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Temporal Vitrectomy: Have you Heard of it!!!

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Abstract: ***Temporal phacoemulsification for cataract removal is very common and all ophthalmologists are aware of this procedure. But how many of us are aware of Temporal vitrectomy !! Vitrecomy is a common ophthalmic surgery done by posterior segment surgeons and the common approach is superior. But at times there can be situations where doing a superior vitrectomy might not be possible, then what?? Here comes the role of not so heard and not so common Temporal Vitrectomy which can be a great saviour in certain conditions.***

Keywords: Vitrectomy, Temporal

1. Introduction

1971 was an important year in the history of ophthalmology when Machemer et al for the first time brought in the concept of vitrectomy in an eye with vitreous hemorrhage secondary to diabetic retinopathy.[1] Before that pathologies like Vitreous Haemorrhage, Macular Holes, Combined and Tractional Retinal Detachments, Intraocular Foreign Bodies etc which are very well taken care of today must have been left as such. Starting from 1971 till date vitrectomy has gone through numerous advancements like the advent of 25-gauge transconjunctivalsutureless vitrectomy (TSV) system by Fujiiet al in 2002[2] followed by the introduction of a 23-gauge system by Eckardt in 2005 to compensate for the increased flexibility of instruments in 23 G system.[3] Thenin 2010, Oshima et al described the initial feasibility and safety of a novel 27-G microincision vitrectomy surgery system and reported excellent visual and anatomical outcomes in a series of 31 patients.[4] These all 23G, 25G and 27G vitrectomy techniques are commonly referred nowdays as micro-incision vitrectomy surgery (MIVS). Vitrectomy surgery because of the hard efforts of all the above mentioned and many unmentioned surgeons has become a common surgery done by all retina specialists. But apart from regular cases all surgeons at times face certain cases which makes them to think out of the box for the benefit of the patient leading to new techniques which many of others might have not heard or thought of. So presenting such a case scenario where successful outcome was achieved by a small out of the box idea so that it can be used by other surgeons when facing similar situations.

2. Case Report

A 63 year old diabetic female patient presented to us with complaints of decrease of vision in her right eye for the last four to five months. Her best corrected visual acuity was right eye hand movements positive and left eye perception of light negative. Anterior segment examination revealed pseudophakic eye with a large bleb superiorly in her right eye with thinned sclera around the bleb on nasal and temporal side. Left eye was lost to glaucoma with complete optic atrophy. Posterior segment examination in her right eye revealed dense vitreous haemorrhage over the macular area with tractional retinal detachment nasal to disc with a large neovascularized area. A diagnosis of advanced proliferative diabetic retinopathy with vitreous haemorrhage was made in the right eye and glaucomatous optic atrophy in the left eye. Since it was a non-resolving vitreous haemorrhage in her right eye along with that she was one eyed and was not able to carry out her basic routine activities because of dense haemorrhage, she was planned for intravitreal bevacizumab followed by pars plana vitrectomy with endolaser with or without oil. The major hurdle to the surgery was a large bleb in the superior quadrant extending on both superonasal and superotemporal sides due to which the regular sclerotomies in the superonasal and superotemporal quadrant seemed impossible. So a decision was made after extensive thought process to do a temporal vitrectomy with the surgeon seated on the temporal side and the infusion was placed in inferonasal quadrant (at 3.0 mm from limbus) and the two sclerotomies (at 3.0mm from limbus)for instruments like light pipe, cutter, laser and forceps one in inferotemporal quadrant and one in temporal quadrant where the bleb was ending so as to not to cause any damage to the area of bleb at all. Surgery went off very successfully and no hurdles were faced intraoperative because of the temporal approach.

3. Discussion

Pars plana vitrectomy is the most common retinal surgery nowdays which is typically performed with the operating surgeon seated superiorly with instruments inserted through two sclerotomies, one in the superonasal and and other in the superotemporal sclera and an infusion cannula is placed in the inferotemporal quadrant.[5,6]But we all know that each surgical case we do is different from what we have done earlier and a few of them also might require a proper planning with a little different from routine approach for the successful outcome. Since the start of surgery there has been a constant evolution and advancement in the instrumentation and operative techniques of ophthalmic surgery. As in cataract surgery most surgeons now prefer a temporal approach for phacoemulsification rather than superior approach stressing the fact that position of the surgeon and the instruments plays a major role in the success and operative ease of the surgery.[7] So a temporal approach could also be undertaken for pars plana vitrectomy too in certain situations where it demands like in this case where there was a large bleb superiorly with scarring and thin sclera nasal and temporal to the bleb and making sclerotomies in superotemporal and superonasal quadrant was not possible. Comfortable and correct position of the surgeon is an important aspect which significantly affects the outcome of the surgery. So a correct planning is of utmost importance. This patient was one eyed and had a bleb extending to the superotemporal and superonasal quadrants, so decision was made to do a temporal vitrectomy with surgeon seated temporal and infusion cannula in the inferonasaland the two

sclerotomies (for instruments like light pipe, cutter, laser and forceps) one in inferotemporal quadrant and one in temporal quadrant to avoid any damage to bleb and adjacent area. Surgery was completed successfully with no intraoperative hurdles. After the surgery when a literature search was done for report on similar cases it was found that there were a few earlier reports of some cases of vitrectomy done by a temporal approach. Kiss and Vavvas have reported a series of cases in which the surgeon could shift from superior to temporal approach by shifting the infusion cannula to superonasal quadrant from inferotemporal one for better access to the areas in the posterior segment which are difficult to access sitting in the superior side.[8] In a patient with a prominent brow and a superior filtering bleb closa et al reported a temporal approach for removal of epiretinal membrane during 25G vitrectomy.[9] There is a report by Ryan et al which documents temporal approach for small-gauge pars plana vitrectomy combined with anterior segment surgery.[7] Another report by Sampaet aldescribes vitrectomy with temporal approach technique in removing severe diabetic proliferative membrane.[10] Reporting this case is important as it would make many of the retina surgeons aware that vitrectomy in addition to the regular superior approach can also be done temporally in certain situations successfully.

4. Conclusion

Temporal vitrectomy is an effective choice which many of the retina surgeons are not aware of, and can be considered in situations where superior vitrectomy is not feasible. Medicine and surgery is a constantly evolving branch with each case having variations making us think out of the box in turn leading to newer innovations.

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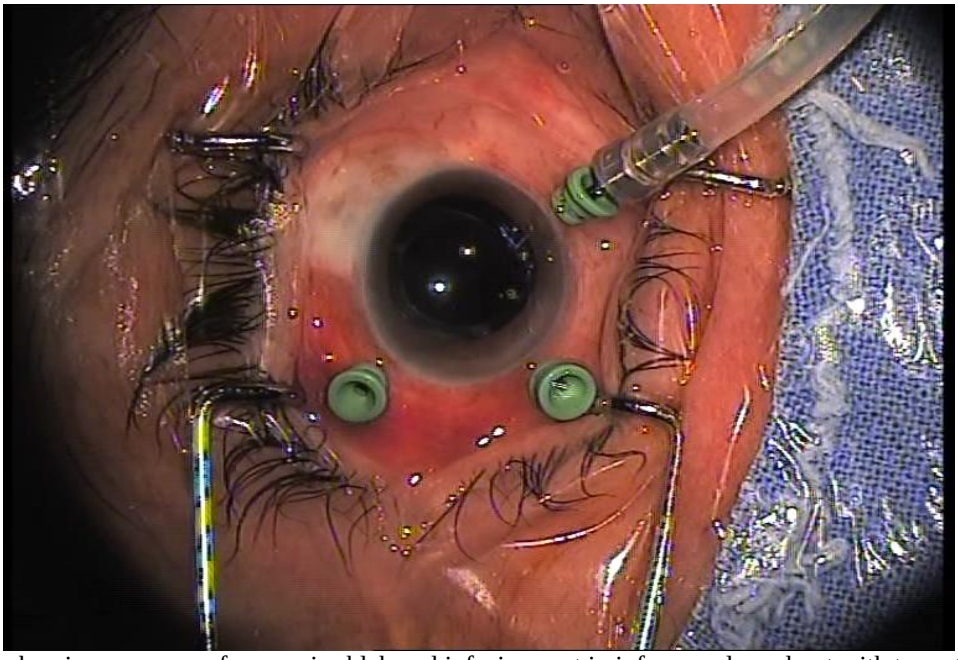

Figure 1: Image showing presence of a superior bleb and infusion port in inferonasal quadrant with two other ports one in temporal and other in inferotemporal quadrant for a successful temporal vitrectomy.

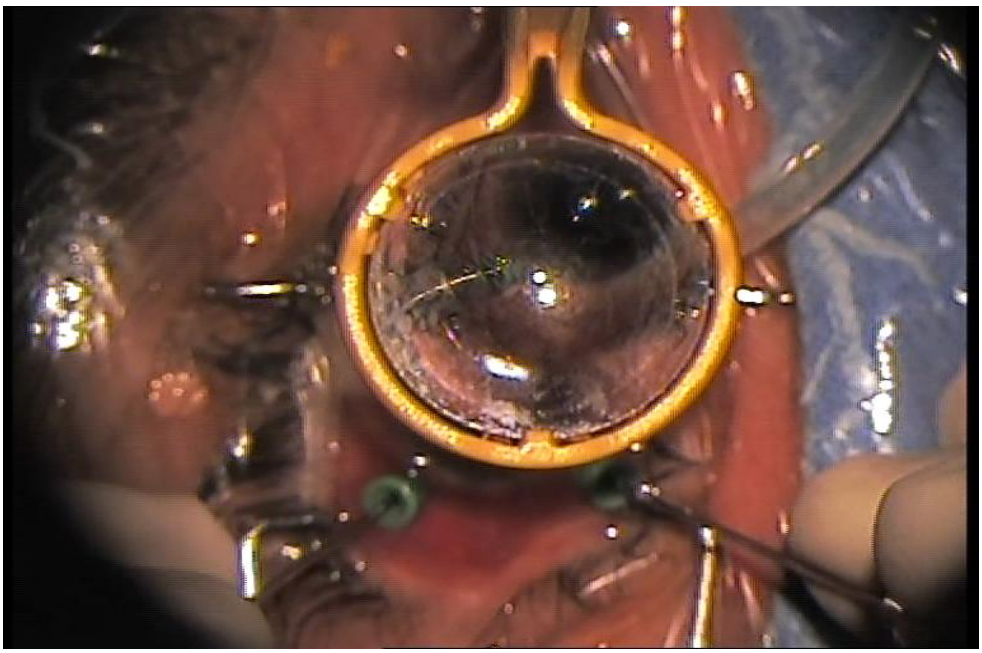

Figure 2: Image showing temporal vitrectomy being done.