease is progressive and can be a threat to vision. PPCD typically can be seen in the second and third decades of life; it may also appear with a cloudy cornea in the first decade.

When we investigated the relevant literature showing the association of PPHD and cataracts, we found Savini et al. study that two male patients aged 71 and 75 years underwent cataract surgeries [8].

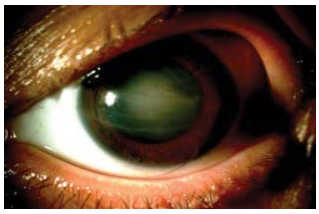

Figure 1: A 38-year-old male patient with severe nuclear sclerosis accompany with PPCD.

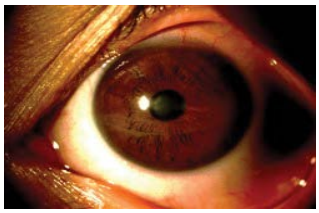

Figure 2: Picture 1 patient's eye one month after cataract surgery.

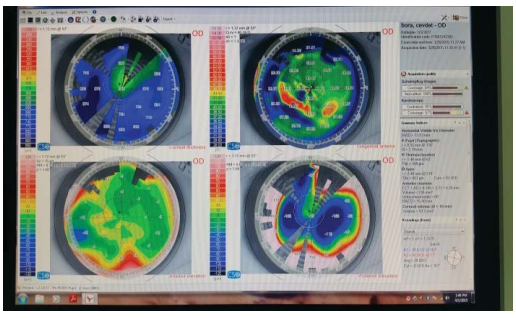

Figure 3: Postoperative 1st month corneal topographic analysis of the right eye of the patient.

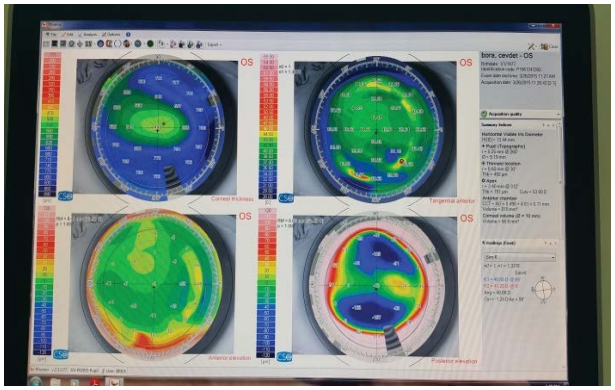

Figure 4: Postoperative 1st month corneal topographic analysis of the left eye of the patient.

The visual acuity of the patients after surgery was 20/20 different from ours, and they found that there was no significant change in the specular microscopy values as in our case [8].Savini et al. preferred 2.75 mm main corneal incision for phacoemulsification, 1% lidocaine (Xylocaine-MPF, Astra Zeneca, Wilmington, Delaware) for anterior chamber anesthesia and 3% sodium hyaluronate-4% chondroitin sulfate (Viscoat, Alcon Laboratories, Forth Worth, Texas) as viscoelastic injection into the anterior chamber [8]. The lens was removed with a phaco-chop technique and a 3-piece hydrophobic acrylic lens (Acrysof MA60AC, Alcon Laboratories) was implanted into the capsular beg. As a result, they recommended high-density viscoelastic useto reduce endothelial loss to surgical trauma and phaco-chop technique for phacoemulsification.

We also preferred a 3.2 mm main corneal incision for phacoemulsification surgeries, 1% lidocaine (Xylocaine-MPF, Astra Zeneca, Wilmington, Delaware) for anterior chamber anesthesia and injection into the anterior chamber viscoelastic sodium hyaluronate 1.6% (Easy Luron, Optimal Co., Turkey). The lens was removed with the phaco-chop technique and a single-piece hydrophobic acrylic lens (Acuva A 625, VSY Biotechnology) was implanted into the capsular beg. In these eyes with low endothelial numbers, we suggest phaco-chop technique which can minimize the phaco time.

There was no etiology that could lead to cataract development at such early age in the patient's background, family history, or systemic evaluation. We can link the limited visual enhancement of the patient to corneal edema due to a significantly lower level of endothelial cell density and surface irregularity, as seen in corneal topographic analysis.

As a result, we think that if the number of endothelium is even small in these patients, successful results can be obtained when necessary surgical measures are taken.

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