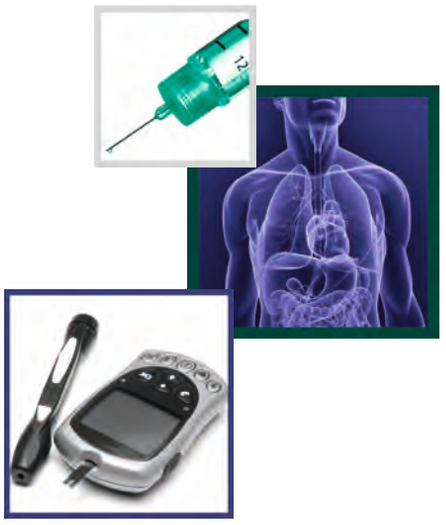
CLINICAL SNAPSHOT



Severe macular ischemia in a poorly controlled diabetic patient

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Practice Points

- Scatter panphotocoagulation continues to be the gold-standard treatment for proliferative diabetic retinopathy (PDR), as recommended by the DRS study.
- Surgery with vitrectomy and endolaser can be useful to control eyes with high-risk PDR that does not respond to scatter laser treatment.
- The use of anti-VEGF as adjunct to vitrectomy for PDR is useful to reduce the risk of intraoperatory hemorrhage, simplifying the surgery.
- Good macular perfusion in the fluorescein angiography and integrity of the external layers in the spectral domain optical coherence tomography are important to predict good functional prognosis.
- Combined renal and pancreatic transplantation can be a good solution to resolve renal impairment and glycemic control especially in patients with poor treatment compliance.

SUMMARY The DRS study showed that panretinal laser photocoagulation in eyes with high risk proliferative diabetic retinopathy (HR-PDR) significantly reduces the risk of severe loss of vision. However, some eyes do not respond to this treatment and surgery with vitrectomy and endophotocoagulation may be useful in those cases. The authors report a case of a young diabetic patient with poor metabolic control and poor compliance to the treatment. She presented kidney impairment and HR-PDR associated with severe macular ischemia, macular edema and vitreo-macular traction syndrome, which did not respond to scatter laser treatments. She was submitted to surgery, which resulted in regressed neovascularization in both eyes, although functional recovery was limited. More recently she was submitted to combined kidney and pancreas transplantation, which solved the renal failure and allowed a much better metabolic control, without the need for insulin or other antiglycemic drugs.

A 28 year old female patient who has been diagnosed with Type 1 diabetes for 21 years, who has poor metabolic control and diabetic nephropathy and is undergoing regular hemodialysis was referred to our department 2 years ago due to proliferative diabetic retinopathy (PDR). On that date the patients glycosylated hemoglobin (HbA1c) was 9.8% despite four daily insulin injections.

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The best corrected visual acuity (BCVA) was 20/320 in the right eye (RE) and 20/400 in the left eye (LE). Rubeosis was visible by biomicroscopy bilaterally (RLE). The fundoscopy showed bilateral PDR, with inferior vitreous hemorrhage, disc and retinal neovascularization.

Fluorescein angiography **(Figure 1)** showed new vessels in the disc and elsewhere. There was severe ischemia of the retina between the two temporal arcades and also in the periphery of both eyes. The optical coherence tomography (OCT) of the central macula **(Figure 2)**, confirmed the presence of bilateral diabetic macular edema (DME), with intraretinal cysts and vitreo–retinal traction.

Panretinal laser photocoagulation was performed immediately, but no signs of PDR regression were observed within 2 months, thus, it was decided that an intravitreous ranibizumab injection should be performed followed by 23 gauge posterior vitrectomy and endolaser photocoagulation in both eyes.

After surgery total regression of neovascularization was obtained, with resolution of DME and improvement of BCVA (20/100 in the RE and 20/200 in the LE).

In the postoperatory, retinography **(Figure 3)** showed whitening of the macular vessels, disc pallor, peripherical laser scars in both eyes and alterations of the retinal pigment epithelium in the center of the macula in the LE.

OCT performed after surgery **(Figure 4)** confirmed the release of the macular traction and DME, but with an abnormally thin retina due to macular atrophy (secondary to ischemia).

During the past year the patient was submitted to a successful double transplantation (renal and pancreatic), and 12 months after, the patients serum creatinine was 1.0 mg/dl and the HbA1c 5.8%, with no insulin or other antidiabetic drug.

In summary, this is a case of severe bilateral macular ischemia associated with high-risk PDR, with a poor functional prognosis, which was not possible to control with laser treatment, but which stabilized after vitrectomy allowing the patient some degree of autonomy.

The double transplantation was effective as it solved the renal failure and allowed an improved glycemic control.

There are several reports of diabetic retinopathy progression following pancreatic transplantation and this patient must be maintained under close ophthalmic surveillance [1–3]. The perspectives for improvement in visual acuity are clearly limited because of retinal atrophy and photoreceptor loss.

Financial & competing interests disclosure

J Cunha-Vaz is consultant for Novartis, Alimera, Allergan, Bayer, Gene Signal and Pfizer. The authors have no other relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

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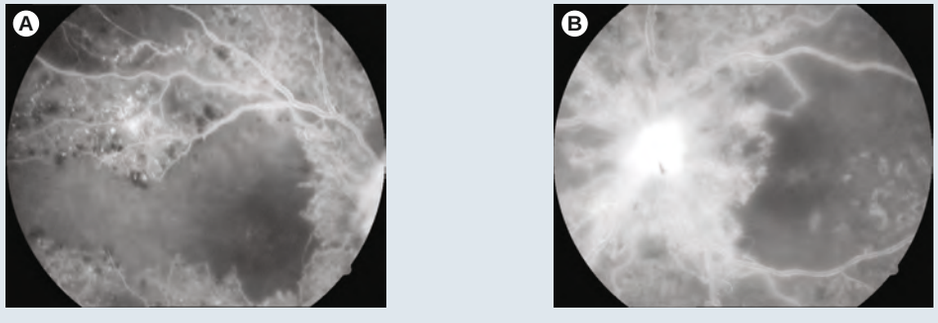

Figure 1. Fluorescein angiography. (A) Right eye. **(B)** Left eye.

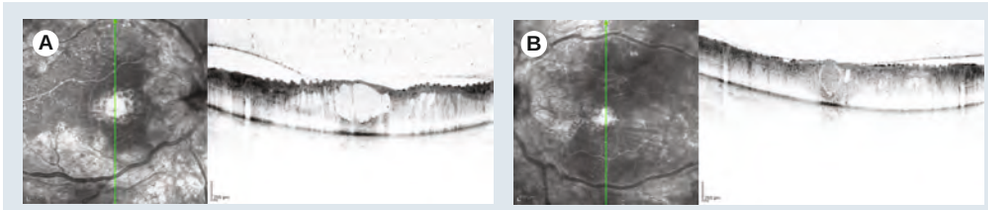

Figure 2. Optical coherent tomography. (A) Right eye. **(B)** Left eye.

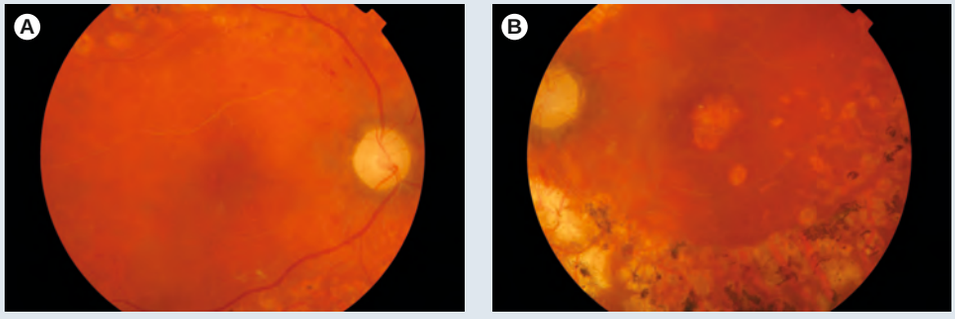

Figure 3. Fundus photography 18 months after surgery. (A) Right eye. **(B)** Left eye.

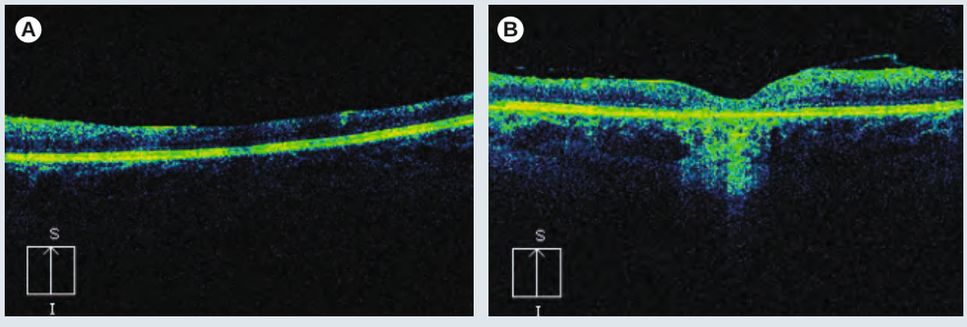

Figure 4. Optical coherent tomography 18 months after surgery. (A) Right eye. **(B)** Left eye.