



## Efficacy and Safety of Pars plana Vitrectomy for Vitreous Floaters after Posterior vitreous detachment

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**Purpose:** This study was aimed to evaluate the effectiveness of parasplana vitrectomy in removing the floaters and determine the associated risks.

**Materials and Method:** It was a case series conducted by enrolling 11 patients. It was made sure through exclusion criteria that not a single patient who had previous history of any surgery or ocular trauma got selection in this study. All the cases that were enrolled in this study were having age between 45-65 with Myopia less than 4 diopters. They underwent 25 G parasplana vitrectomy for floaters.

**Results:** All patients went successful parasplana vitrectomy. Mean age of the patient was  $56 \pm 2.54$ . 8 women (70%) and 3(27%) males give their consent to become the part of study. Complication is seen in one (9%) patient. Efficacy was noted in 10(91%) cases at 9th month of follow up.

**Conclusion:** Parasplana vitrectomy is not only safe but also effective for complete removal of floaters with minimum complications.

**Key Words:** vitreous floaters; pars plana vitrectomy; posterior vitreous detachment



## Introduction:

The most common reason for a person to visit an eye facility is the symptoms of Vitreous floater. In 2002 the UK was reported to have high incidence of symptomatic floaters.<sup>1</sup>

There are many factors that can be considered as risk factors for floaters such as to vitreous hemorrhage, asteroid hyalosis, uveitis, amyloid or syneresis, optic discs are found to be separated from posterior vitreous due to presence of Weiss ring.<sup>2,3</sup>

To deal with the issues of floaters, physicians has experimented vitrectomy that resulted in successful removal of floaters.<sup>4</sup> The results of this experiment was variable as some reported complete success and some to be reoperation due to unsuccessful results.

Pars Plana Vitrectomy or simply vitrectomy was already in use for different health conditions of eyes, so it was hard to perform this on a patient reporting with floaters until clear efficacy was determined.<sup>5</sup>

Anyhow Vitrectomy provides a definitive cure to floaters, although the surgery is not without risk, albeit quite minimal. Pars plana vitrectomy has been associated with the development of cataract, endophthalmitis, retinal tears and detachments, glaucoma, vitreoretinal hemorrhage, and macular edema.<sup>6</sup>

Given the risk of complications,<sup>7-8</sup> it is reasonable to reserve this option for patients who experience significant visual disturbances resulting from floaters and who understand and are willing to accept the associated risks. It should be noted that modern 25-gauge instrumentation and techniques help reduce the risks of these surgical complications.<sup>9</sup>

Pars plana vitrectomy can be both effective and safe as a means of resolving floaters. A number of studies demonstrate that successful PPV improves functional measures of straylight and contrast sensitivity. Mura et al showed that measurements of straylight improved after vitrectomy, and patients experienced improvements in facial recognition and glare hindrance.<sup>(10)</sup>

We planned this study to evaluate the efficacy of PPV in Pakistani population as there is no local study is carried out so far. Moreover it will highlight the efficacy of PPV for the resolution of floaters as in the international literature different studies has different opinion about vitrectomy for floaters.

## Materials and Methods:

This study was carried out on 11 patients selected from OPD of Mayo Hospital Lahore. All these patients had symptoms of floaters and were confirmed clinically at the time

of enrollment. Symptoms associated with floaters may include the description of gray, linear, hair-like structures with round points that appear more prominent against bright backgrounds (a white wall or clear sky), translucent strings, or "spider web-like" images that are more prominently noticed during head or eye movement. An informed consent was taken from the patients for the procedure and complications that can arise were also told to the case series. Patients who gave their consent were admitted on the same day and their demographics were noted. It was a prospective, cross sectional observational study. It was made sure through exclusion criteria that not a single patient who had previous history of any surgery or ocular trauma got selection in this study. All the cases that were enrolled in this study were having age between 45-65 with Myopia less than 4 diopters. They underwent 23 G parasplana vitrectomy for floaters. Efficacy of the procedure was considered if there were no floaters after 1 month of operation. Patients were flowed up weekly for any complication so that cases could be managed accordingly. Data was entered and analyzed through SPSS for both qualitative and quantitative data.

## Results:

All the 11 patients underwent for Pars Plana Vitrectomy. Mean age of the patient was  $56 \pm 2.54$ . 8 women (70%) and 3(27%) males give their consent to become the part of study. Complication is seen in one (9%) patient. Efficacy was noted in 10(91%) cases at 1<sup>st</sup> month of follow up.

## Discussion:

This is the first dual case series comparison of conventional vitrectomy and floaterectomy for the treatment of symptomatic floaters. Both approaches appear to have a high success rate, both in terms of symptom resolution and visual acuity. A 5-10% incidence of retinal detachment in both groups is surprisingly high, but given the small sample size of this pilot study it cannot be concluded that the procedure necessarily has a higher rate or detachment over conventional vitrectomy.<sup>11</sup>

Patient complaints of floaters are often dismissed or downplayed. Because floaters most often result from the body's own aging process, there may be a perception that this inevitability simply requires the patient to neurally adapt to a new normal. Yet studies indicate that floaters are a more insidious condition than is often appreciated. A survey by Waggle and associates indicated that the deleterious effect on quality of life as a result of floaters is comparable to or worse than that of age-related macular degeneration,



diabetic retinopathy, or glaucoma.<sup>12</sup>

Two recent series suggest that some complications may be fewer with 25-gauge PPV. Mason et al reviewed 168 eyes undergoing sutureless 25-gauge PPV for floaters and reported 12 eyes (7.1%) with retinal breaks, two with vitreous hemorrhage (1.2%), one with cystoid macular edema (0.6%), and no eyes with retinal detachment. Visually significant cataract developed in nine (22.5%) of 40 phakic eyes.<sup>13</sup> Sebag et al reviewed 60 eyes undergoing sutureless 25-gauge PPV for floaters and reported one eye (1.7%) with macular pucker and no eyes with retinal breaks, vitreous hemorrhage, or retinal detachment. Visually significant cataract developed in eight (23.5%) of 34 phakic eyes.<sup>14</sup> In another study postoperative complications occurred in three eyes, of which one had transient cystoid macular edema and two had transient vitreous hemorrhage. Approximately 88.8% of patients completed a quality-of-life survey, which revealed that 96% were satisfied with the results of the operation, and 94% rated the experience as a complete success. Which is little different from our results in which success is noted in 91% of cases but this difference may be due to difference in operative skills in their setup.<sup>13</sup>

Pars plana vitrectomy provides a highly effective treatment for floaters with complete resolution of symptoms recorded in 93.3% of patients. In one patient there was a recurrent post-operative anterior floater (asteroid hyalosis) to which laser vitreolysis was subsequently but unsuccessfully applied. But this procedure is not without complications as in the same study out of 14 patients who underwent PPV alone, at an average of 31.4 months follow-up, only one post-operative complication of progression of lenticular nuclear sclerosis, was recorded. In one patient, who had a combined procedure with phacoemulsification, posterior chamber lens implantation and pars plana vitrectomy, a retinal detachment caused by a retinal break located just posterior to the ora serrata developed post-operatively. The retinal detachment was successfully treated leaving the patient with 6/5 VA.<sup>15</sup>

Conclusively, good quality of life depends on fitness of vision or eye function. There are different ways to treat the defective eyes and all have some strong evidence about their efficacy and safety but in case of vitreous floaters very less literature is available. This literature revealed that minimally invasive procedure PPV is effective than any other for treatment of floaters. Somehow it is associated with risks but these risks could be neglected once its efficacy is supported with large evidence.<sup>16-20</sup>

Although in our study high efficacy and safety noted but still more studies need on large sample size. There is need to study that what happen when large number of patients are treated with PPV for vitreous floaters.

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