



Video

Subretinal surprise: Subretinal tractional bands in diabetic tractional retinal detachment

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Hello my name is Robert Foster; I am a senior retina fellow at Wake Forest School of Medicine. I would like to present Subretinal Surprise; a surgical video case of subretinal tractional bands in a patient with diabetic tractional retinal detachment. Thank you to Dr. Sally Ong, assistant professor of ophthalmology at the Wake Forest School of Medicine who took care of this patient with me.

Our patient is a 46 year old phakic female with a history of poorly controlled type II diabetes and hypertension. She presented with over a year of progressive vision loss in both eyes. She has never had any prior ophthalmic treatment. Her visual acuity was 20/400 in the right eye, and hand motion in the left. She has high risk proliferative diabetic retinopathy in both eyes. Fundus photograph of the left eye showed advanced tractional retinal detachment involving the fovea with active neovascularization of the disc and elsewhere with vitreous hemorrhage. Upon stabilization of her right eye with intravitreal anti-VEGF, pars plana vitrectomy, and panretinal photocoagulation, attention was then directed to her left eye. After extensive counseling the patient elected to proceed with operative repair. Intravitreal bevacizumab was given five days preoperatively to help induce regression of her neovascularization and prevent intraoperative bleeding. The patient underwent 23G pars plana vitrectomy. I was the primary surgeon and Dr. Ong was the supervising surgeon during the case.

We started with the 23G vitrector to allow for more efficient removal of vitreous. Anterior-posterior traction was relieved with the 23G vitrector at 10,000 cuts per minute. The 23G vitrector was then exchanged for a 27G, 20,000 cuts per minute vitrector to allow safe dissection of membranes close to the retina. Using a chandelier and bimanual technique with vertical cut scissors and ILM forceps the fibrovascular plaque was dissected off the surface of the retina. The plaque was removed from the optic nerve head, planes were defined, and vitreoretinal adhesions were severed. Two small retinal breaks were marked with endodiathermy.

Subretinal tractional bands of proliferative vitreoretinopathy were identified. A significant subretinal component was not expected as this is atypical in diabetic TRD, and vitreous opacity previously obscured the

view. We decided we would not remove these bands if the retina would flatten after drainage of subretinal fluid during air-fluid exchange. However, during air-fluid exchange, the subretinal bands did not allow adequate flattening of the retina. Therefore, we deemed it necessary to remove them. Avoidance of iatrogenic breaks would be ideal in diabetic TRD repair, but the fortuitous location of already present breaks allow removal of subretinal bands without additional retinotomy. Subretinal bands were carefully removed through the retinal breaks. Upon relief of subretinal traction, the retina flattened nicely after drainage of subretinal fluid during air-fluid exchange. Endolaser was applied to the retinal breaks, then panretinal photocoagulation was applied 360° up to the ora serrata with scleral depression. 5000 centistoke oil was placed to tamponade the retina, and all sclerotomies were sutured.

One month postoperatively the patient's vision is improved to 20/800, and the fundus photograph seen here shows the retina is attached under oil.

OCT of her macula demonstrates the retina is attached with mild residual subretinal fibrosis.

Here is a before and after photo of her left retina showing improved anatomic and functional outcomes. Our plan for this patient is to remove the silicone oil with concurrent cataract surgery after postoperative month three. In a case of challenging advanced TRD repair like this one made more complicated by the presence of thick subretinal membranes, it is important to identify the subretinal bands intraoperatively and carefully consider whether they will need to be removed. Removal of these bands may sometimes be necessary to successfully reattach the retina. Subretinal bands can be removed through an existing break or a retinotomy. Careful technique is imperative during this maneuver to avoid enlarging or creating new retinal breaks which may jeopardize anatomic surgical success.

Thank you for watching this video. We hope you will consider these techniques if you encounter unexpected subretinal fibrosis in a diabetic TRD. Please email us if you have any questions or comments.

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Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT authorship contribution statement

Robert Foster: Writing – review & editing, Writing – original draft.

Sally Ong: Supervision.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ajoc.2024.102104>.