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Chats

"My Doctor Said I Have Narrow Angles. What Does That Mean?"

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Please note: This transcript has been edited for clarity and brevity.

MS. DIANA CAMPBELL: Hello, and welcome to the BrightFocus Glaucoma Chat. My name is Diana Campbell, and I am pleased to welcome you to the Chat today. BrightFocus Glaucoma Chats is a monthly program in partnership with the American Glaucoma Society and is designed to provide people living with glaucoma—and the family and friends that support them—with information provided by glaucoma experts. The American Glaucoma Society counts the leading glaucoma specialists in the country in their membership, and we are looking forward to hearing them discuss many topics about glaucoma during this Chat series. And today, we'll be talking about, "My Doctor Said I Have Narrow Angles. What Does That Mean?" BrightFocus funds some of the top scientists in the world who are working to find better treatments and, ultimately, cures for glaucoma, macular degeneration, and Alzheimer's disease. And we do events like today's Chat to get the latest news from science as quickly as possible to the families that are impacted by these diseases. You can find much more information on our website, www.BrightFocus.org. Okay, with all of that out of the way, I'm pleased to introduce today's guest, Dr. Nazlee Zebardast, who is assistant professor of ophthalmology and medical director of glaucoma imaging at Mass Eye and Ear Infirmary, Harvard Medical School. Dr. Zebardast specializes in the treatment of adult glaucoma and combined glaucoma and cataracts. She has received numerous awards and honors for her academic and research accomplishments and has been published in top ophthalmology journals. She has made significant contributions to global epidemiologic research, having established the Indian Family Angle Closure Evaluation with colleagues at Aravind Eye Institute in Southern India. Among other

findings, this study determined that siblings of individuals with known angle closure have a greater than one in three risk of developing the condition. Dr. Zebardast, thanks for joining us today, and welcome to the BrightFocus Chat.

DR. NAZLEE ZEBARDAST: It's a pleasure to be here. Thank you so much for having me.

MS. DIANA CAMPBELL: It's a pleasure for us to have you. Let's get started with the basics. What is the angle in glaucoma? What is the angle we're referring to today?

DR. NAZLEE ZEBARDAST: So, the angle (otherwise known as the iridocorneal angle, so that's a little bit of a mouthful) is actually the angle of the front of the eye, or the anterior chamber, which is the space between the cornea (the clear outermost layer of the eye) and the iris (the colored part of the eye). The angle is important for draining the fluid that the eye makes—called the aqueous humor—and that fluid is made to nourish and maintain the shape of the eye. And the fluid that the eye makes through the part of the eye called the ciliary body actually flows through the pupil into this angle, and it drains out of the eye. So, essentially, the angle is the drain of the eye.

MS. DIANA CAMPBELL: Okay. That makes sense. If someone has tearing [when their eye is watering and producing tears], too, is that related to the drain you're talking about, if their eyes are tearing?

DR. NAZLEE ZEBARDAST: No, actually, usually not. Tearing and its drainage occur actually through an entirely different part of the eye. Normally, the tears are produced in the tear glands or the lacrimal glands of the eye, and they drain through small channels that are located on the inner corners of your upper and lower lid, called the puncta, and from there, they actually go down into your nose through the nasolacrimal duct.

MS. DIANA CAMPBELL: Oh, wow.

DR. NAZLEE ZEBARDAST: So, it's a completely different system. And yeah, blockage and drainage of the drainage system of that part of the eye can cause tearing, but there's also other conditions that cause tearing that are

not at all related to the blockage of the drainage system. And that can include things like dry eye and allergies, for example.

MS. DIANA CAMPBELL: Right. That makes sense. So, what does it mean to have narrow angles? Does it mean that they have glaucoma, or is it a warning sign? What does it mean?

DR. NAZLEE ZEBARDAST: Not necessarily. So, having narrow angles refers to a condition where that iridocorneal angle—the part that I was talking about before, the drainage part of the eye that I mentioned between the cornea and the colored part of the iris of the eye—is narrower than what we consider normal. So, people with narrow angles may not have any symptoms at all and may not even have glaucoma—glaucoma, strictly speaking, is damage to the seeing nerve of the eye, or the optic nerve. But people that have narrow angles may be at increased risk of developing what we call angle closure glaucoma. And they're also at increased risk of developing something called an acute angle closure attack, which can raise the eye pressure of the eye and damage the optic nerve, or the seeing nerve of the eye.

MS. DIANA CAMPBELL: And is that the form where if you're experiencing symptoms, you should get to the doctor right away?

DR. NAZLEE ZEBARDAST: Correct. Yes. So, an acute angle closure attack is an emergency, and so if you have an acute angle closure attack, you may have symptoms like severe eye pain, headache, slurred vision, halos around lights—that is something that you should be seen for immediately.

MS. DIANA CAMPBELL: So, when someone comes in for their visit with their glaucoma specialist or with an ophthalmologist, how does a doctor know that someone has narrow angles? Is it imaging? What is the way you determine that the angles are narrow?

DR. NAZLEE ZEBARDAST: The gold standard way of determining whether someone has narrow angles is through an actual examination with a special lens called a gonioscope in an exam called gonioscopy. And so, this special lens actually allows us to see the angle of the eye, which is not visible directly. And by examining how wide it is and different parameters and its shape, the doctor can determine if someone has

narrow angles.

MS. DIANA CAMPBELL: Great. Thank you. A quick follow-up question to that from a listener: I have been getting eye exams for years. Why are they just finding the narrow angles now? Is this something that can develop over time?

DR. NAZLEE ZEBARDAST: Yes, exactly. So, it's highly possible that the angles were not narrow before. And as someone gets older, they are at increased risk of developing narrow angles because the lens of the eye tends to get larger, as someone develops a cataract, and changes over time, and that can cause the drainage pathway of the eye to become narrower over time. So, it's possible that during those ... all those eye exams that the angles were open, and over time they started to narrow past the point that we consider critical.

MS. DIANA CAMPBELL: That's great. And, of course, it's wonderful that they found them when they did, even if the first question wasn't quite sure why that would be, so thank you for clearing that up. Who is at higher risk for having narrow angles?

DR. NAZLEE ZEBARDAST: Age is one of the biggest risk factors for having narrow angles. Being a woman is actually a risk factor, also. Genetics play an extremely important role in determining who has narrow angles, so family history. We know through our studies that individuals that have a family history—or what I mean by that is a first-degree relative that has angle closure—are at 10 to 14 times higher risk of having angle closure themselves. We also know individuals belonging to East and Southeast Asian ancestry are at higher risk of having angle closure. And then there's the anatomy of the eye. There're features of the eye—such as having a narrow or a shallow front part of the eye; having thicker iris, for example; or a bigger lens—these are things that someone might be born with. For example, also being farsighted, or hyperopic—those all have to do with the anatomy and the different features of the eye itself that put someone at high risk of having narrow angles.

MS. DIANA CAMPBELL: Great. Thank you. So, what is the difference between acute angle closure and having narrow angles? I know we've

kind of covered this, but is having narrow angles kind of a warning sign that it might be or a precursor?

DR. NAZLEE ZEBARDAST: A narrow angle is an anatomic condition that is a risk factor for an acute angle closure. It's important to know an acute angle closure attack is an infrequent condition. By that, I mean even if you have narrow angles, not everyone with narrow angles develops an acute angle closure attack. But people with narrow angles are at higher risk of having an acute angle closure attack. By "acute angle closure attack," I mean that that drainage pathway of the eye—the angle—becomes suddenly blocked, and the fluid builds up in the eye, and that causes an extremely high eye pressure. And very high eye pressure can cause severe damage to the seeing part of the eye, or the optic nerve, and can lead to vision loss. And that's considered an emergency. And like I said before, you may have severe pain, headache, nausea, vomiting and—on one side—blurred vision, and that's something to go to the emergency room for. But again, having narrow angles puts you at risk for that condition, but it doesn't mean that you will 100% develop it. In fact, we know that it is relatively uncommon still, even in people that have narrow angles.

MS. DIANA CAMPBELL: Sure. So, the next question is: What is laser peripheral iridotomy, and why would or wouldn't a doctor recommend it?

DR. NAZLEE ZEBARDAST: So, a laser peripheral iridotomy is a minimally invasive laser procedure that's actually done in the office. And what we do is we use the laser to make a very tiny, microscopic hole in the colored part or the iris of the eye. And that hole allows for the fluid to flow more freely through the angle of the eye and reduces the risk of having an acute angle closure attack. The procedure is very simple to perform, and it equalizes the pressure in the eye and prevents that sudden fluid buildup that I was talking about before. So, why or why not your doctor might recommend an LPI or a laser iridotomy is actually a very nuanced discussion and it depends on someone's particular situation. The doctor may, for example, recommend a laser iridotomy if they feel that someone is at high risk of developing an acute angle closure attack—for example, if someone might have a higher-than-normal eye pressure or if they feel that just the anatomy of the eye is such that the risk is higher. On the

other hand, a laser iridotomy might not be recommended in some cases if the doctor feels that that individual is not at a high risk of having an acute angle closure attack or that some other treatments, like removing the cataract, might be a better treatment option, for example. So, every case is a little bit different. It's a little bit nuanced, but I hope that helped answer that question.

MS. DIANA CAMPBELL: It absolutely did. There are so many eye treatments where there's a standard of care and everybody kind of gets it, and so knowing that this is on a case-by-case basis, I think, would kind of reassure people if their doctor hasn't offered it and, of course, open an area of discussion if they're wondering. I think that's really important to understand. We've kind of talked about the benefits, but are there additional risks or benefits of having this procedure?

DR. NAZLEE ZEBARDAST: So, the benefits, I think, are mainly reducing the risk of having an acute angle closure attack, and it's a very safe procedure with a high success rate. Of course, every procedure has risks, and I would say probably the biggest risk of a laser iridotomy is development of dysphotopsias. And by that I mean ...what I wanted to mention was that dysphotopsias are probably what I tend to mention to my patients and the biggest risk of a laser iridotomy. And what happens is that about 5% of patients who get this procedure may develop lines and halos to their vision, especially when they look at bright lights. But the good news is that pretty much 80 to 90% of them go away by 6 months, but for some patients, there can be some very bothersome and long-lasting effects. There's also a small risk of increased eye pressure, inflammation, and bleeding, but these are very temporary and don't last for very long. The risk of damage to other structures of the eye or development of the cataract is very, very rare.

MS. DIANA CAMPBELL: Got it. So, the next question, given, I think, most everybody in the call knows BrightFocus has a huge emphasis—in fact it's our primary mission—is to fund research to find better diagnostics, interventions, treatments for the diseases we support. So, as a clinician scientist who has studied angle closure, would you mind sharing something that you've discovered?

DR. NAZLEE ZEBARDAST: Yes, of course. So, our team, together with Pradeep Ramulu at Hopkins and our collaborators at Aravind Eye Institute

in Southern India, established the Indian Family Angle Closure Evaluation, or IFACE. This was a longitudinal study of individuals with angle closure and their siblings, and what we found in the study was that family history was a strong risk factor for angle closure. And I want to emphasize this because I think it's really important for all individuals who have angle closure to encourage their adult siblings to get screened, as well. And if you have children who are over the age of 40, they should also be screened, because the odds of angle closure are about 14 times higher if you have a first-degree relative that has the disease. And we also found that about 1 in 10 individuals that had angle closure glaucoma—and that means damage to the optic nerve—that had a family member who had it also had undiagnosed glaucoma, so I can't emphasize family screening enough.

The other part of the study was looking at dysphotopsias after laser iridotomy. And like I mentioned, the most important thing that came out of this was about 5 to 8 percent of people develop this after laser iridotomy, but most of them go away, so that's very reassuring. And then we also looked at certain parameters of the eye and the heritability of different features of the eye, and we were able to show that there are certain features—for example, the thickness of the lens and its position in the eye—that are inherited among family members that put you ... someone at risk for angle closure. So, those were some of the important findings of our study.

MS. DIANA CAMPBELL: Great. I know with other forms of glaucoma there is an earlier onset for particular ethnic groups, and I think that message couldn't be reiterated enough to ... you know, if you're at risk for this type of glaucoma, that the tests should really start, you know, you said at age 40, but definitely earlier than what the regular recommendations are. So, that's a good takeaway point. If I may ask, what are you studying now?

DR. NAZLEE ZEBARDAST: So, my research currently focuses on genetics of glaucoma, and we've actually ... we look at things called polygenic risk scores. And what that means is that there are a lot of different genetic mutations that can predispose somebody to glaucoma—various forms of glaucoma, including open angle and angle closure—and we

can combine the strength of or the effect of these mutations into an aggregate score called the polygenic risk score. And we're developing this from different types of glaucoma and evaluating its usefulness for determining who may be more at risk of disease, who may be more at risk of more severe disease, and who may need treatment earlier on. So, stay tuned, but there's a lot to come, and there's a lot of changes happening to personalized glaucoma care.

MS. DIANA CAMPBELL: That's really exciting. Well, that's my final question. I want to say thank you so much for all the information about the narrow angle. And to our listeners, thank you so much for joining our Glaucoma Chat. I sincerely hope you found it helpful. We are taking a short break during the month of June, so our next BrightFocus Glaucoma Chat will be on Wednesday, July 12, and is titled, "What I Wish My Doctor Had Told Me About Glaucoma." To close out today, Dr. Zebardast, thank you so much for being with us and for all this wonderful information. I know personally I learned a lot, and I hope everybody else did, too. Before we conclude, are there any final remarks or important things you'd like to share with the audience?

DR. NAZLEE ZEBARDAST: I'm happy to answer any questions offline as well. I think, you know, sometimes patients ask me about taking certain medications that can raise their eye pressure, for example. I think it's always good to check with your doctor about the different kinds of medication, but there are certain medications that you should be careful about with narrow angles, and some of these classes of medications include things like antihistamines, antidepressants, cholinergics, for example, and decongestants. But overall, I think it's important to know that the risk is extremely, extremely small, but when in doubt, check with your doctor.

MS. DIANA CAMPBELL: Yeah, many of those medications are very frequently used though, so that's very important to add. Well, we're really, really grateful that you joined us today, and thank you so much, and we will talk to you again soon, I hope.

DR. NAZLEE ZEBARDAST: Yes, of course. Thank you so much for having me.

MS. DIANA CAMPBELL: Of course. This concludes the BrightFocus Chat about glaucoma.

Useful Resources and Key Terms

- [BrightFocus Foundation Live Chats and Chat Archive](#)
- [Glaucoma research funded by BrightFocus Foundation](#)
- [Overview of Glaucoma](#)
- [Treatments for Glaucoma](#)
- [Resources for Glaucoma](#)
- [Expert Advice for Glaucoma](#)
- [Glaucoma Awareness Campaign](#)

Other resources mentioned during the Chat include—

- Indian Family Angle Closure Evaluation (IFACE)
- Laser peripheral iridotomy (LPI)