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Observation vs. Vitrectomy for Floaters

Kyle Kovacs:

Welcome to the New Retina Radio Journal Club w/ VBS. My name is Kyle Kovacs from Weill Cornell Medical College in New York. And I'm joined here today with Matt Starr from the Mayo Clinic.

Matt Starr:

Thanks, Kyle. Happy to be here.

Kyle Kovacs:

And also joining us is Neda Valikodath from the University of Michigan.

Neda Valikodath:

Hi. Great to be here.

Kyle Kovacs:

Today, we're discussing a paper that's titled Clinical Management of Vision Degrading Myodesopsias from Vitreous Floaters, Observation Versus Limited Refractive Vitrectomy. This was published recently by Stefaniya Boneva in Ophthalmology Retina in December of 2025. Neda, would you mind summarizing the paper for us?

Neda Valikodath:

Yeah. So, this was about vision degrading myodesopsia, which refers to clinically-significant vitreous floaters that impair visual function and quality of life despite preserved visual acuity. And management historically has been controversial due to subjective nature of symptoms, lack of objective criteria. And this study sought to determine when observation versus surgery was appropriate and whether there are objective measures of vitreous structure and visual function that can guide management.

So, this was a retrospective non-randomized interventional clinical study. There was a total of 651 eyes of 393 patients who met the N criteria, which was anyone with floaters without prior history of vitrectomy or other vitreoretinal diseases, which they outlined in the paper. The mean age was 57 years. 44% were female. They looked at the etiology of floaters in these patients, and 39% had a PVD, 20% had floaters due to myopic vitreopathy. Of note, their criteria for myopia was negative three diopters. And 32% had combined PVD and myopic vitreopathy.

Their outcome measures, they looked at vitreous echodensity, which was measured via quantitative ultrasonography. They assigned a composite score. This was based on previous literature looking at the premacular and central vitreous. They calculated the energy mean of the acoustic values in P50, which is the percent of central and posterior vitreous containing echogenic clusters. They also looked at other measures such as contrast sensitivity and patient-reported outcomes using the NEI-VFQ-25. And there were some nuances in terms of when they used patient reported outcomes and who reported these.

Key findings, so they had 55% of patients chose observation, and 44% chose limited refractive vitrectomy. And this was followed for approximately two years. In the limited refractive, just to clarify that, a PVD was not induced if there was no PVD preoperatively. And in phakic patients, they left three to four millimeters of retrolental vitreous intact.

So, let's talk about the observation-only group. They had 43.7% less vitreous echodensities and 35.7% better contrast sensitivity than

the surgery group, and this was statistically significant. They also had more favorable VFQ-25 scores, although it was a small difference than the surgery group, and this was also statistically significant. This group tended to be younger, more often phakic than the surgery group. And in terms of their etiology of floaters, the terms of PVD alone was similar between the two groups, but myopia alone was more prominent in the observation group. 37.8% did not follow up after the first visit. And the author said this was presumably due to successful coping, but there could be a number of reasons.

The average follow-up for the surgery group was about 38 months, and at three months follow-up, quantitative ultrasonography decreased by 60%, and contrast sensitivity was improved in 46%. Cataract surgery was performed in 35% of patients, and age seemed to be an important factor, with more cataract surgery being performed in older patients. They also looked at recurrent floaters, and this occurred in 5% of this group, on average two years postoperatively. And there were no RDs in this recurrent floaters group, but two had retinal tears. In the profile, when they looked at this, these patients tended to be younger, less than 55 years old. 93% were male, 100% were phakic, 80% had myopia, and 53% had partial PVDs. And they tended to occur in two timeframes. They described early as being less than nine months and late as greater than three years.

So, apart from the recurrent floaters in the surgery group, 3% had retinal tears, small percentage, 2% had retinal detachment, and about 1% had macular pucker, and less than 1% had vitreous hemorrhage. And then, 36% ended up having cataract surgery, which we had discussed.

So, in conclusion, there were objective measures, such as vitreous echodensity and contrast sensitivity, that were strongly correlated. Patients who chose observation were younger, more often phakic. They had a shorter duration of symptoms. They had floaters from myopia without PVD. 43% had less vitreous echodensity and better contrast sensitivity than those who selected surgery. And those who converted from observation to surgery tended to have degradation in their contrast sensitivity that was likely driving their decision to surgery. There was also a lower rate of cataracts in the younger patients who had vitrectomy likely due to no PVD induction and leaving that retrolental vitreous, which is consistent with studies on intraocular oxygen pathophysiology. It's an important paper as it highlights how objective measures can help differentiate patients who can be safely observed from those likely to benefit from surgery potentially, supporting a more data-driven approach to manage visually-significant floaters.

Kyle Kovacs:

Thank you for that very thorough summary of both the thorough descriptions of the various cohorts and also the outcome data. Matt, I wonder if you have any quick reactions to what we were just presented with about especially some of these objective measurements helping guide our decision-making with our patients.

Matt Starr:

Great summary, great paper, good question. I mean, I think a lot of it points to what we kind of would've expected, at least they try to find a cohort to be observed. We would think that for someone who's going to present with floaters, we're probably not going to want to operate or not potentially offer surgery on a younger patient, a phakic patient, someone with symptoms for a shorter time period. But it's good to put some of that data here and support some of the observation demographics, as well as the potential benefits of observation and the risks of the limited refractive vitrectomy.

Kyle Kovacs:

Matt, just as a follow-up, what do you think about the non-randomized or how do we integrate the fact that this is a non-randomized cohort into our decision-making for the outcome related data? Obviously, that's the critical element for interpretation of the definition of the observation versus the refractive vitrectomy cohorts, but what do you think about that for the outcomes?

Matt Starr:

That's a very important point. In part, when you're looking at any sort of comparative study, the gold standard is going to be a randomized trial and I think in a non-randomized fashion, you're going to integrate some inherent bias into what these cohorts are going to be represented by, especially in terms of VFQ scores. Surprisingly, a lot of the observation group has still had fairly high NEI-VFQ-25 scores compared to the ones that underwent surgery. Patients who want surgery are going to push towards surgery, and patients who don't want surgery are going to, again, lean towards observation.

Kyle Kovacs:

Neda, what are some of your other reactions to Matt's points or any other final points on the metrics of the paper?

Neda Valikodath:

Yeah, that was a great point, Matt, and I agree with you. I think the non-randomized nature of the study definitely introduces some of these biases, both on the physician part and the patient part. And like you said, Kyle and Matt, if there's a patient that wants surgery, sometimes we're seeing them as a second opinion or even third opinion. And it almost seems like if a patient really is bothered and they really would like to pursue surgery, they are going to continue finding opinions until maybe perhaps they get the surgery.

Kyle Kovacs:

Yeah. And to be fair, the authors say that in their 30% of observation that walk away, they say, "They may have had surgery elsewhere." On that [inaudible 00:08:47], let's take a quick break reminding that we'll be back to hear more in-depth discussion on the other side of this break.

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Welcome back to the New Retina Radio Journal Club w/ VBS. Let's get into a little bit longer discussion about the paper that Neda just summarized in the first part of the episode.

So, limited refractive vitrectomy for symptomatic vitreous opacities. We've got a lot to unpackage here. Data-driven evidence trying to guide some objective decision-making about who might benefit from doing it or who might profile into doing it, and then some long-term outcome data on who got it. First of all, let's maybe unpackage our own biases here about who here in this panel does limited refractive vitrectomies. Neda, do you do them and how do you feel about them in the setting of the data that you were just going through?

Neda Valikodath:

Yeah, great question. I do not do limited refractive vitrectomies. I do vitrectomies for floaters in select patients, but they are very select patients. We have a very in-depth surgical discussion about risk and whether it makes sense to do the surgery at that time or to wait and see how the patients are doing.

I think, in terms of the data that they showed, the length of follow-up is still a pretty short period in that group. And if, in the patients that we're not seeing a PVD already induced and in the surgery, if they're not inducing a PVD, that may happen at some point, especially in the patients who are myopic, that may happen earlier. And then, naturally, you're going to get a PVD. And if a patient is already symptomatic from floaters without the PVD, they are most likely going to be bothered by floaters after. And in the paper, they talked about the recurrence of 5%, but I do think that rate is going to be higher with time as all of those patients undergo PVD formation in the future.

And I'm thinking back to some of my patients who went through the surgery to not have floaters ever again, or at least not have those very symptomatic floaters. And a PVD does tend to be more central, larger, and more bothersome for patients, so it's another discussion about doing another surgery now going back into the eye. So, it just seems like not inducing the PVD, we're going to be addressing the same problems later on. And I do think this is where, again, a more in-depth discussion should be warranted and patients should be aware that if you're doing limited refractive vitrectomy, which may be what is being done, that they should be aware that they could have recurrent floaters, especially during that time of the PVD.

Kyle Kovacs:

So, I love that you focused also on the primary outcome here, which is symptom relief from the floaters. I was even just going to say from a safety profile, I don't know if you've seen or how you feel about some of these late unelevated hyaloid PVDs can be quite violent, and some of the worst GRT cases I've ever seen have been in the setting of those. And they can be a number of years down the road, as you said, maybe not even in the first year or two. But when it comes off, it comes off with a rip-roaring rage that can lead to horrific eye conditions.

You also mentioned about waiting and having a minimum set time with your patients. Matt, do you have a minimum threshold of waiting or is it a case-by-case basis before you even ever talk about surgery for symptomatic vitreous opacities? And do you think these authors had enough wait time with theirs?

Matt Starr:

It's tough. I first saw this... Dr. Sebag is a legend, and this is definitely his area of expertise, and he does a really good job. I think, yeah, Neda, you pointed out to a lot of potential flaws and just it is what it is. And I think that we're not going to get decades worth of data to really give us our decision-making, but that's what we need for some of these patients who are having surgery in their 30s, 40s, and we have to wait till their 50s and 60s and see how they really do.

So, I mean, just to answer one of your previous questions, I don't do this. I'll offer, again, like what Neda does, a vitrectomy for patients with a PVD, but in a patient without already a PVD, I don't think surgery's going to be in their best interest. And again, to Neda's point about third, fourth opinions, I get several of those, and you'd have to really talk to them and explain why you wouldn't do that.

And then I also talk to them also about other surgeons or other options, and I try to counsel them on the risk of those options that I don't even offer. There's some surgeons doing single-port vitrectomies, YAG vitreolysis, and that's kind of some really scary stuff. And I've seen some, again, to your point, really scary complications from those things. And so, just, again, explaining our decision-making, and they eat up a lot of chair time, which is tough.

But for a patient with a new PVD, I almost make them wait nine months to a year or so. And just the nature of our practice, I've got residents and fellows, I don't see a lot of new PVD patients, but patients with symptomatic floaters. And if they're not a year out from symptoms, I'm definitely going to make them wait a little bit longer if we're going to consider a vitrectomy.

Neda Valikodath:

And playing devil's advocate here, this paper did make me pause and think about limited refractive vitrectomy more, especially in younger myopic patients. There are a subset of patients who, whether due to their occupation or other reasons, they really want to have this surgery done, pilots, radiologists. I've had other surgeons come to me, and they don't have a PVD, and it really makes you think they're a radiologist, and they're saying, "I can't do my job. The floater just comes in the way, and I just want it taken out."

So, this does make me pause and think about some of the outcomes that they reported in these younger myopic patients. They had a low rate of cataracts, low rate of retinal tears. But then, again, they're going to have a PVD at some point and then, Kyle, like you were saying, they may have even worse complications down the road when that PVD forms.

Matt Starr:

Yeah, that's a great point. And I've heard other talks and read other papers by Dr. Sebag and the team. I agree. It makes me pause now, and I don't dismiss them. I try to really empathize with them. It's still really hard-pressed for me to perform a surgery and not induce a PVD in a young patient when we're trying to do a vitrectomy for vitreous opacities. This definitely offers some data. This isn't even the outcomes paper, but just the observation and comparative paper, but he does a good job, and it's not a foolproof surgery, and some of these patients are very happy. And I tell some of my vitrectomy patients for floaters that, when I sign them up, these are some of my happiest patients. And it's tough. I think just the limited aspect in a young patient population definitely gives me some pause because we're in the business for saving eyes, and this just doesn't seem like... We're taking a great-seeing eye and potentially introducing complications.

Kyle Kovacs:

In the little bit of time we'll have left, I just wanted to circle back. We're all struggling with the right people to take, right? So, does the objective data with the ultrasound help us at all, try to guide us at all in our decision-making towards who might be a better candidate, or are we really just picking up the status of the hyaloid on the ultrasound? What do you think, Neda?

Neda Valikodath:

Yeah, I think it's interesting, not just the ultrasound, but the contrast sensitivity, the VFQ-25 scores, they're trying to pair objective data with the subjective symptoms that we're hearing from patients. I think it's interesting. I don't know... If a patient is saying they want surgery and I see the vitreous findings on ultrasound, I see their contrast sensitivity, so I'm trying to put myself in this shoe where I have all these tests available, and they don't have a PVD, and they're young, and they're myopic, I think I would still counsel them the same as I am now. I typically tend to believe the patients when they say, "This is really limited." So, I don't know that the ultrasound findings would sway me one way versus the other.

I also think about this from a workflow standpoint and getting all of these tests in our clinic. Retina clinics are busy already. When would these patients be worked into the schedule? How often are we following these objective measures? So, there is the logistics piece of this too.

Matt Starr:

Exactly. The 10 minutes dark adaptation, pre-contrast sensitivity testing, yeah, that's such a long thing, a very lengthy thing to do. I don't think that the data presented would make me change my decision-making, and I think that it's definitely tough moving forward, what is still to do. They've presented before, some iTrace data. That's really easy to get and quick to get, and they don't talk about that here too much, but there's some really neat things you can do with the anterior vitreous interface using the iTrace, and that group has also presented some of their outcomes. And that's potentially more reproducible, quicker, and they've had some really nice findings there.

And I think those are things that we can use quickly in a busy retina clinic to help guide some of our decision-making.

Kyle Kovacs:

So, it feels like maybe we're profiling here, not necessarily adding something to our arsenal, but at least giving value to what our patients are expressing to help define who's benefiting from the vitrectomies. I'd like to thank both of you, and I'd also like to thank our audience for listening to the New Retina Radio Journal Club w/ VBS. Stay tuned for further episodes.