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Identify The Red Flags And Plan The Escape !

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I. Aim

To report an unusual case of pigment dispersion syndrome associated with unilateral pigmentation of the posterior lens capsule and intraoperative surprises during phacoemulsification. To increase the awareness among learners the importance of findings and to brace oneself for performance on table to give the patient the best outcome possible.

II. A case report

A 47 year old female patient presented to the OPD with complaints of diminision of vision in both eyes since 6 months. Patient had no significant ocular and medical history . Patient denies history of ocular trauma .On examination RE unaided visual acuity was 6/60 and BCVA 6/18 , LE visual acuity was 6/12 and BCVA 6/6 . On slit lamp examination anterior segment of RE showed nuclear sclerosis grade 2 with pigment dispersion on the posterior lens capsule which is a rare finding of pigment dispersion syndrome (PDS). The pigmentation was mostly along the Weiger's ligament known as the Scheie's line but a small area of pigment clump was towards the centre of the posterior capsule. The more common features of PDS krukenberg spindle , transillumination defects , pigments on anterior lens capsule were not seen in our case. LE had nuclear sclerosis grade 2 with no features of PDS . Intraocular pressure measured by Applanation tonometry was 18 mmHg in both eyes. On gonioscopy both eye showed open angles in all quadrants with increased pigmentation of the trabecular meshwork and presence of a pigmentation line similar to sampaolesi line .Dilated fundoscopic examination revealed normal optic nerves with cup-to-disc ratios of 0.3 in both eyes.

After routine blood investigations , the patient was posted for RE phacoemulsification with intraocular lens implantation On table , during phacoemulsification zonular weakness was noted so a capsular tension ring was inserted and emulsification continued , towards the end of the cortical wash a central posterior capsular tear was noted with vitreous disturbance , anterior vitrectomy was done , aspiration of the remaining cortex completed and IOL was placed in the bag.

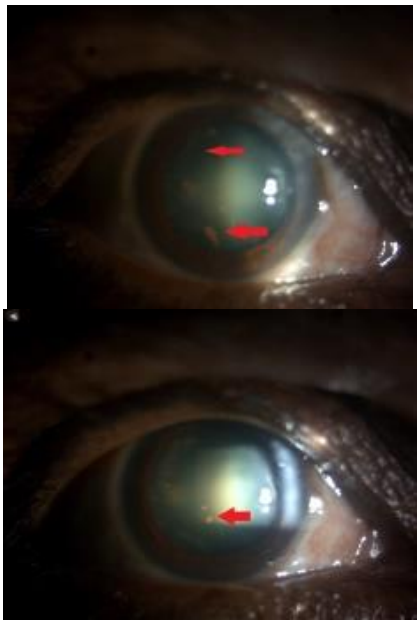

Figure 1 and 2 – pigmentation on the posterior capsule along the weigers ligament - Scheis line and pigmentation in the retrolental space

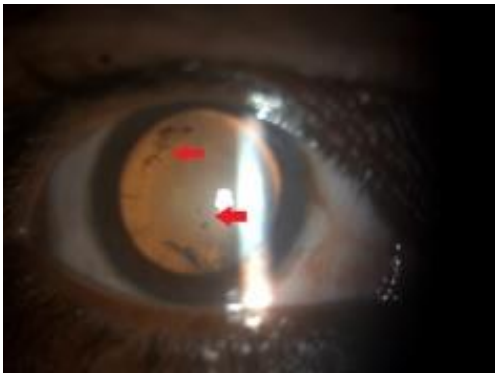

Figure 3 – retroillumination showing pigment clumps beyond the scheies line

Figure 4 – gonioscopy image showing increased pigmentation of TM and pigmented line similar tp sampaolesi's line

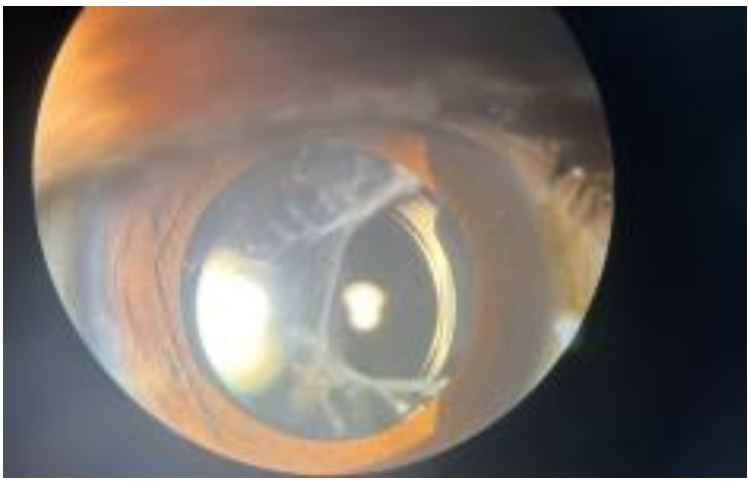

Figure 5 – post op 1 months

III. Discussion

Pigment dispersion syndrome (PDS) is a characterized by the pigment release from the iris pigment epithelium due to the mechanical rubbing of the concave posterior iris surface and the anterior zonules. The pigment is dispersed by aqueous currents and is deposited on structures throughout the anterior segment .The classic findings seen with this condition include Krukenberg spindle, iris transillumination, heavy trabecular meshwork pigmentation, and elevated intraocular pressure (IOP).[1]

Weiger's ligament and bergers space - The vitreous-lens join is developed through circular adherence of the vitreous to the lens posterior capsule, constituting the Wieger's ligament. The outer limit of the weiger ligament is the Egger's line, and the central virtual space is known as the Bergers space (BS).The lens posterior

capsule adheres throughout its extension to the anterior hyaloid of the vitreous in most of the individuals and this bergers space is not present . [2]

The retrograde movement of the pigment released from iris-lens friction can pass through the zonules and get deposited linearly along the edge of Wieger ligament.This pigment line is called the Scheie's line. When the pigment is deposited encircling the entire Wieger's ligament, the Zentmayer ring is formed .[3-5]Very little data is available on presense of pigmentation beyond the Wieger's ligament in the central retrolental area.[6,7]The pigmentation in the retrolental space may be due to defect of the Wieger ligament, which allows aqueous and pigment access into the bergers space.[7]

In our case the RE showed Scheie's line in the temporal side along with pigmentation in the central area (few specks and few clumps). This suggests that there might have been a break in the Wieger's ligament in our case leading to aqueous flow into the bergers space and consequent pigment deposition . This is rare case of unilateral pigment dispersion, other possibility is trauma but patient denies any mild history of trauma as well .

Intraoperatively in our case mild phacodonesis and zonular weakness was noted hence CTR was placed . The zonular weakness can be attributed to the constant rubbing of the iris and the retrograde aqueous flow into the Bergers space is also a probability in this scenario.

In our case PCR occurred during cortical aspiration. Taking into account the experience of the surgeon and the fact that cortical wash was being performed bimanually in a well maintained chamber, the chances of PCR were very less. The area of the PCR was right next to the central pigment clump area. A hypothesis is that BS could account for the lens posterior capsule oscillations in phacoemulsification particularly of the last quadrant. The saline solution would pass through the anterior surface of the iris, the zonule and the Petit space , passing through dehiscence of the Wieger's ligament towards the BS, raising the lens posterior capsule in waves and approximating the phacoemulsification terminal leading to the PCR . This could have been prevented by injecting high molecular weight viscoelastic substance into the bag during the surgery .[8]

The post operative 1 month out come of our patient was good with 6 /9 unaided vision.

Posterior capsular pigmentation itself being a very rare occurance , the intraoperative findings have not been studied so far . Our case report opens doors to meticulous thinking with regard to all the complications that can occur while operating such a case .

IV. Conclusion –

Identifying each and every subtle finding , planning the surgery accordingly is very essential .As lifelong learners we need to analyze what might have gone wrong during the surgery , and to prevent that from happening the next time we should understand the cause . A small incision cataract surgery can also be planned to avoid these complications in such cases.

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