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Management of Posterior capsule rupture

Whenever a posterior capsule rupture is suspected, the most important thing to remember is: do not follow your impulse to retract everything from the eye! The sudden change of volume in the anterior chamber can lead to direct extension of the posterior capsule tear and displacement of nuclear fragments to the posterior segment. The dogma to follow is: “Hold phacotip still in the eye”! the second instrument can be carefully withdrawn from the eye (not much change in volume) and inject any viscoelastic available in the area of the suspected rupture to stabilize lens fragments and prevent them from falling back. If this has been executed successfully, one can retract the phacotip and take a deep breath of relief. Then a very important decision has to be taken; consult a colleague or continue by yourself.... If the decision is to proceed, my recommended measures are:

1) Lower bottle height, Aspiration flow and Vacuum; Have a dedicated Low Flow program preset
2) Inject a dispersive viscoelastic through the posterior capsule rupture to install a “dispersive viscosheild barrier”.
3) If vitreous is suspected to be already present in the anterior chamber, inject diluted (approx. 10x) triamcinolone in the anterior chamber to ‘stain’ vitreous. If vitreous is detected, this should be removed by careful bimanual low flow anterior vitrectomy to prevent traction to the retina.
4) Reinstall the viscosheild barrier as often as needed to prevent nuclear fragments falling to the posterior segment. I personally inject profuse amounts of dispersive viscoelastic to make sure that nothing can pass this barrier to the vitreous.
5) The nuclear pieces need to be elevated manually to a safe position far enough from the capsule rupture.
6) Emulsification of these nuclear fragments should be performed at a very low flow setting to limit the removal of the viscoelastic barrier as much as possible. The vacuum should be very moderate to reduce the occlusion break surge response; my personal settings for the Infiniti machine (which can be translated into comparable settings for other machines) 40 cm bottle, 12 ml/min flow, 200 mm Hg vacuum.
Torsional Ultrasound settings can remain normal because of the lack of repulsion. With longitudinal ultrasound, power settings should be limited and dutycycle decreased to reduce the phenomenon of repulsion as much as possible.
7) After completion of nucleus removal (with repeated dispersive viscoelastic injection if necessary), bimanual anterior vitrectomy through 2 sideports can be initiated. Make sure that the sideports do not allow significant leak flow, as any flow might drag along vitreous with traction to the retina as a result. A bimanual system with separated irrigation and vitrectomy/aspiration is mandatory.
8) Inject diluted triamcinolone to detect any remaining vitreous. And remove by vitrectomy if applicable.
9) After removal of all vitreous, bimanual irrigation/aspiration of residual cortex through the same sideports follows. A very low aspiration flow of 5ml/min is preferred to minimize the risk of vitreous aspiration.
10) If the CCC is intact, a sulcus fixated 3 piece IOL implantation is the most convenient solution. Optic capture through the CCC is favorable for IOL stabilization and sequestration of the posterior segment. The IOL can be implanted with an injector or forceps, depending on the surgeons experience and instrumentation availability. A regular non angulated single piece IOL is not designed for sulcus fixation. The sharp edges of the lens can easily come into contact with the backside of the iris, which can lead to potential pigment loss and inflammation.
Viscoat through defect  luxation into safe zone  40bottle 12 flow 200 Vac

diluted triamcinolone  bimanual vitrectomy  optic capture CCC