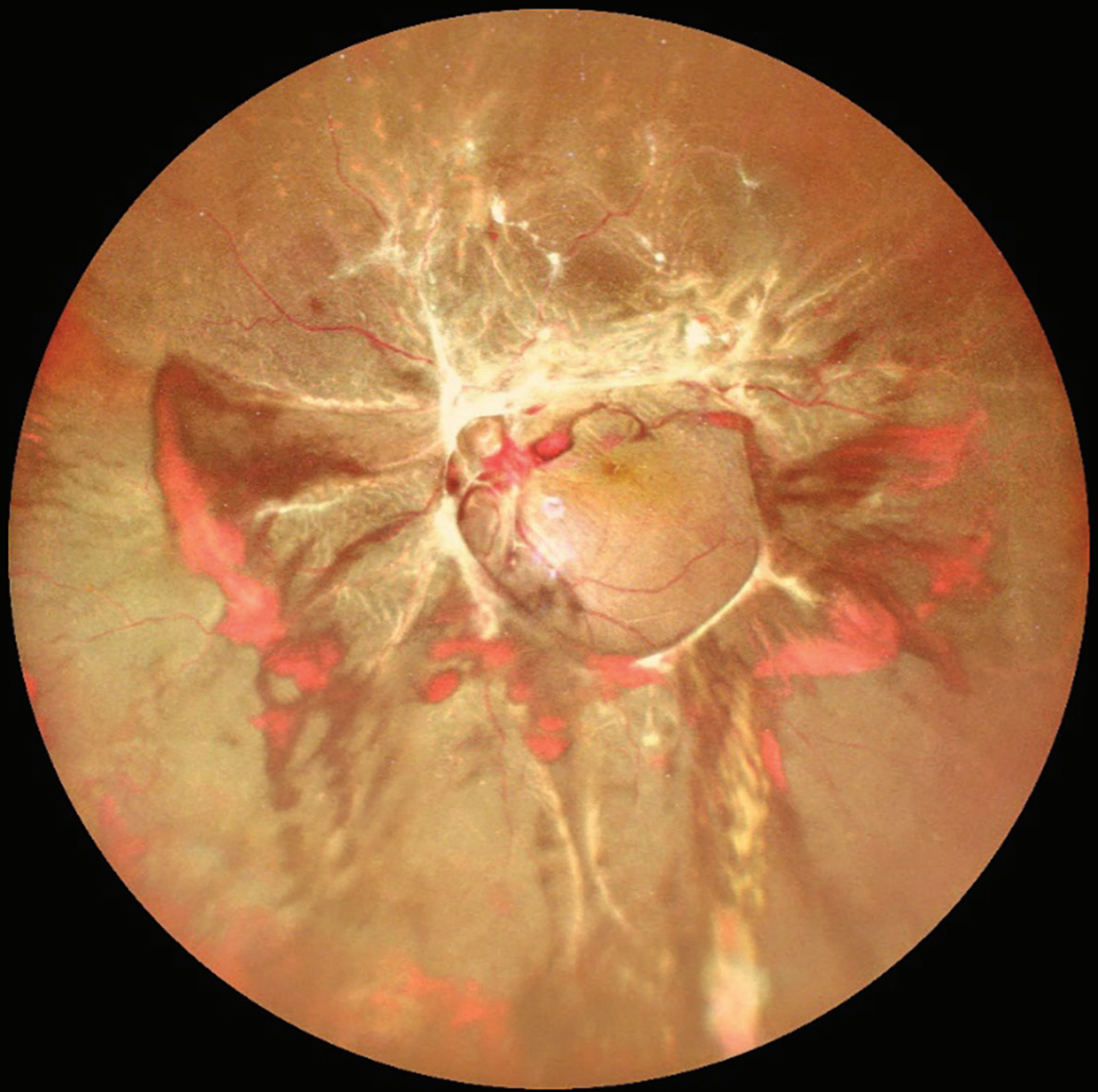
ANTI-VEGF CRUNCH SYNDROME IN PDR

Although it is the gold-standard therapy for diabetic retinopathy, caution with using anti-VEGF therapy is advisable when risk factors for crunch syndrome are present.



Although the vitreous hemorrhage decreased 2 weeks after intravitreal anti-VEGF injections, development of tractional retinal detachment with macula involvement was evident in the ultra-widefield image by Mirante.

In this case report, Yen-Po Chen, MD, PhD, of Chang Gung Memorial Hospital, Taoyuan, and Tucheng Municipal Hospital, New Taipei City, both in Taiwan, and the recipient of the Image of the Year Award 2020 from NIDEK, demonstrates how the Mirante Scanning Laser Ophthalmoscope (NIDEK) brings important pathologic signs from ***invisible to visible*** *and aids in interpretation* ***through the entire course of treatment—from the time of the initial visit, throughout follow-up, and after treatment.***

CASE PRESENTATION

A 34-year-old man with diabetes suffered from bilateral blurred vision for more than 2 months. According to his medical records, the initial BCVA was 20/100 in his right eye and 20/125 in his left eye. The anterior segment was unremarkable in both eyes. Fundus imaging showed bilateral proliferative diabetic retinopathy (PDR) with fibrovascular proliferative tissue over the area of the disc as well as vitreous hemorrhage in his left eye (Figure 1). In addition, OCT revealed sponge-like retinal swelling with central subfield macular thickness measuring 413 µm and 339 µm in the right and left eye, respectively. Based on a diagnosis of bilateral PDR with macular edema, bilateral anti-VEGF intravitreal injections were performed by another doctor. However, the vision in the left eye decreased from 20/125 to 20/250 2 weeks after treatment, and a tractional retinal detachment (TRD) with macular involvement was noted (see the image on the left page). Therefore, he was referred to our clinic for further treatment.

TREATMENT

Under the diagnosis of PDR with vitreous hemorrhage and TRD, the patient received vitrectomy surgery with fibrovascular membrane peeling, panretinal photocoagulation, and silicone oil tamponade. One month later, the retina was well attached (Figure 2), and the BCVA in his left eye improved to 20/100.

DISCUSSION

Diabetic retinopathy (DR) is one of the major causes of legal blindness in working-age adults worldwide.[1] Diabetic macular edema (DME) is the leading cause of central vision impairment among patients with DR.[2] Currently, intravitreal anti-VEGF agents are the first-line treatment for DME, particularly for DME with foveal involvement and associated vision loss.[3] Furthermore, there is evidence that intravitreal anti-VEGF injections can lead to improvement in DR severity.[4,5]

Despite the promising results in reducing vision loss in DME and PDR, there have been several reports of development or progression of TRD associated with anti-VEGF therapy for patients with PDR. This phenomenon has been named *anti-VEGF crunch syndrome*.[6] This complication typically manifests as sudden vision loss between 1 and 6 weeks following intravitreal anti-VEGF injection.[7] The risk factors for developing anti-VEGF crunch syndrome include using a higher anti-VEGF dose, the absence of laser photocoagulation, and increased severity of DR with fibrosis.[6]

In our patient with PDR, there were some risks for anti-VEGF crunch syndrome development, including no laser photocoagulation and fibrovascular proliferative tissue. Unfortunately, severe complications with TRD occurred in his left eye after the anti-VEGF treatment. Therefore, anti-VEGF therapy for a patient with PDR should be used with caution, especially when risk factors for crunch syndrome are present. In addition, with the Mirante Scanning Laser Ophthalmoscope (NIDEK), ultra-widefield images can demonstrate the retinal lesions in the posterior pole and periphery in a single shot, and are therefore useful for assessing and following patients with DR. ■

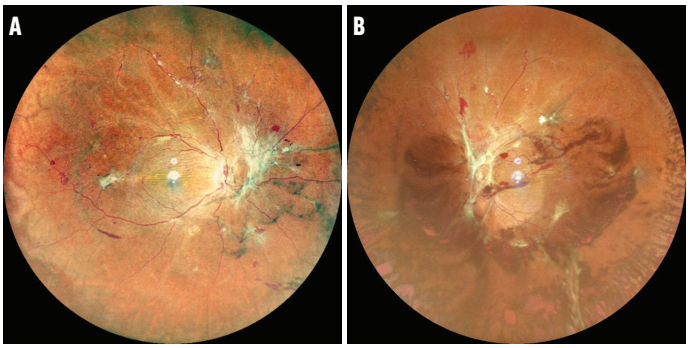


Figure 1. Ultra-widefield color fundus photographs using Mirante Scanning Laser Ophthalmoscope showed bilateral PDR with fibrovascular proliferative tissue over nasal disc area in the right eye (A) and vitreous hemorrhage with ring-shape fibrovascular proliferative tissue over the area of the disc and major vascular arcade in the left eye (B).

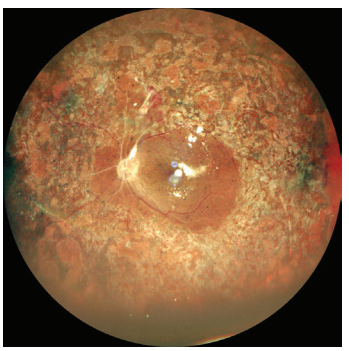


Figure 2. The retina was well attached after vitrectomy with panretinal photocoagulation, and silicone oil tamponade showed in the ultra-widefield image by Mirante.

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