



Fundus Changes After Vitreoretinal Surgery

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Vitreoretinal surgery mainly consists of scleral surgery (external-route) and pars plana vitrectomy. The former aims to relieve vitreoretinal traction or close retinal breaks through external scleral indentation buckling with silicone sponge, while the latter is used for vitreous opacities clearance, vitreoretinal traction relief, and retinal structure restoration by removing part or the whole vitreous through three ports via pars plana vitrectomy.

Stereopsis is the foundation of vitreoretinal surgery [1–3]. During the scleral buckling surgery, the exact spot of intraocular lesions (i.e., retinal holes) on the sclera could be accurately located with the help of binocular indirect ophthalmoscope, thus a successful surgery could become possible. Similarly, fine stereopsis is needed to identify lesions such as hemor-

rhages, the position of the epiretinal membrane, the distance from the retina to the lesions, the exact position and its adjacent structures of blood vessels during vitrectomy. When the peripheral scleral compression is applied, it is necessary to identify the height of compression and the relative distance from the lens. Thus, the surgeon can decide whether to cut or to aspirate, or use auxiliary equipment such as forceps and/or scissors to complete the operation [3–5].

Vitreoretinal surgery is complicated, and a lot of practice or a long learning curve should be done before being an independent surgeon. By learning the following preoperative and postoperative stereo-grams, readers may better, more quickly, more deeply understand the diagnosis and surgical treatment of posterior segment surgery.

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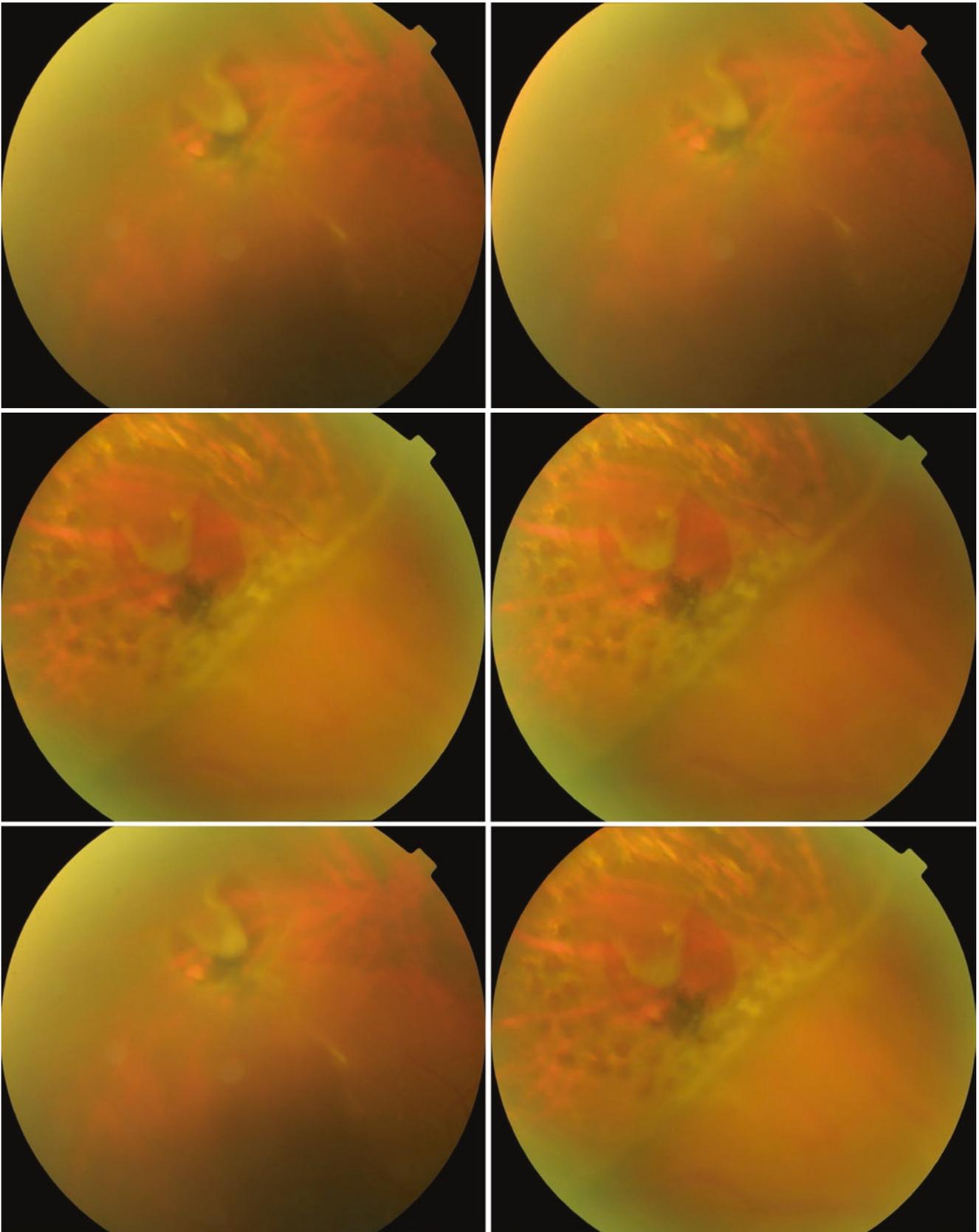


Fig. 7.1 RRD and scleral buckle
I. Retinal tear before operation
II. Retinal tear after scleral buckle

III. The ridge of the buckle
IV. Laser spots around the tear

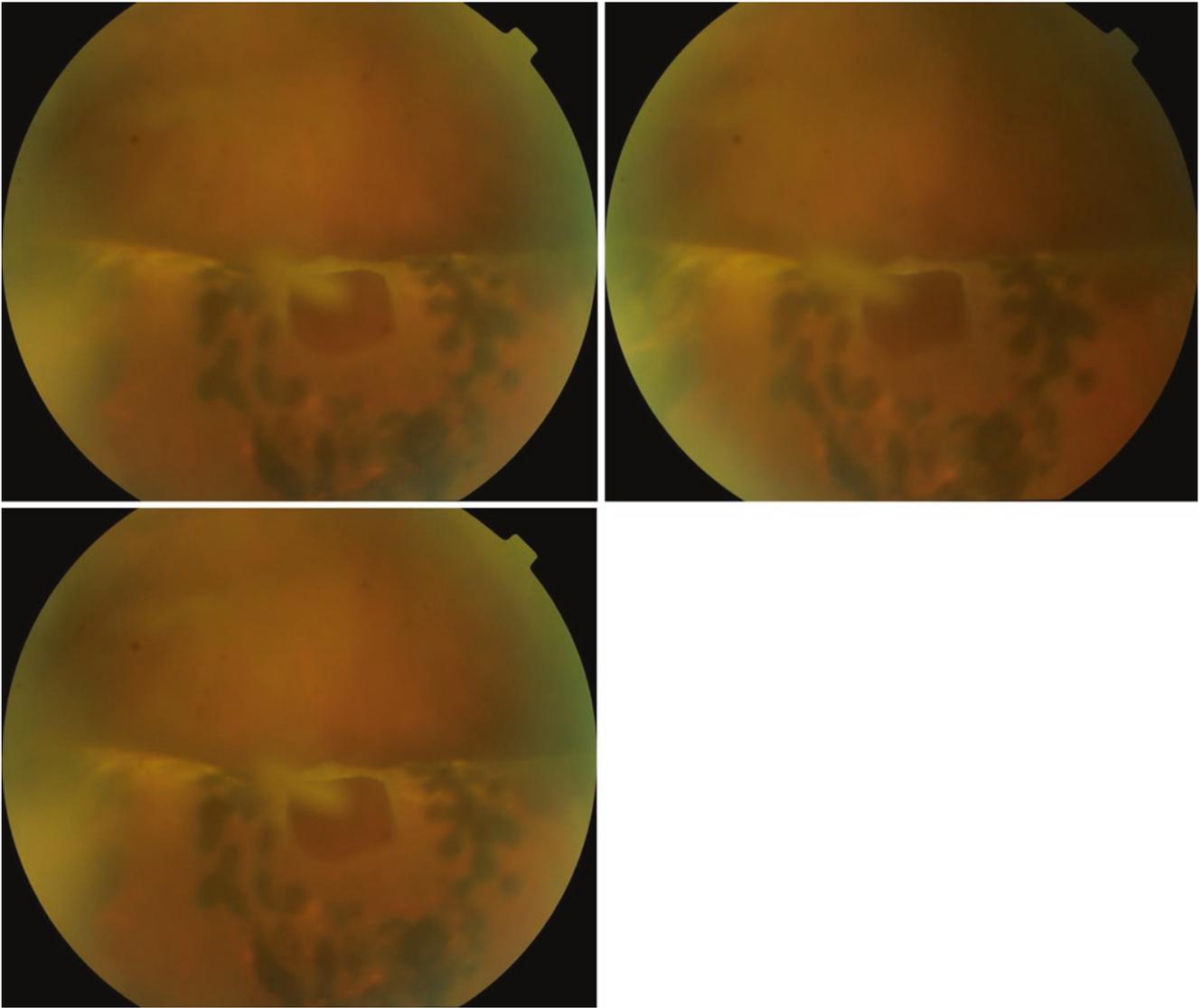


Fig. 7.2 Hole just on the scleral buckle
I. Retinal tear on the posterior edge of scleral buckle
II. Scleral buckle

III. Laser spot around the tear
IV. Vitreous band attached to the valve of retinal tear just on the scleral crest

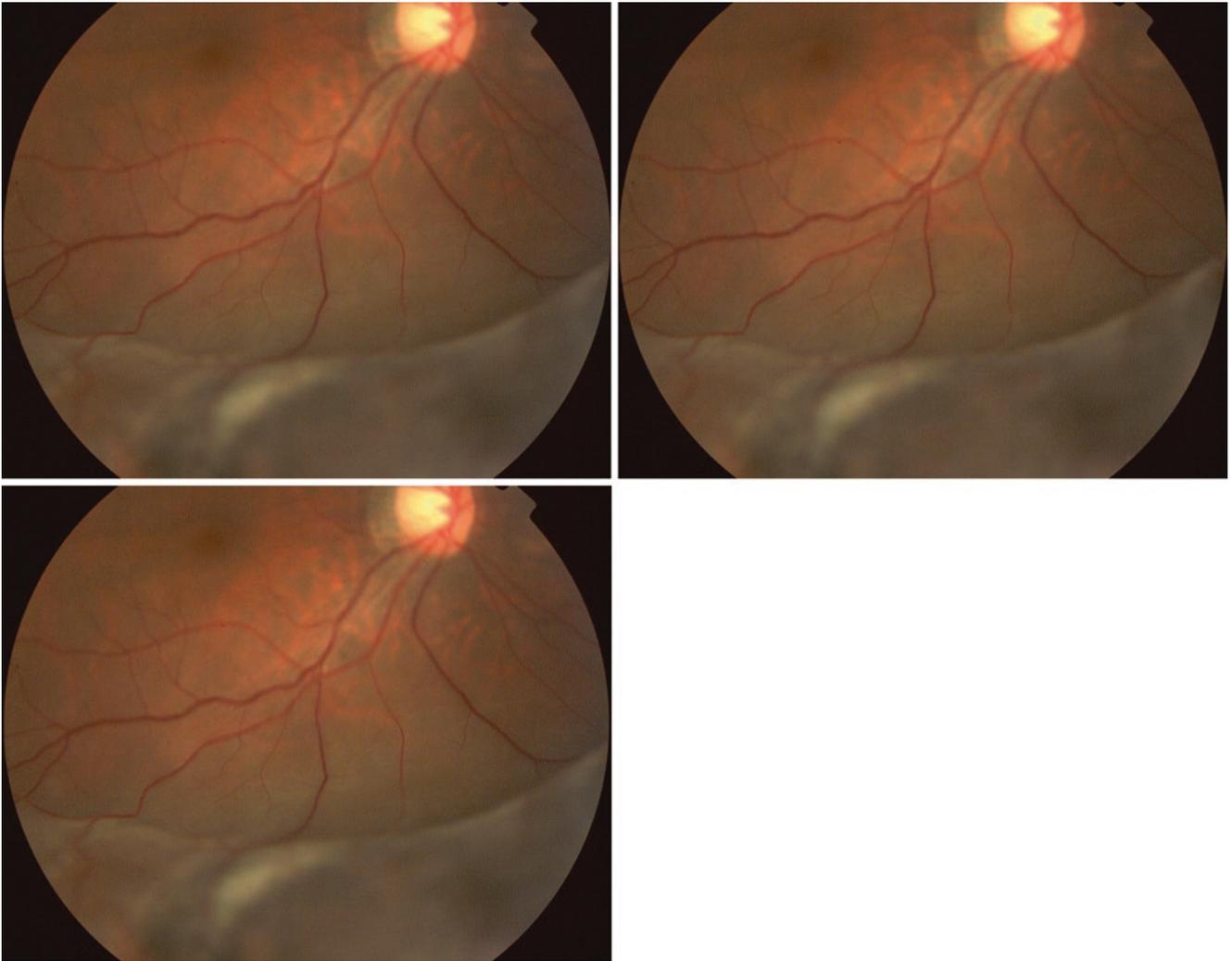


Fig. 7.3 Postoperative changes of scleral buckling surgery

I. The ridge of scleral buckle
II. The retinal tear

III. Retinal folds on the buckle

IV. Incomplete reattachment of retina off the buckle

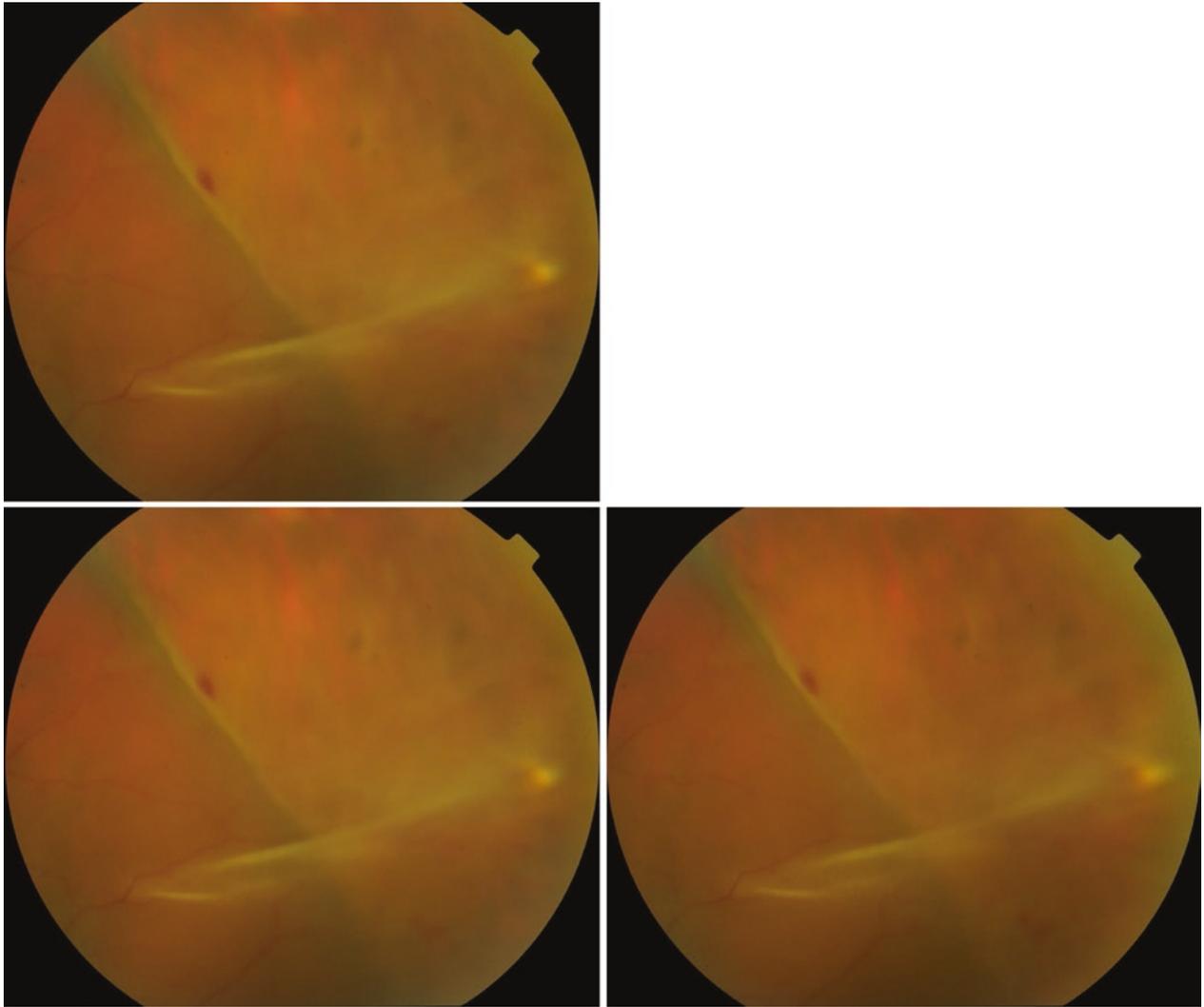


Fig. 7.4 Retinal fold after scleral buckle
I. Retinal fold cross the ridge after scleral buckle
II. Retinal hole made by vitrectomy tip

III. The ridge of buckle
IV. Retinal degeneration zone

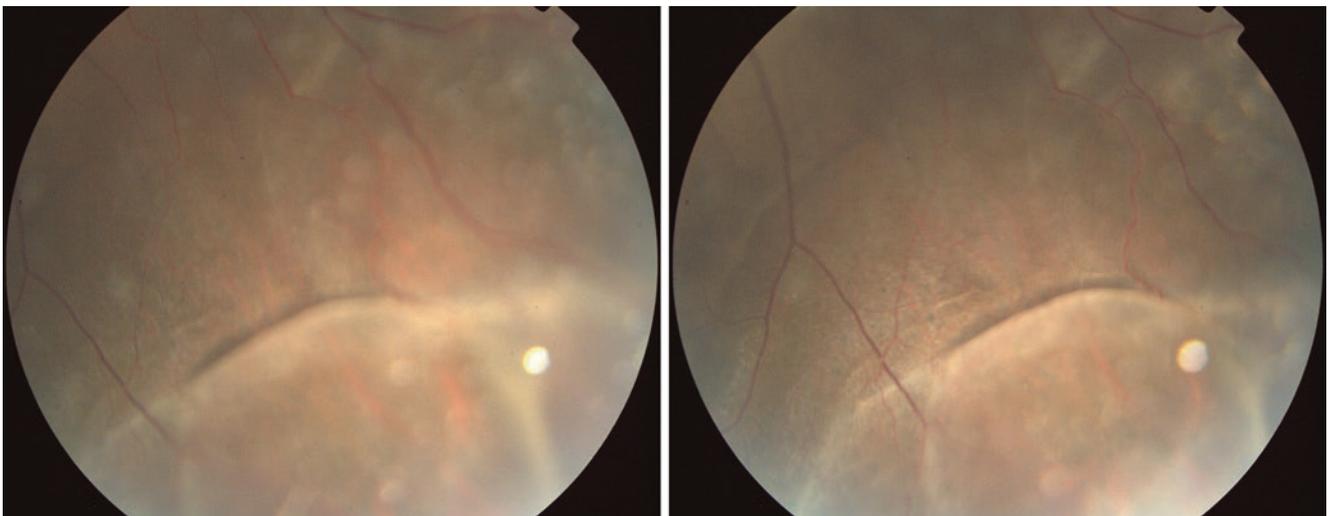


Fig. 7.5 Retinal slippage after scleral buckle
I. Posterior retinal slippage with a retinal ridge

II. The direction of the retinal vessels change by the ridge

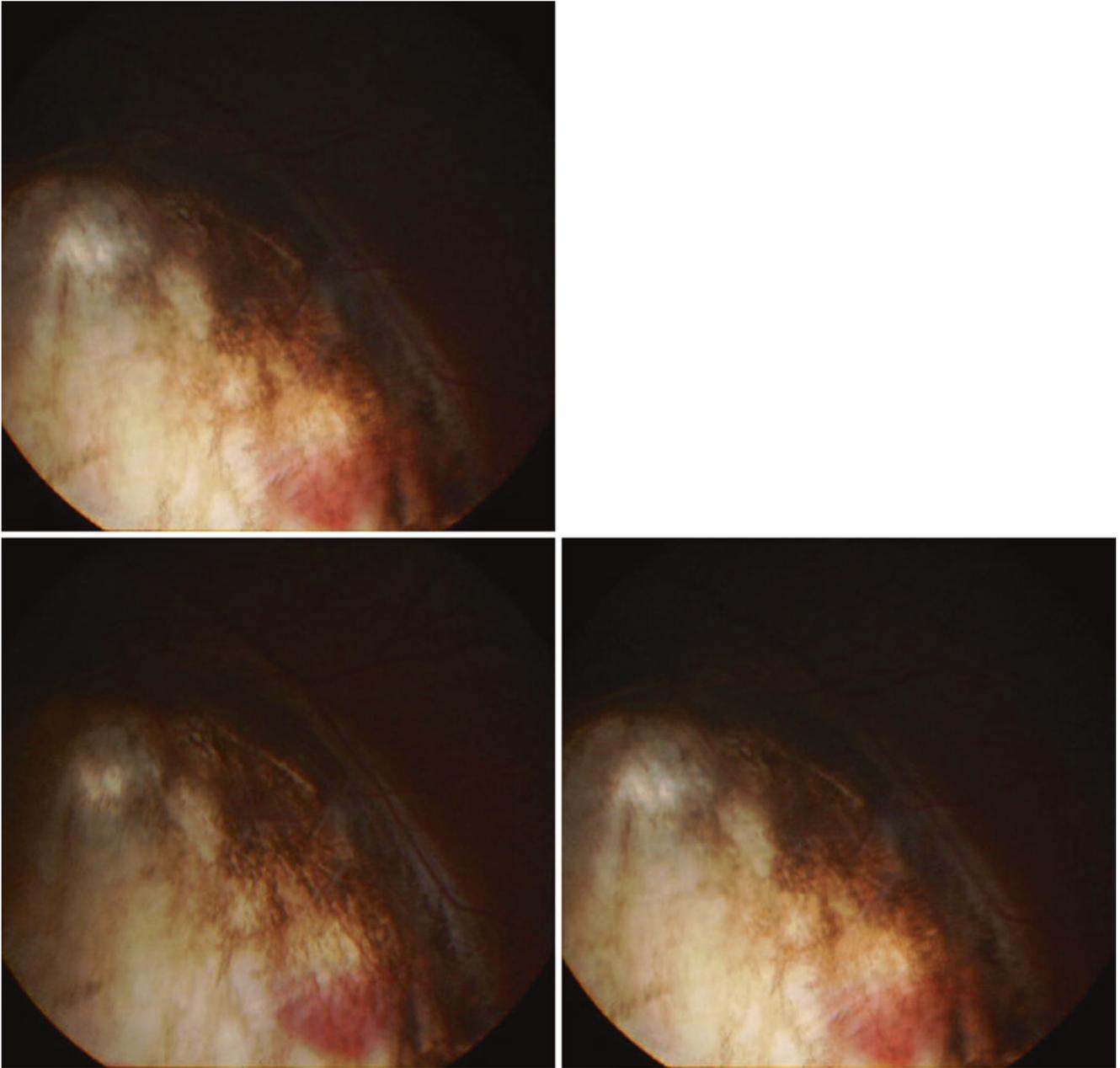


Fig. 7.6 Local retinal atrophy after cryotherapy combined with scleral buckling for rhegmatogenous retinal detachment
I. The posterior boundary of scleral buckles

II. Pigmentation on the buckles
III. The sclera exposure due to the depigmentation after cryotherapy

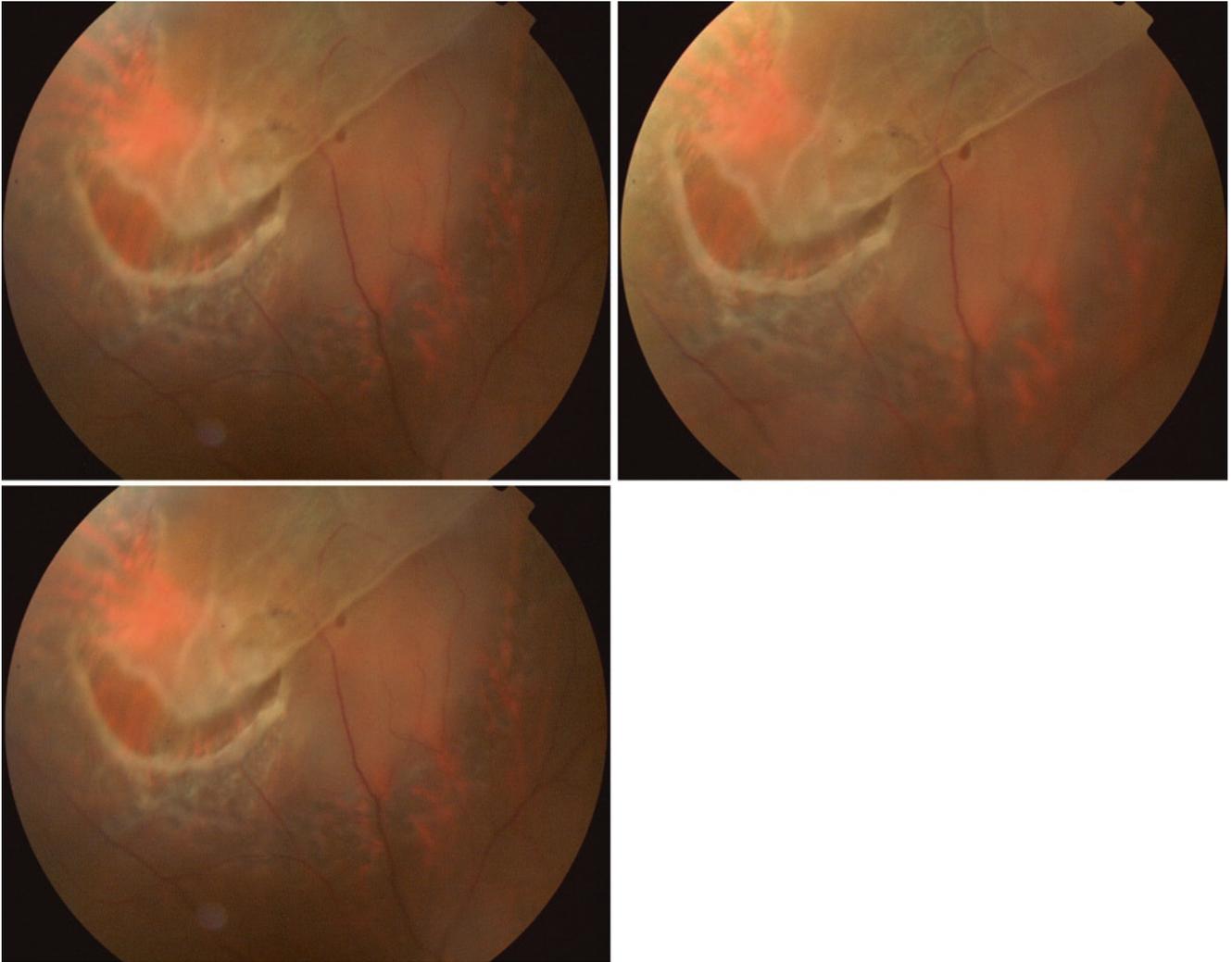


Fig. 7.7 Retinal detachment after scleral buckling surgery

- I. The horse-shoe shaped retinal tear, with its inferior margin reattached to the buckle
- II. The flap of the horse-shaped retinal hole
- III. The area of scleral buckle was encircled by red line

- IV. A round retinal hole is discovered to be responsible for the incomplete retinal reattachment
- V. Local retinal detachment after surgery (white line)

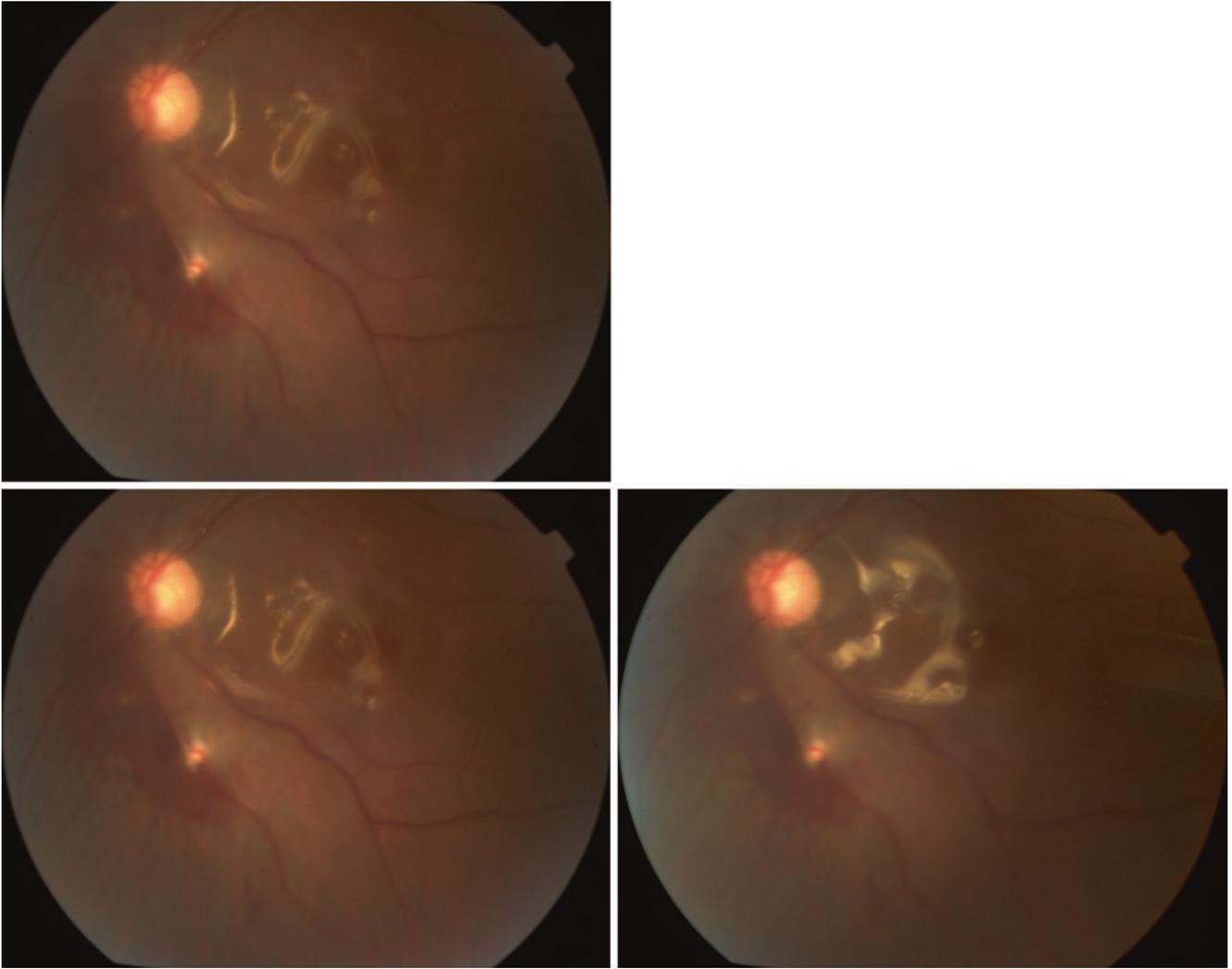


Fig. 7.8 Bulbar perforation due to post-bulbar anesthesia
I. The foci of choroidal perforation due to post-bulbar anesthesia
II. The retinal artery above the perforation

III. Corresponding retinal hemorrhage

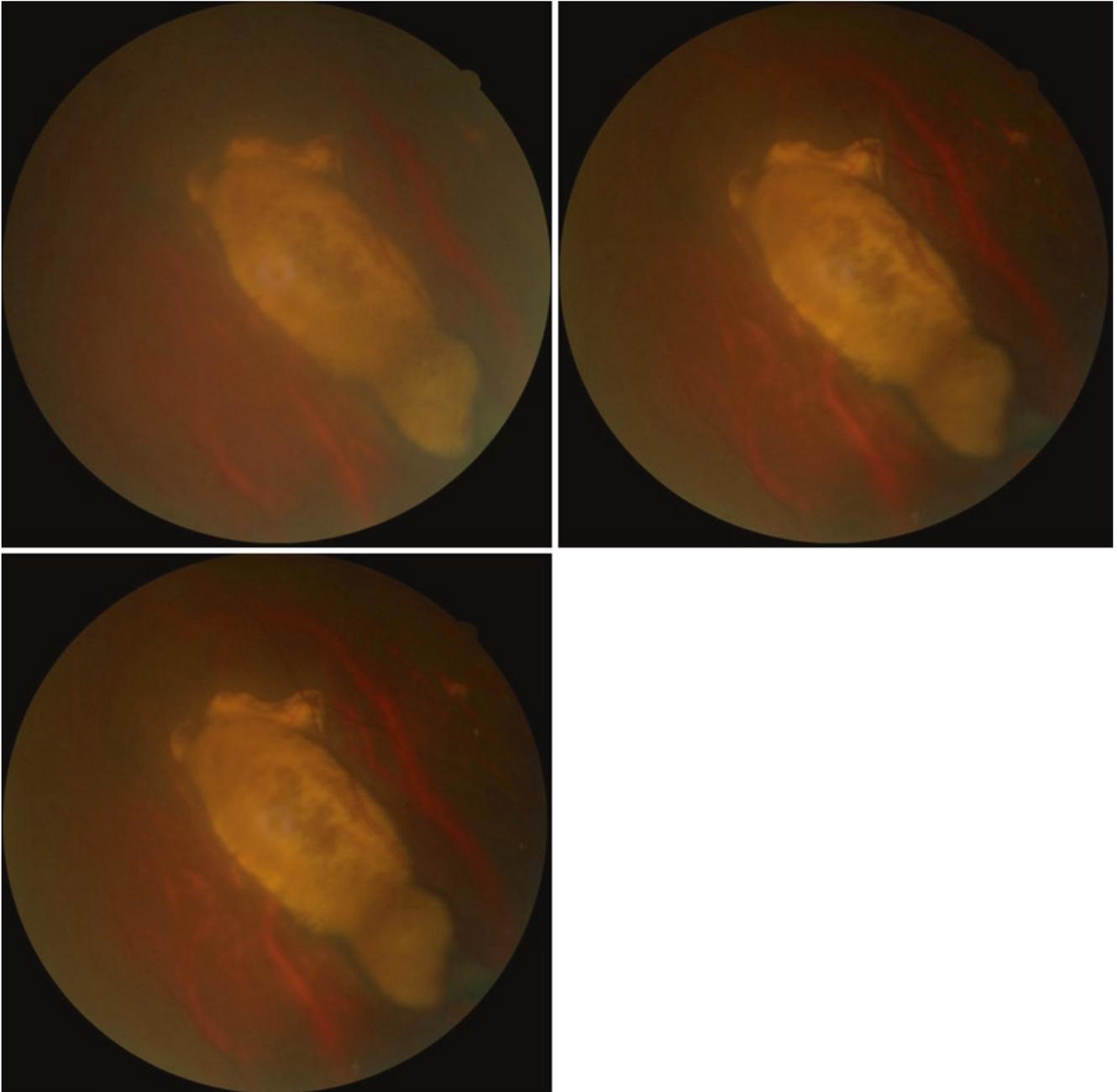


Fig. 7.9 Old subretinal hemorrhage after perforation of sclera and choroid
I. The foci of choroidal perforation, with normal retina above

II. Yellow-white subretinal hemorrhage

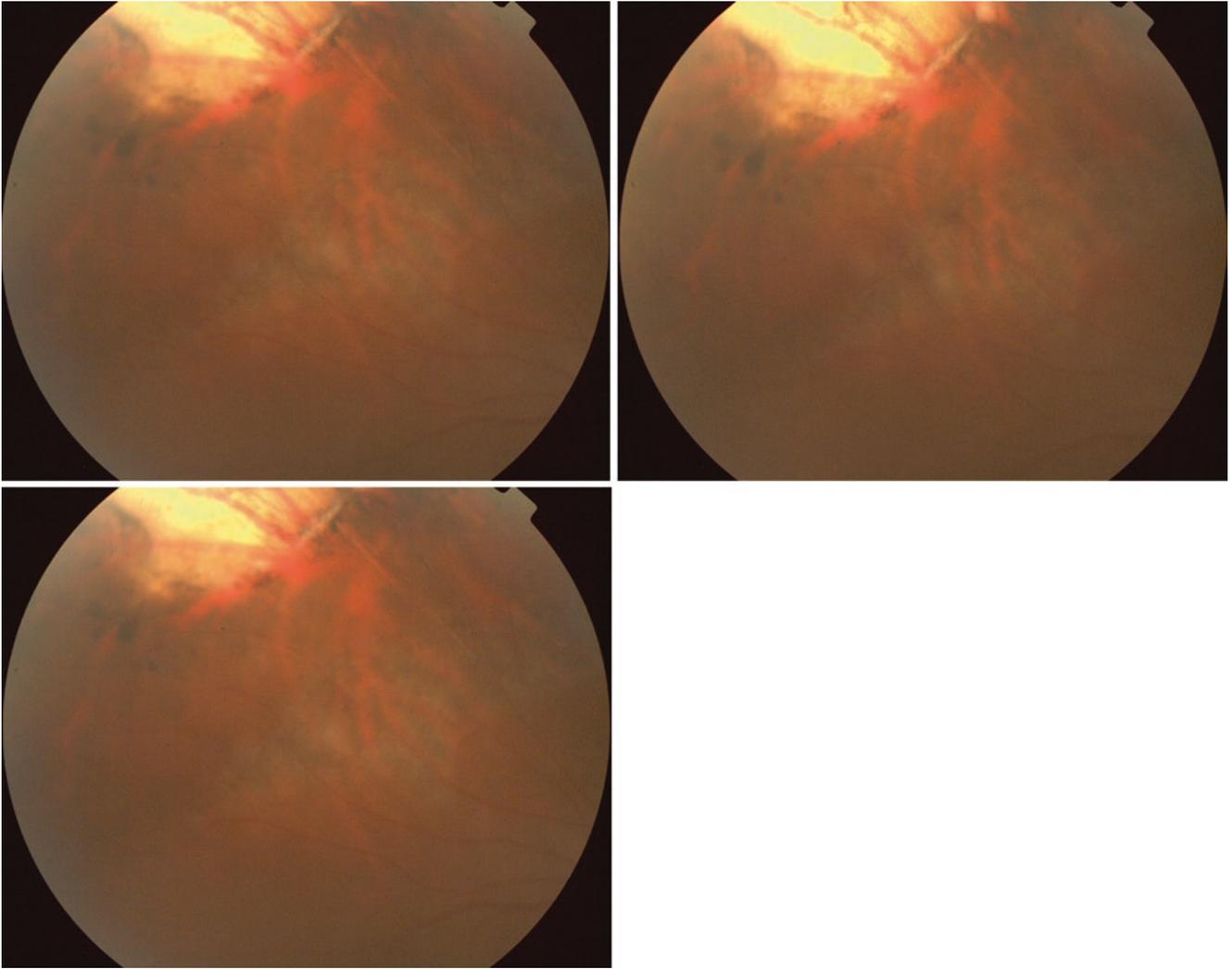


Fig. 7.10 Fundus changes after removal of silicone sponge of scleral buckles
I. Corresponding locations of scleral buckles before removal

II. Exposure of choroidal vessels
III. The sclera

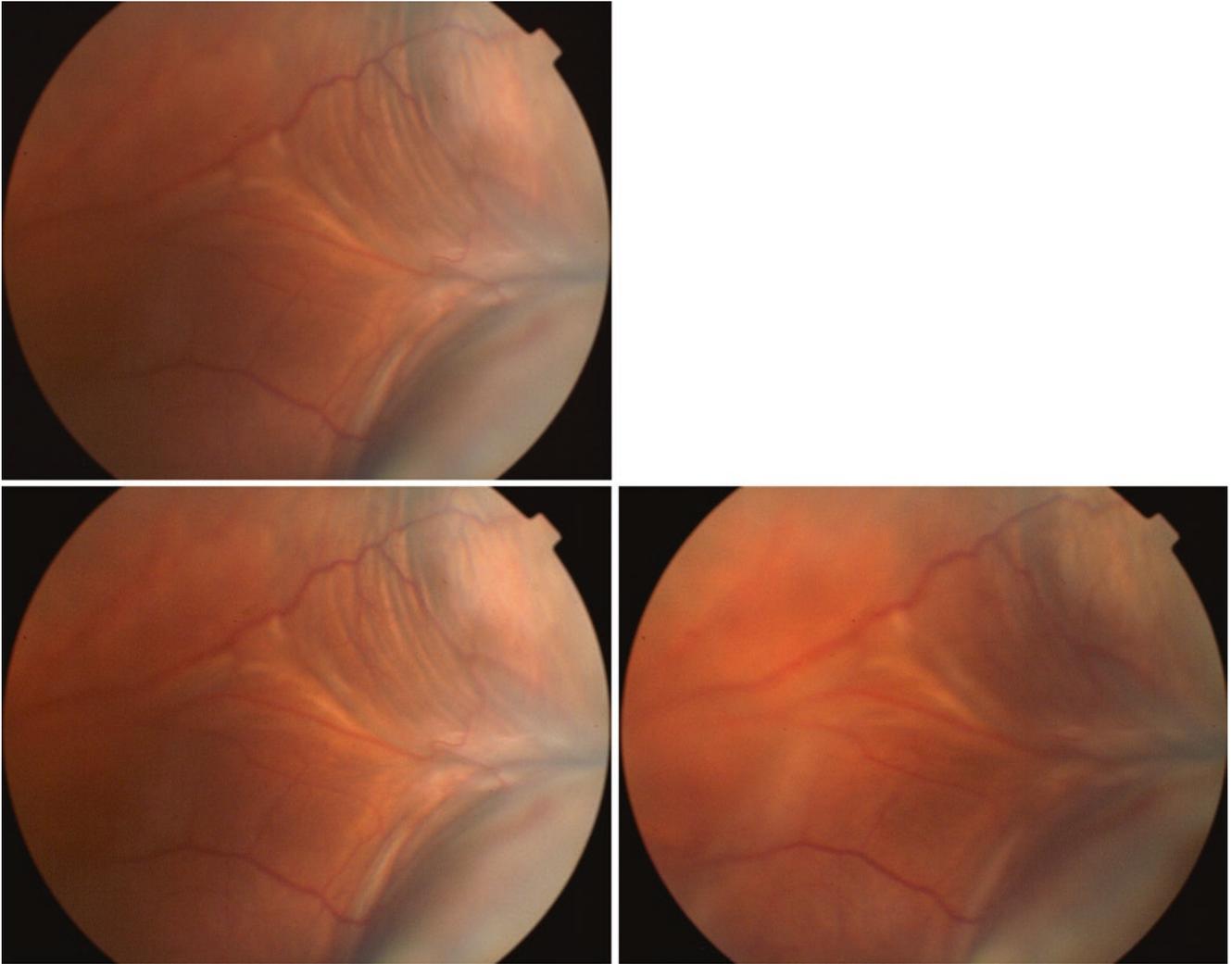


Fig. 7.11 Choroidal detachment after intraocular surgery
I. Choroidal detachment with folds of retina

II. Kiss sign of choroidal detachment
III. Local exudative retinal detachment

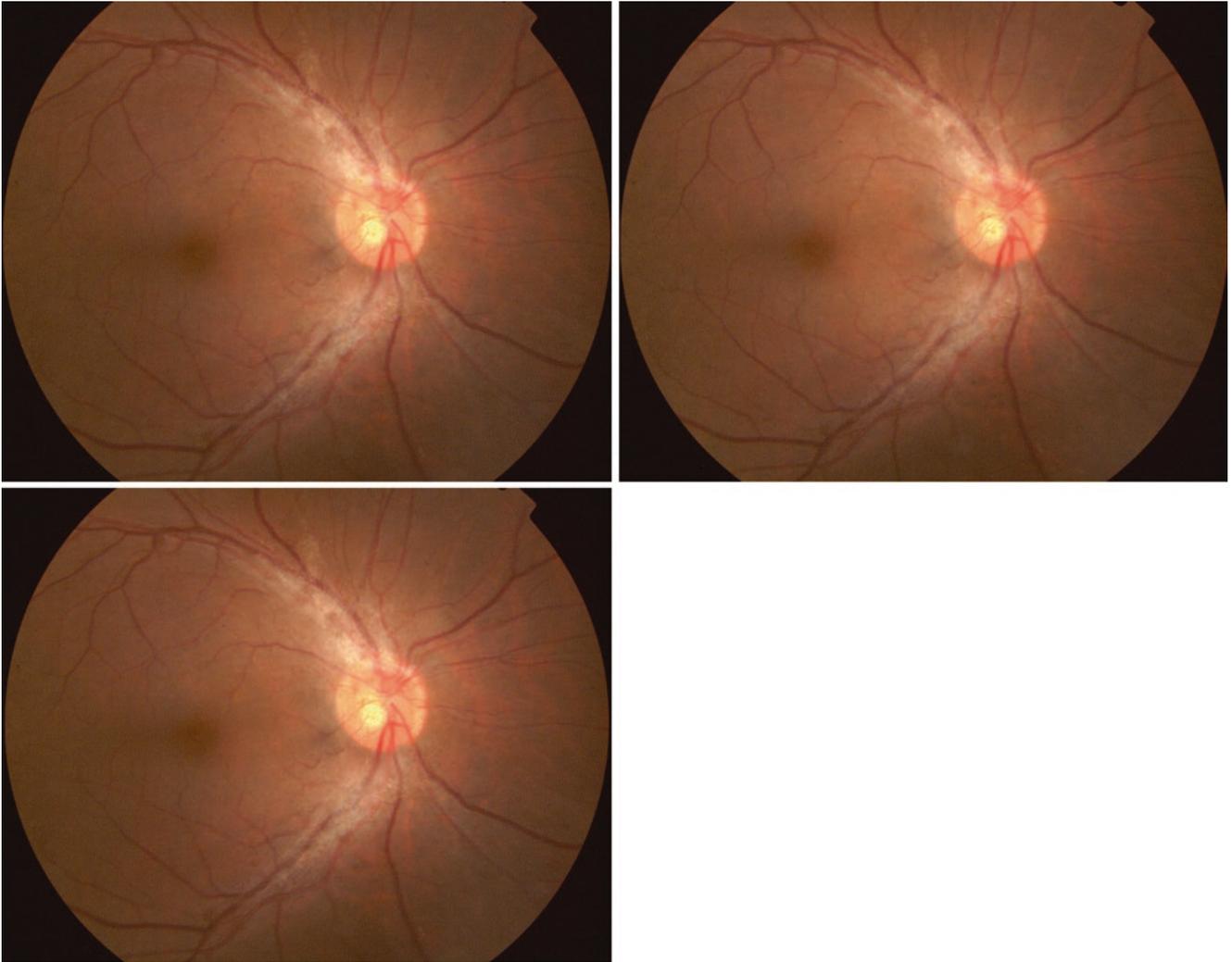


Fig. 7.12 Optic disk membrane after vitrectomy

I. Epiretinal membrane superior temporal to the optic disk
II. Membrane on the optic disk

III. Distorted retinal vessels

IV. Membrane covering the inferior temporal retinal vessels

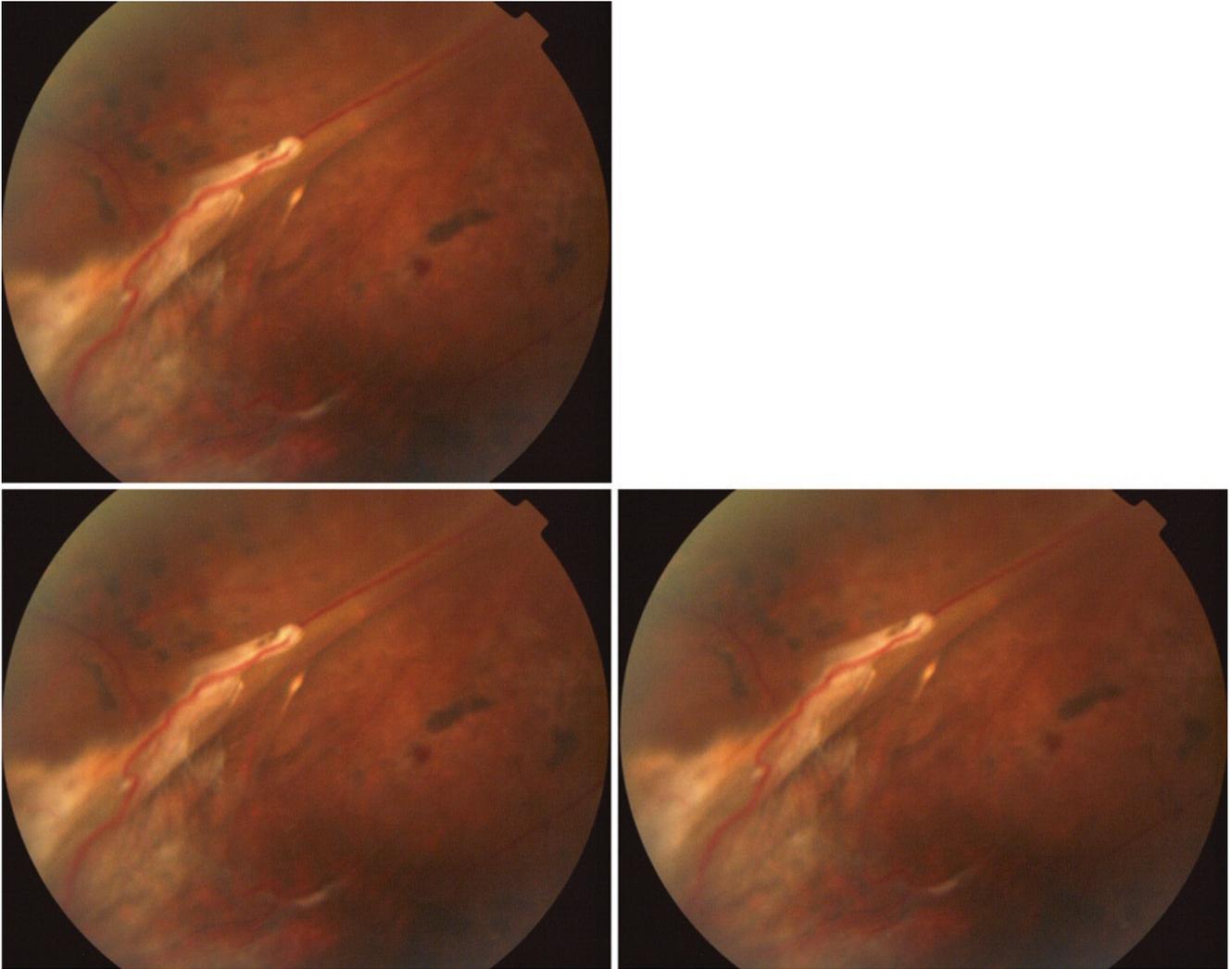


Fig. 7.13 Retinal folds after vitrectomy for proliferative vitreoretinopathy
I. The retinal folds, surrounding retinal vessels

II. Subretinal membrane
III. Subretinal hyperpigmentation

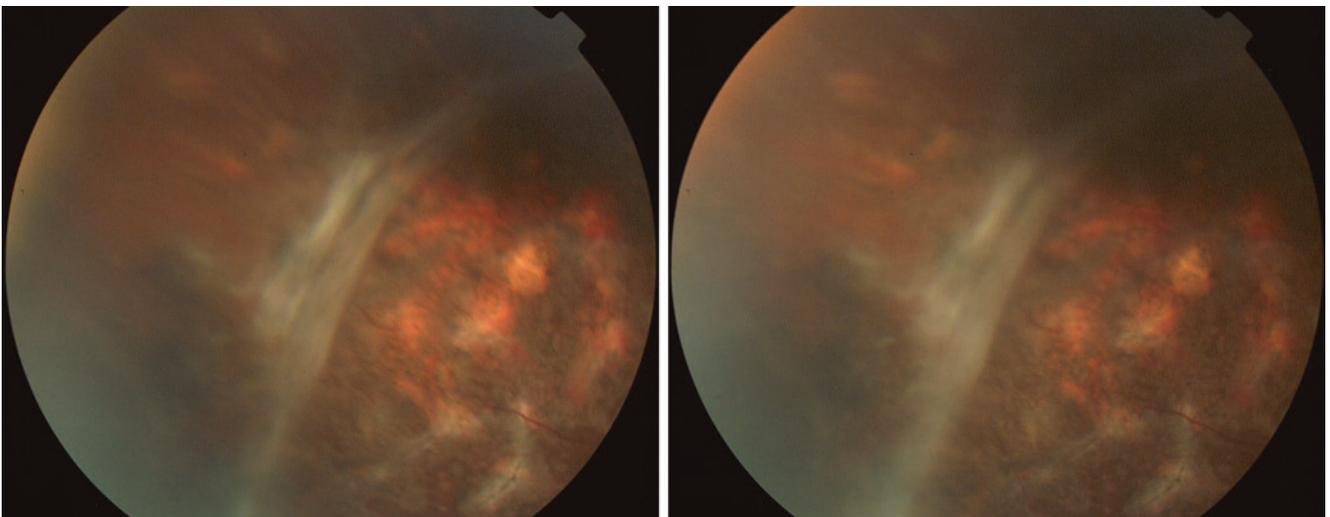


Fig. 7.14 Tractional membrane after laser treatment

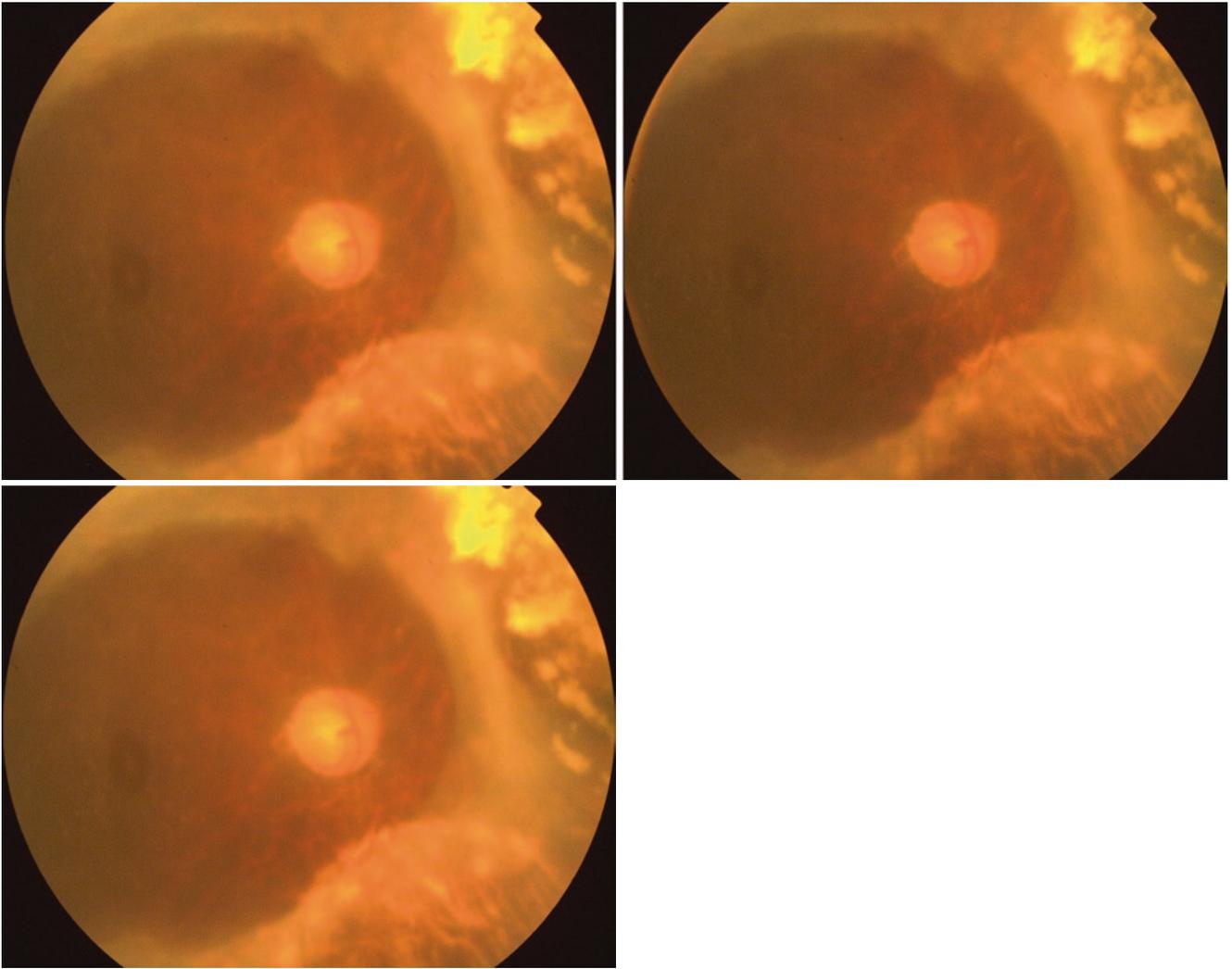


Fig. 7.15 Silicone oil-filled eye after vitrectomy for acute retinal necrosis syndrome

- I. The pale optic disk
- II. Thinning of the macula

III. Epiretinal membrane

IV. Retinal necrosis foci

V. The margin of retinal necrosis at the inferior temporal quadrant

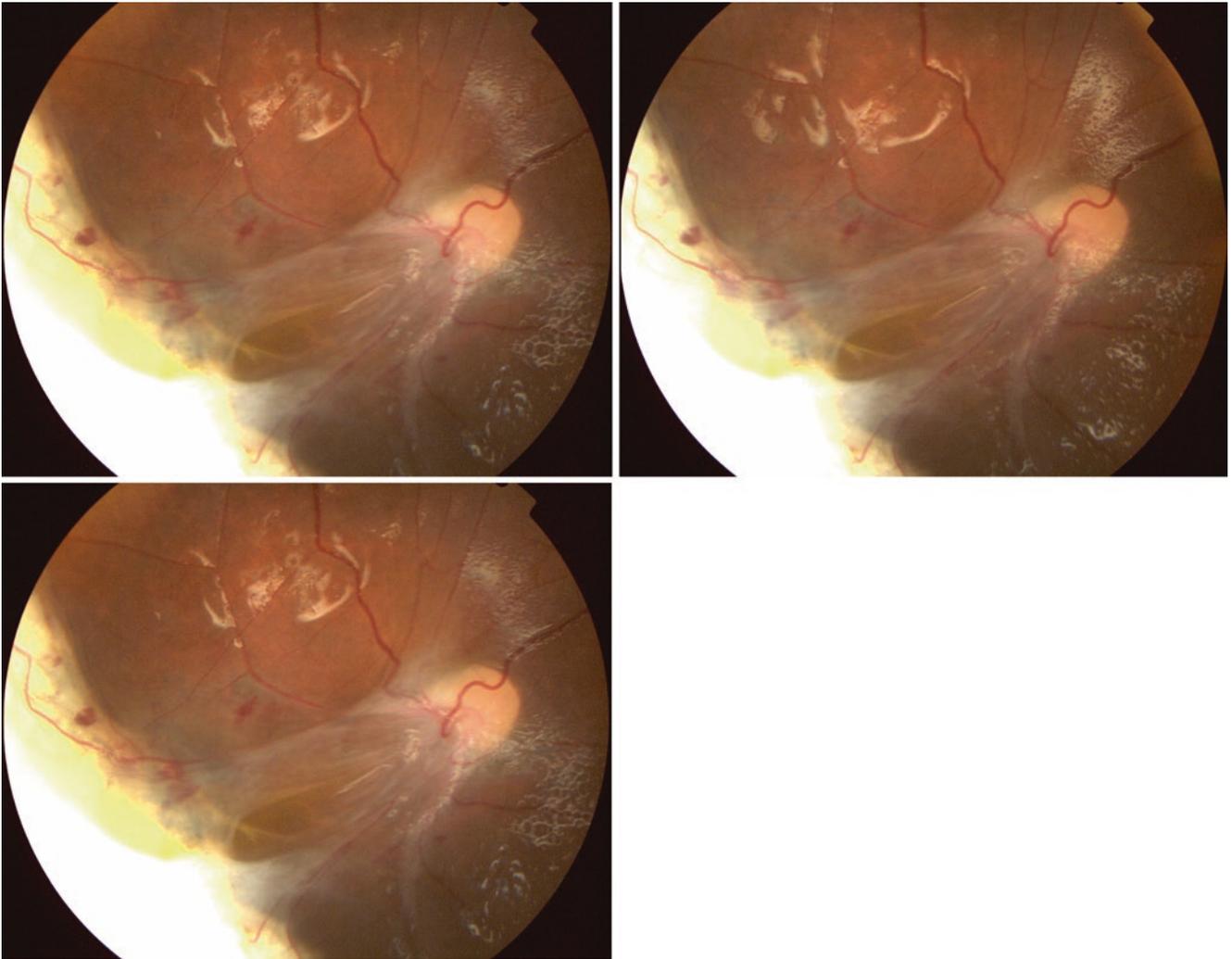


Fig. 7.16 Silicone oil-filled eye after pars plana vitrectomy for choroidal melanoma

- I. The sclera exposed after resection of the choroid
- II. The margin of the remaining retina after choroid resection
- III. Epiretinal membrane stretching from lesion to the optic disk

- IV. The subretinal membrane
- V. The vessels on the optic disk were distorted by traction

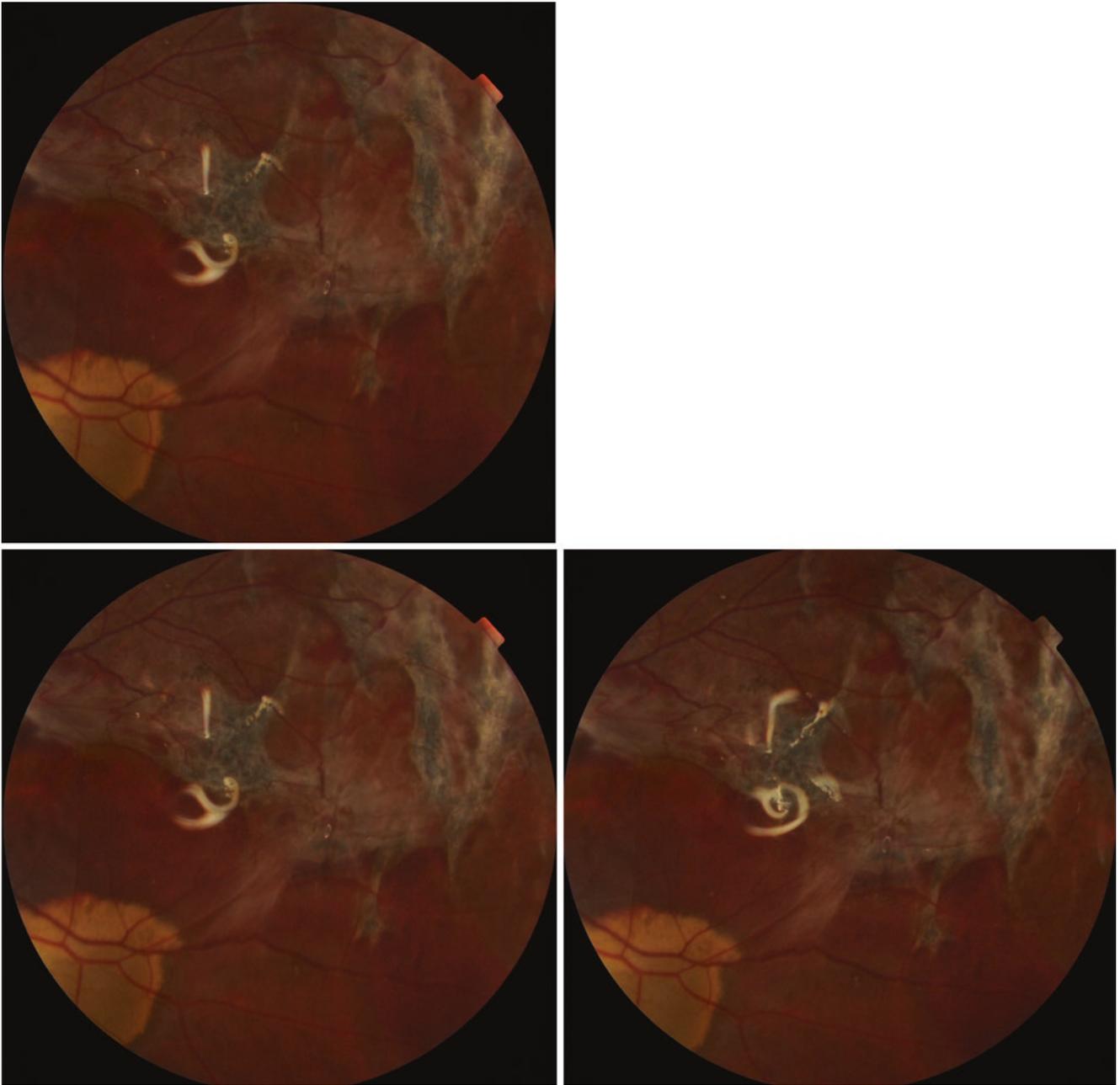


Fig. 7.17 Silicone oil-filled eye after vitrectomy

I. The reflection of silicone oil, located in front of the retina
II. Large area of subretinal membrane and pigmentation

III. Retinal depression at the non-proliferative area
IV. Subretinal hemorrhage

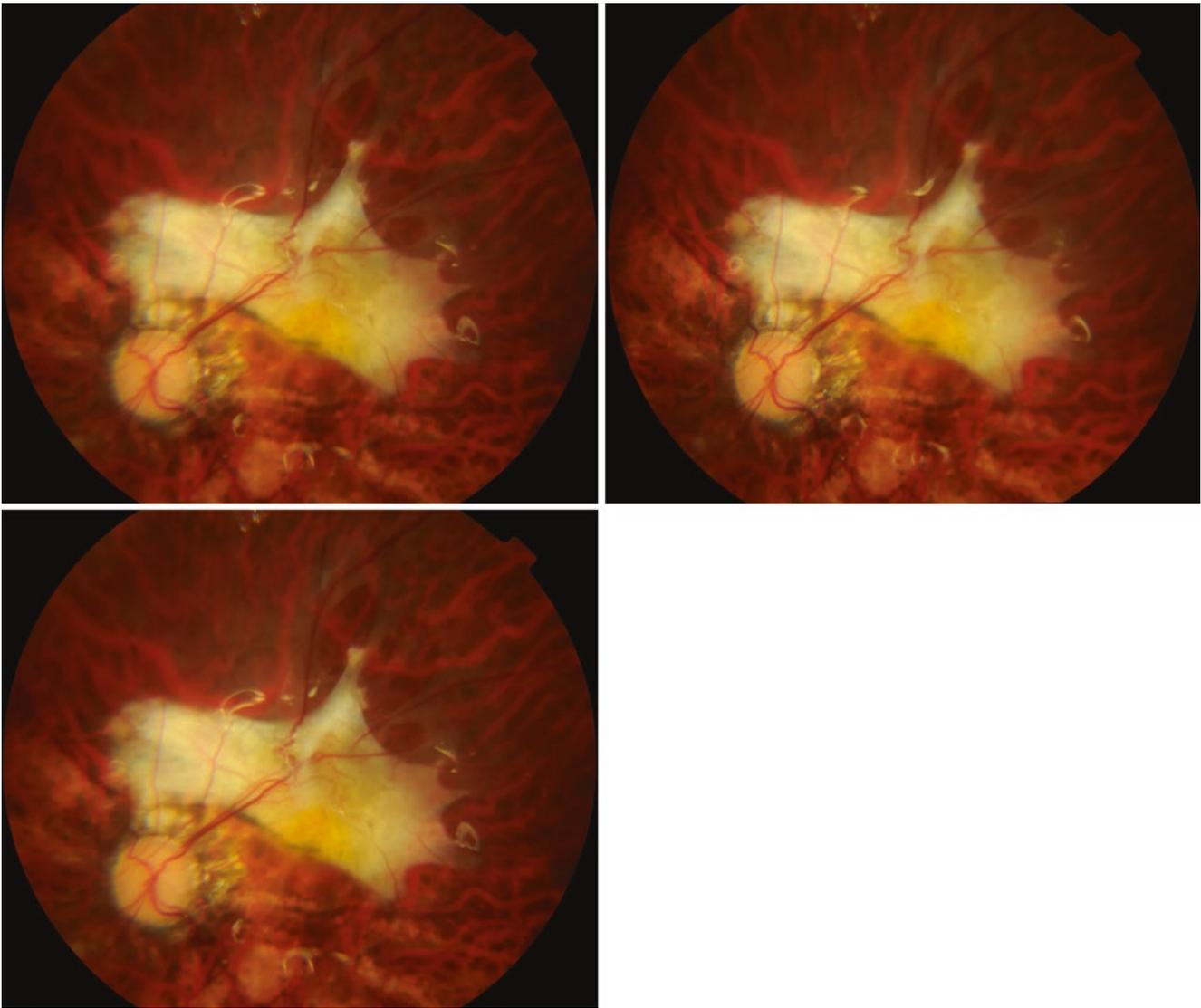


Fig. 7.18 Trans-retinal fibrosis due to massive operative hemorrhage
 I. Epiretinal membrane with tortured vessels
 II. Massive subretinal fibrosis

III. Three retinal holes on the border of subretinal membrane
 IV. Silicone oil reflex

References

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