

«BASHKIR STATE MEDICAL UNIVERSITY»
MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

Stages of

Diabetic retinopathy

Students Scientific
Society of
the Department of
Ophthalmology

Zelenina A.V.

student of the 6th course of 606 a group

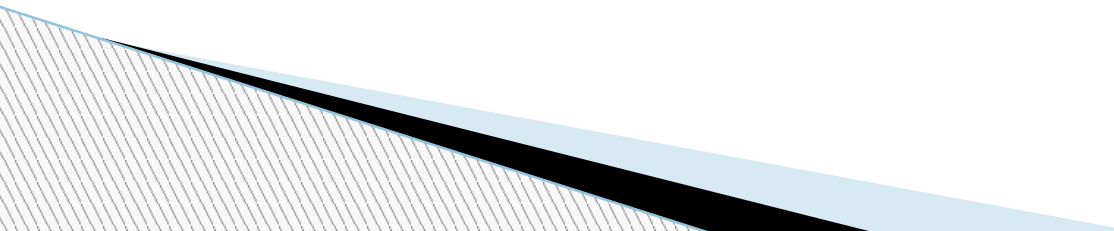


Diabetic retinopathy



Diabetic retinopathy — one of the heaviest complications of diabetes, the manifestation of diabetic microangiopathy striking vessels of a retina of an eyeball

Stages of Diabetic Retinopathy

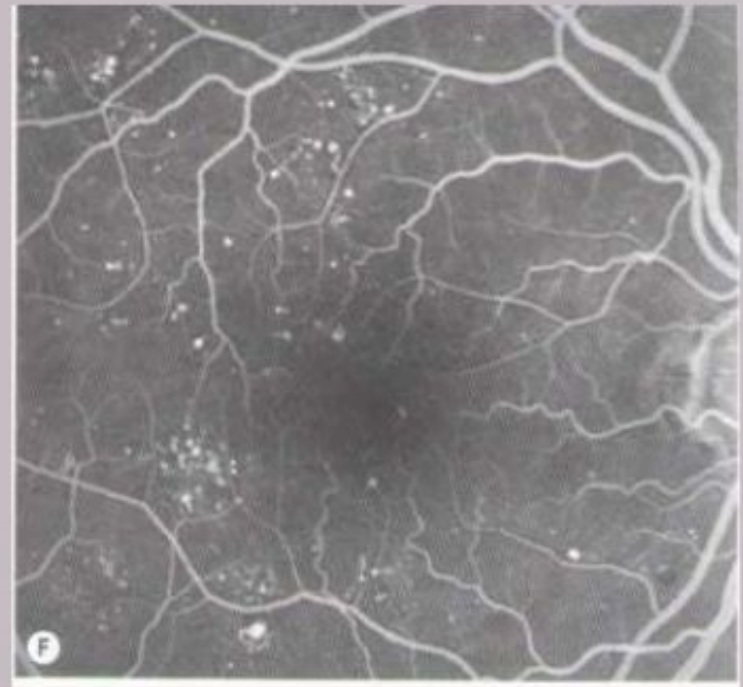
- **Nonproliferative stage**
 - **Preproliferative stage**
 - **Proliferative stage**
- 

Nonproliferative stage

- microaneurysms;
- hemorrhages;
- macular edema;
- exudates.

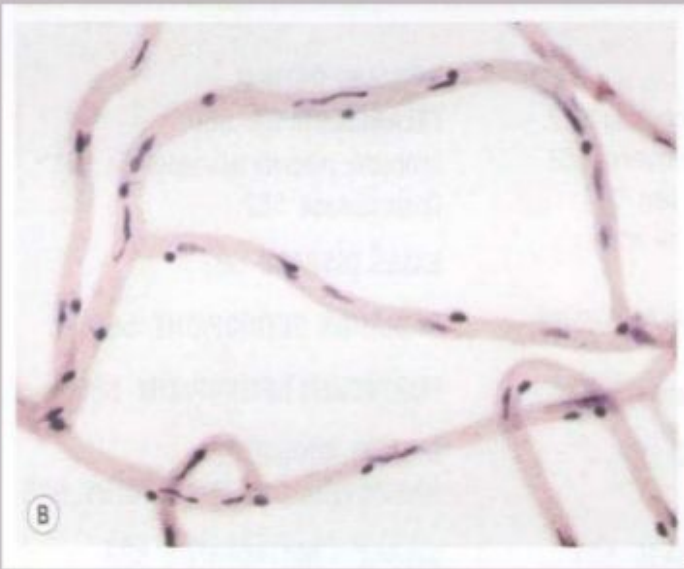
Nonproliferative stage



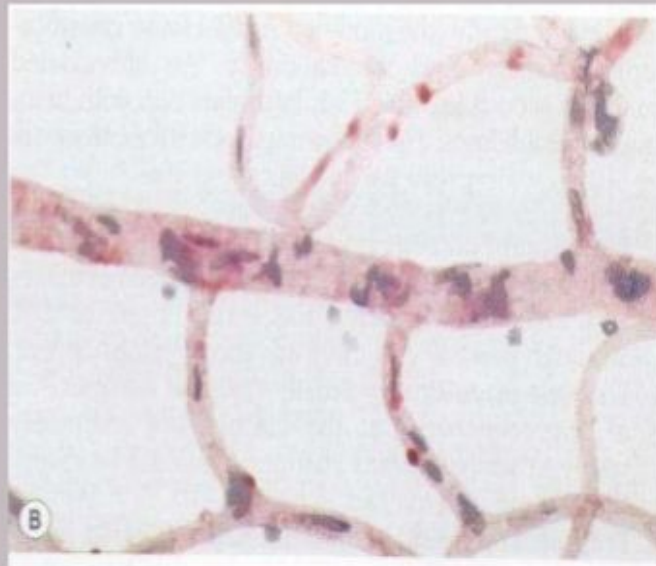


MICRO ANEURYSMS

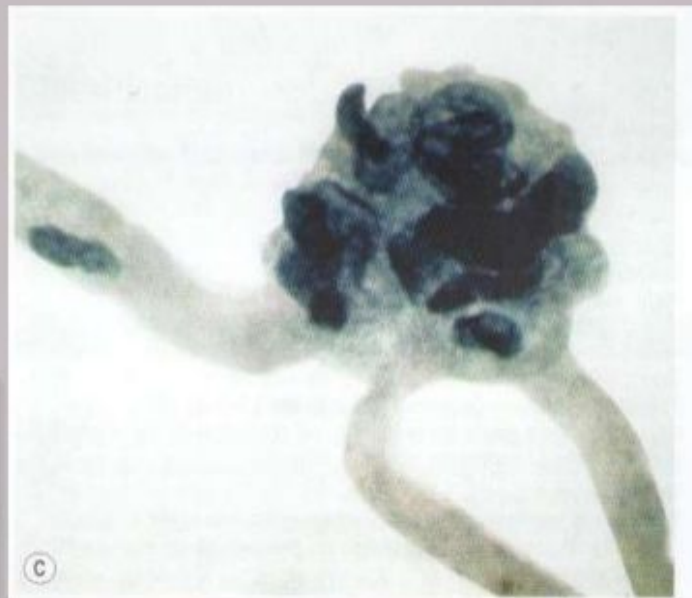




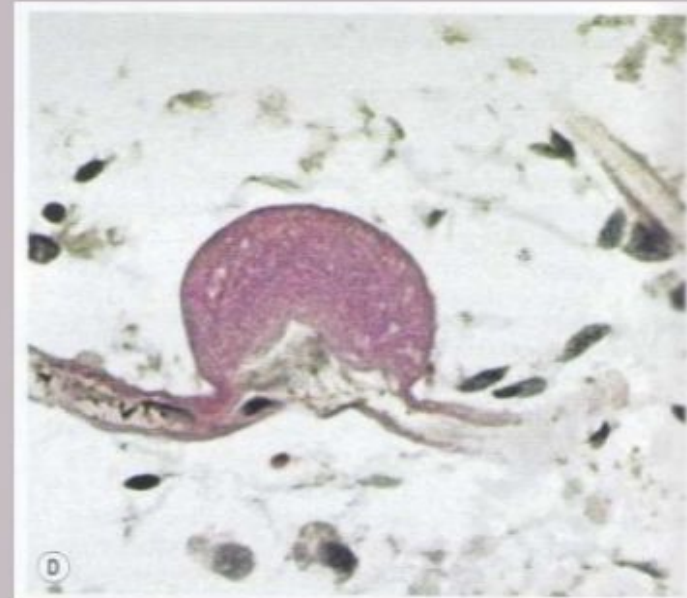
NORMAL CAPILLARIES



PERICYTE LOSS



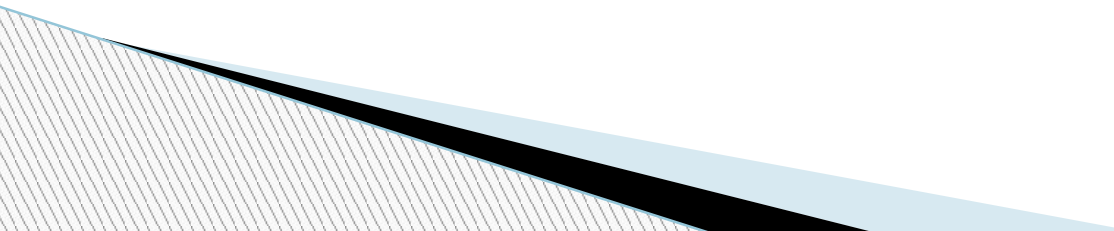
MICRO ANEURYSM



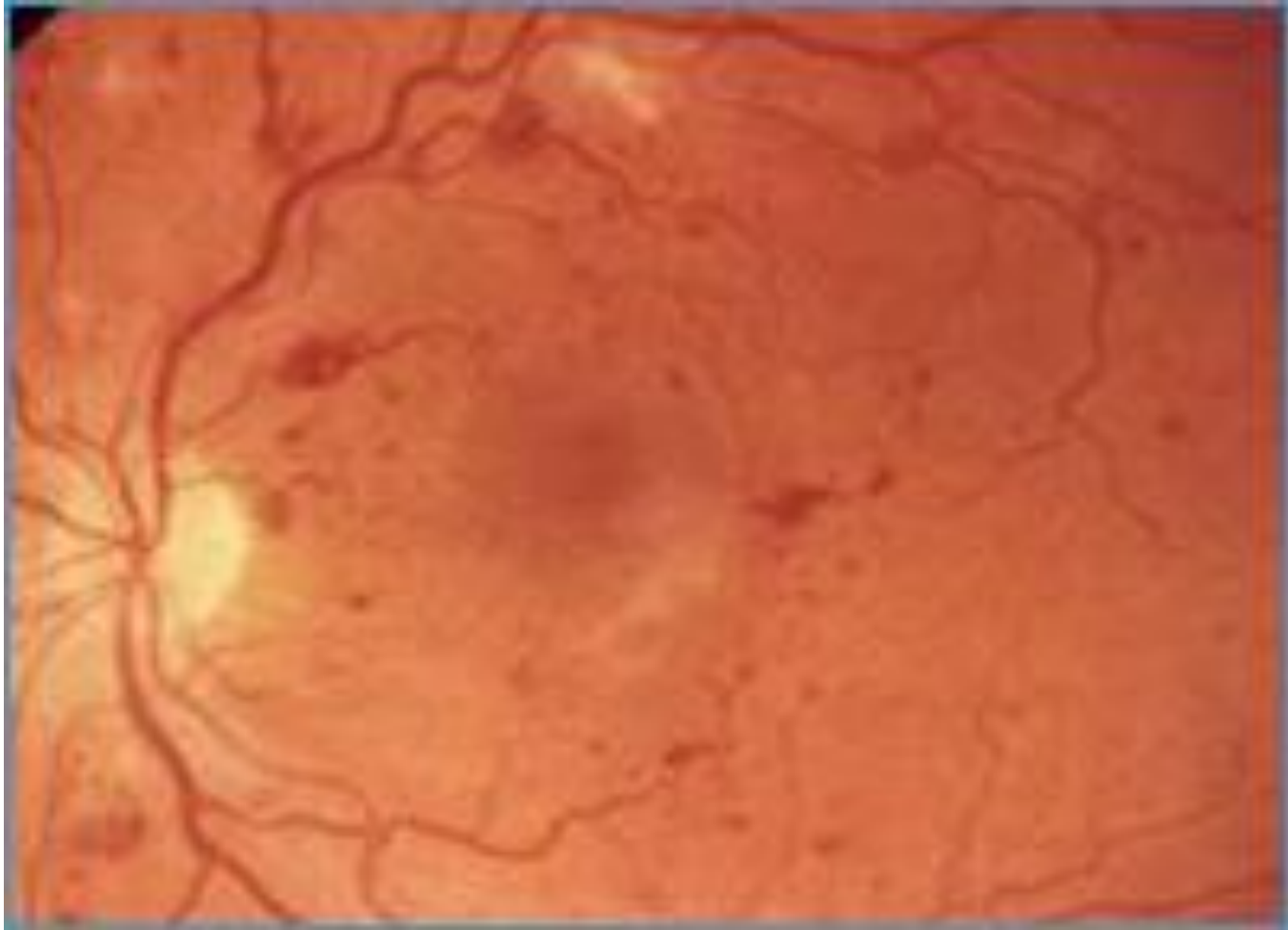
**THROMBOSED
MICRO ANEURYSM**

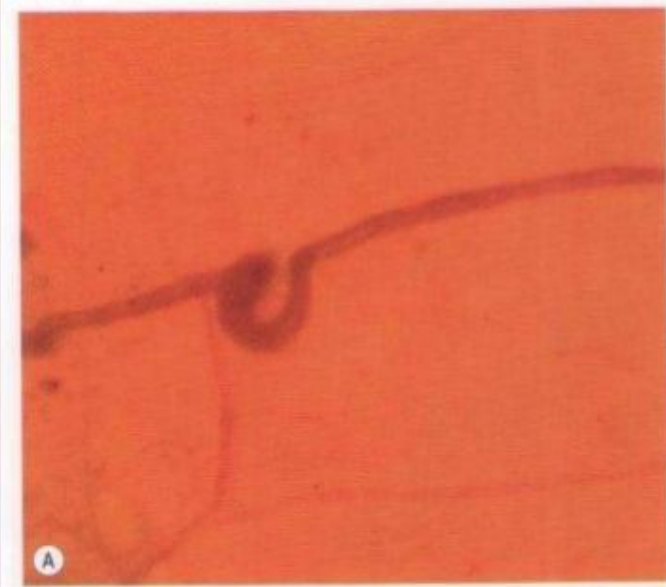


Preproliferative stage

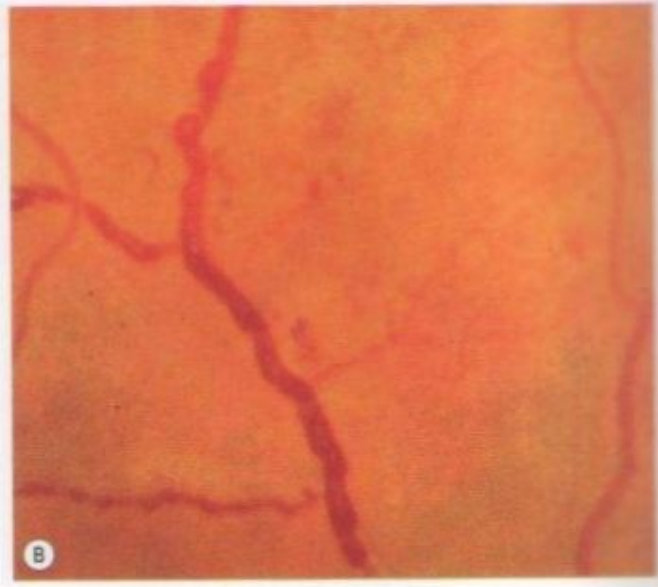
- venous changes (venous loops, venous segmentation, venous beading);
 - large amount of hard exudates;
 - large amount of hemorrhages;
 - ischemic zones of a retina.
- 

Preproliferative stage

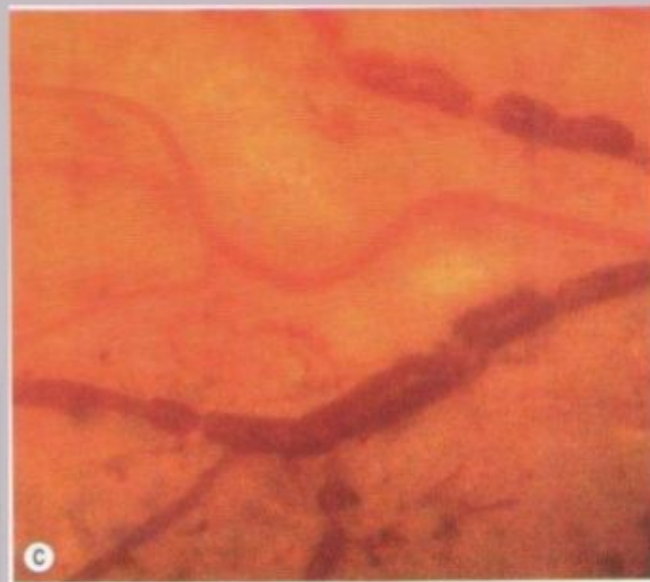




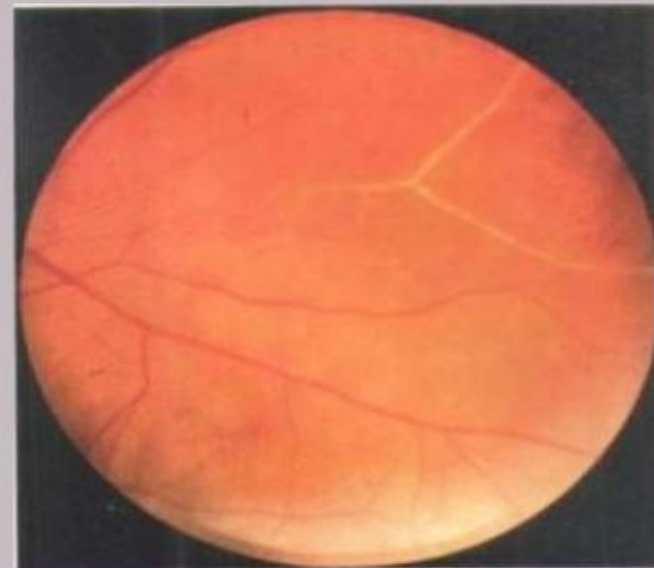
Venous Loop



Venous Beading



Venous Segmentation



Retinal arteriole obliteration



INTRARETINAL HEMORRHAGES

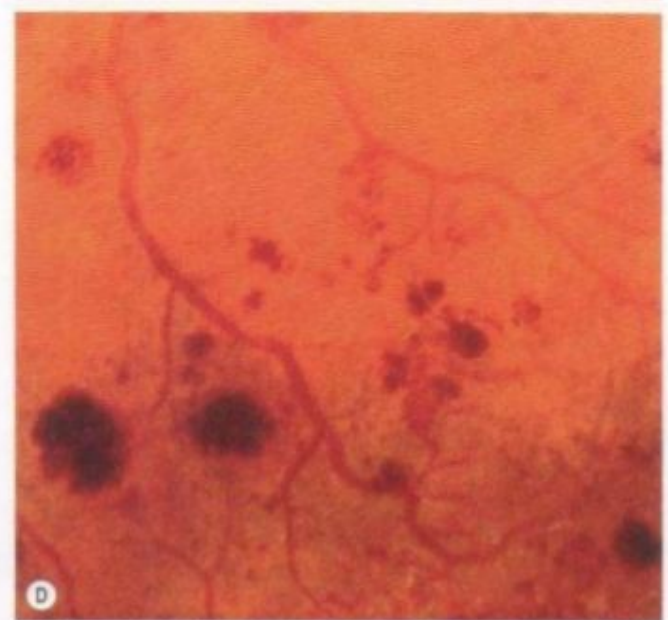
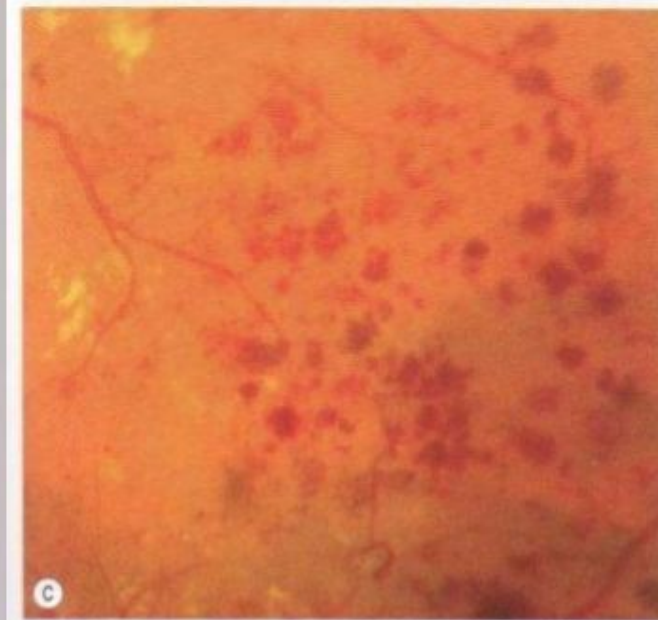
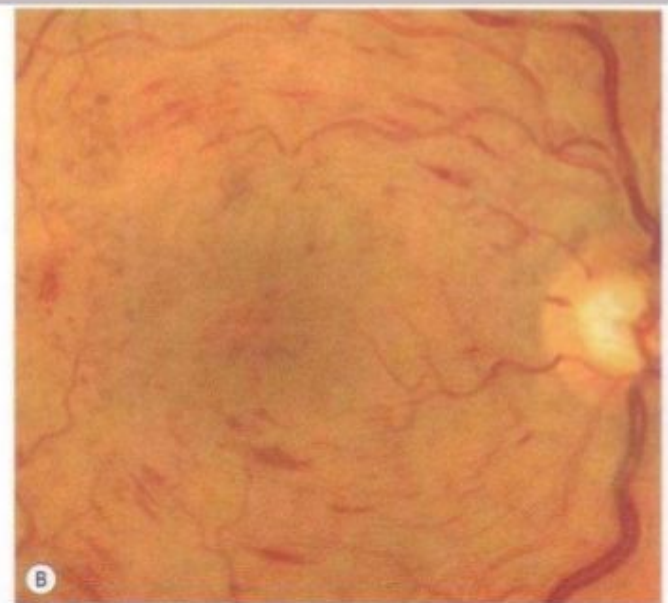
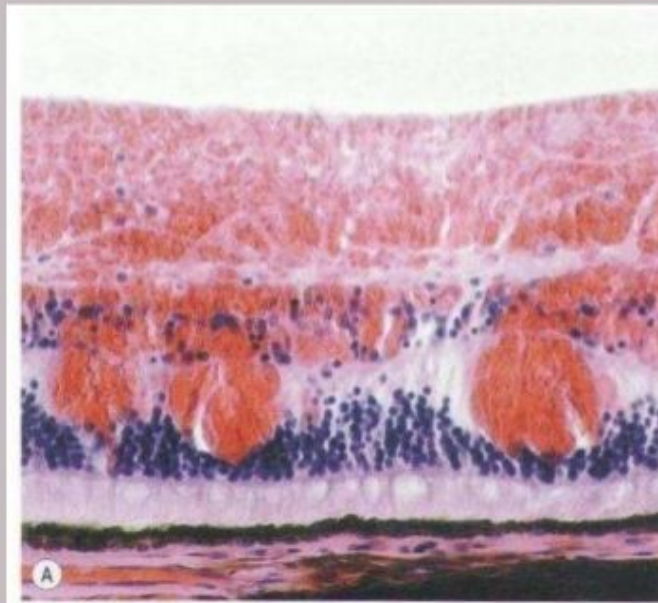
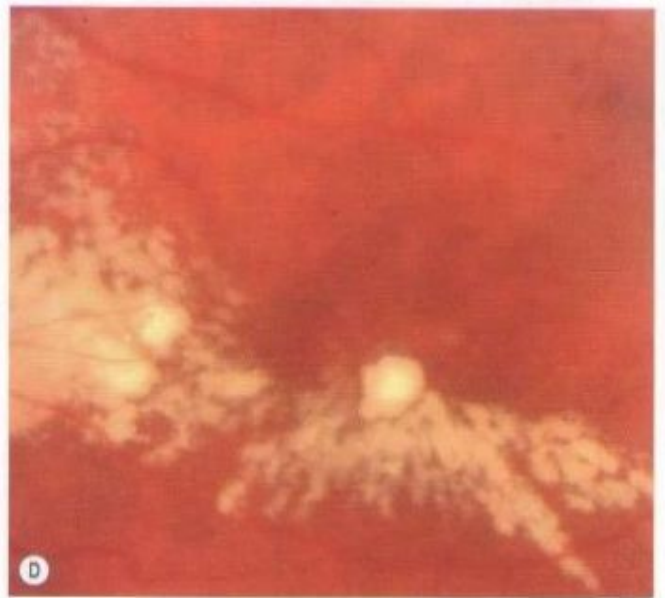
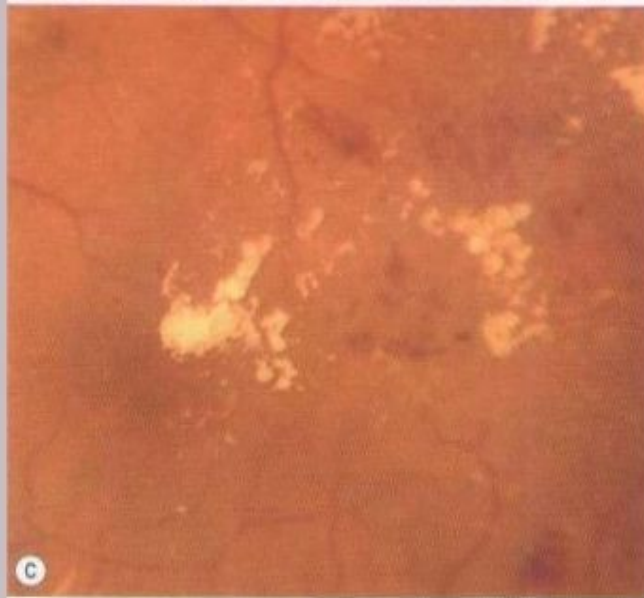
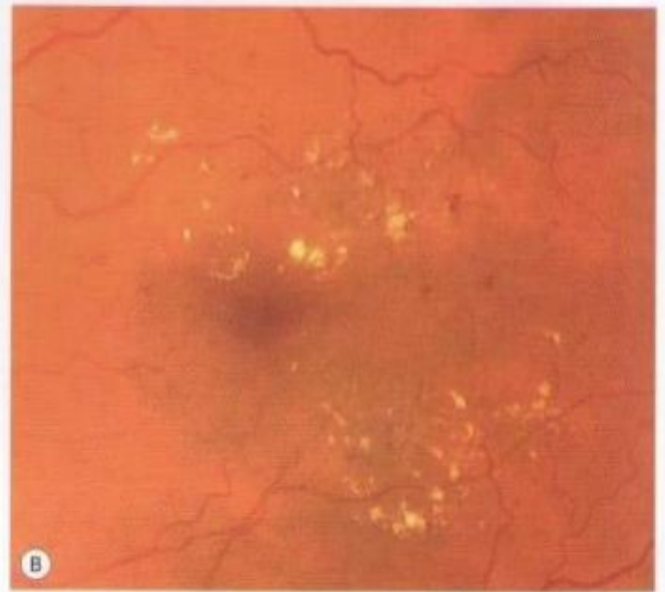
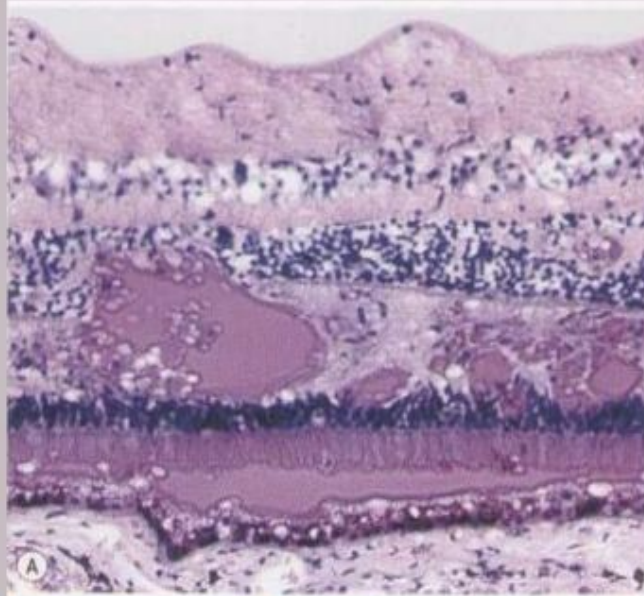


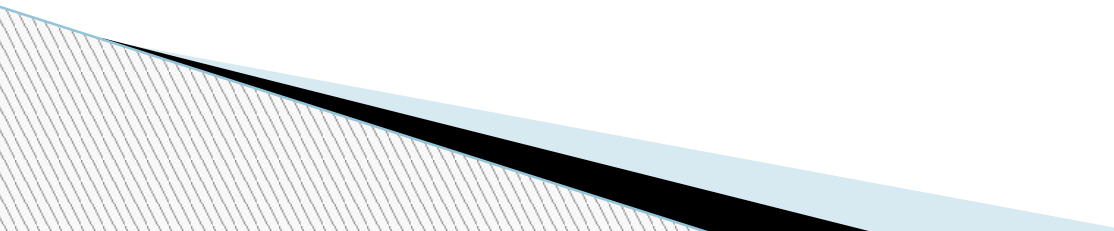
Fig. 13.5 Retinal haemorrhages. (A) Histology shows blood lying diffusely in the retinal nerve fibre and ganglion cell layers and as globules in the outer layers; (B) retinal nerve fibre layer haemorrhages; (C) deep dot and blot haemorrhages; (D) deep dark haemorrhages



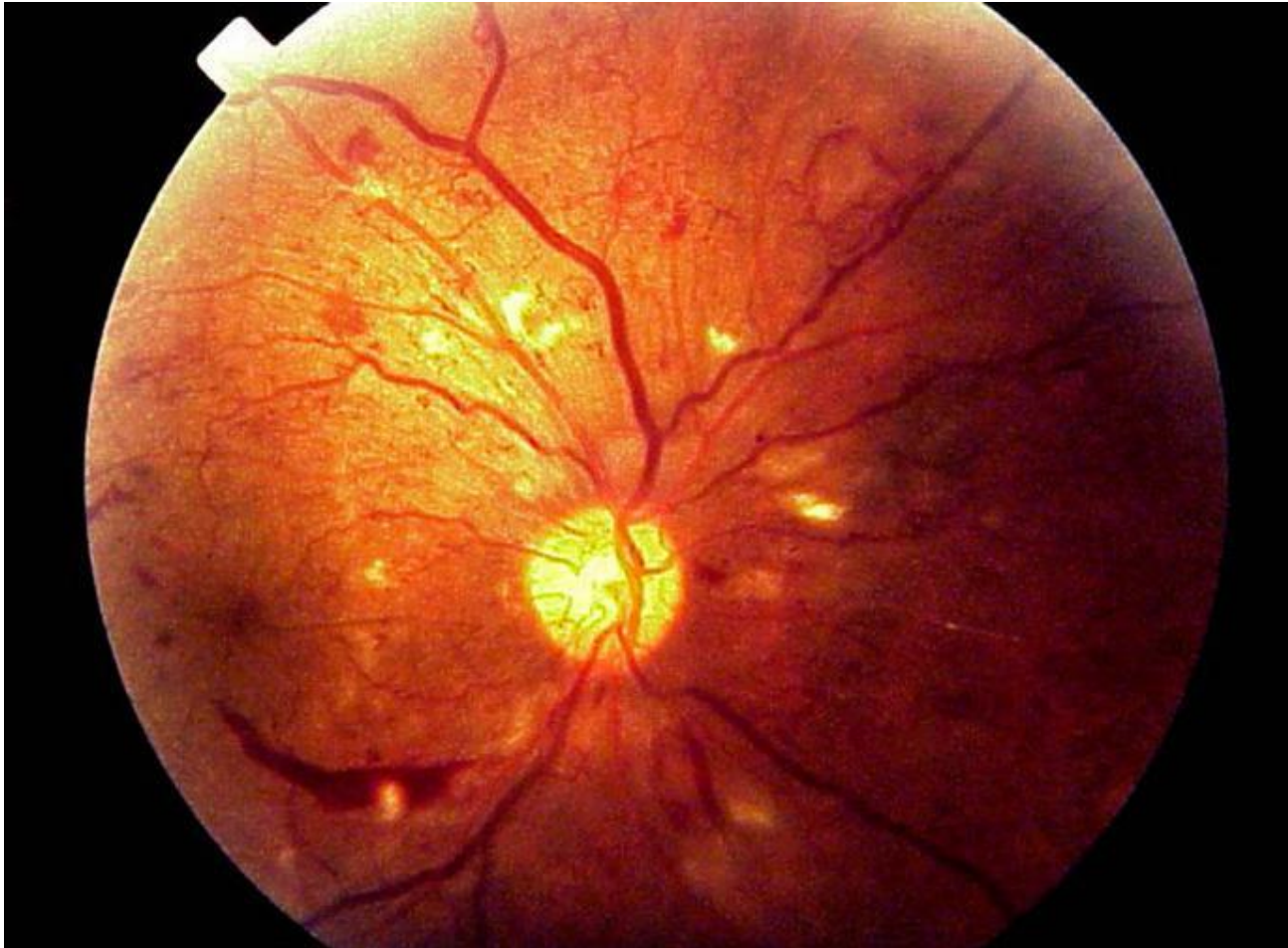
EXUDATES
(HARD)



Proliferative stage

- hemorrhages in a vitreous;
 - neovascularization;
 - neovascular glaucoma;
 - retinal detachment.
- 

Proliferative stage



PROLIFERATIVE DR

**NEO
VASCULARIZATION
: DISC**

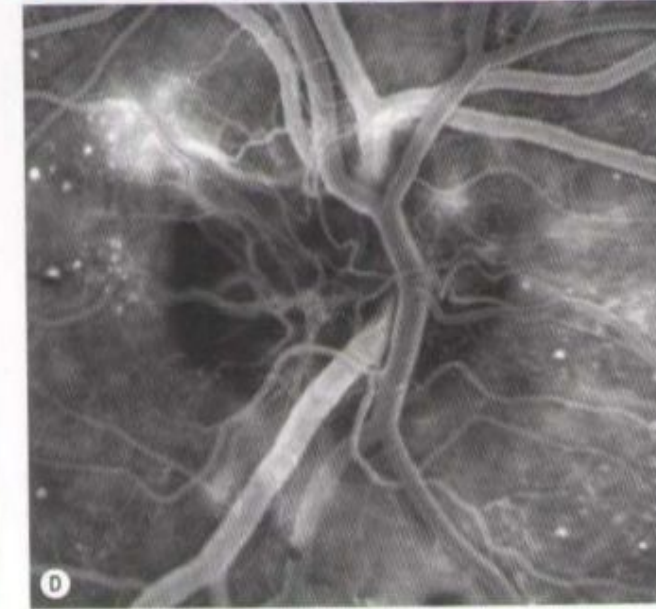
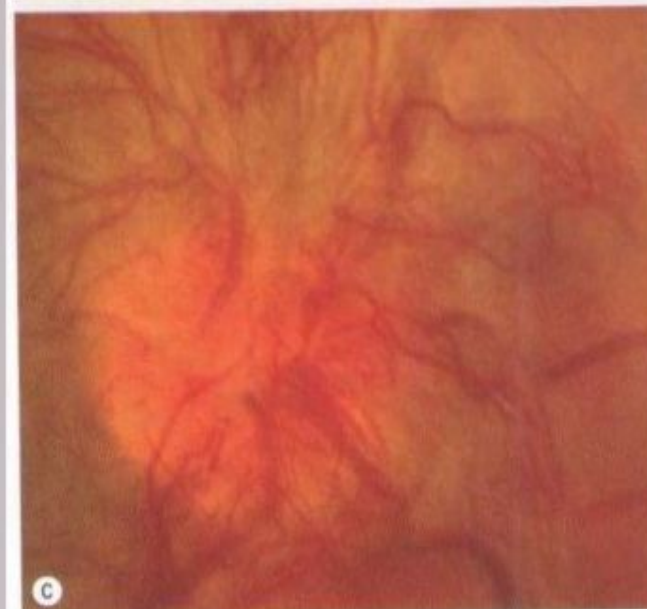


Fig. 13.16 Disc new vessels. (A) Mild; (B) severe; (C) very severe; (D) FA early phase highlights the vessels

A close-up photograph of a human eye. The iris is a vibrant rainbow color, with segments of red, orange, yellow, green, cyan, blue, and purple. The pupil is black and centered. The eye is surrounded by dark eyelashes and light-colored skin. The background is a soft, out-of-focus grey.

**Thank you for your
attention**

**Zelenina A.V.
yyyyeee@mail.ru**