

«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

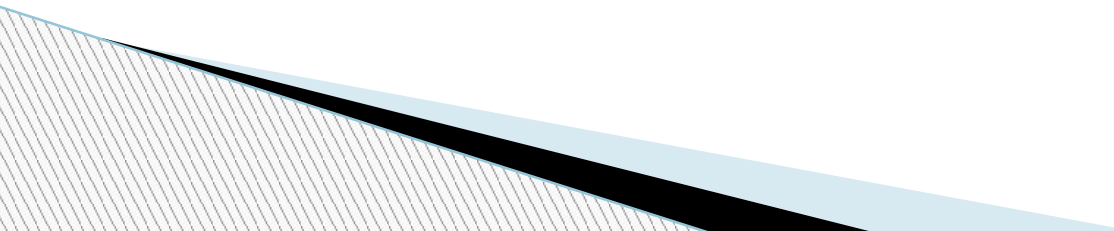


# Diabetic retinopathy



**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

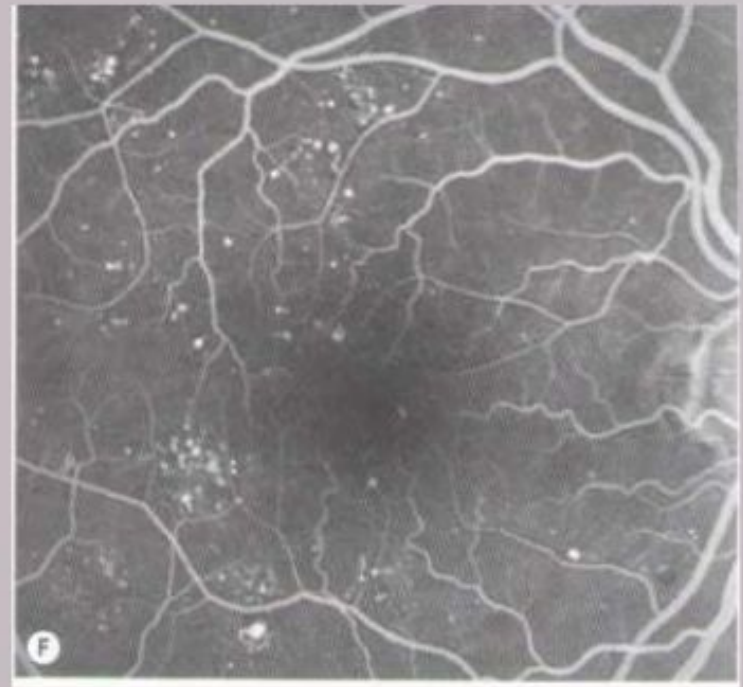
- **Nonproliferative stage**
  - **Preproliferative stage**
  - **Proliferative stage**
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# Nonproliferative stage

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

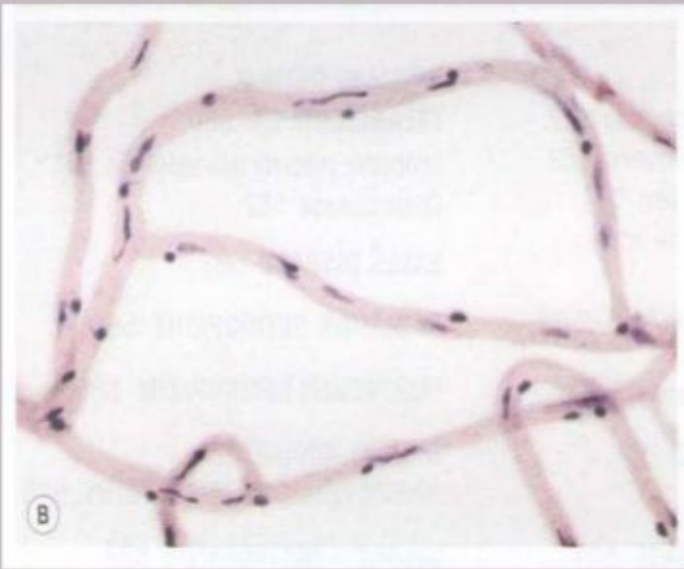
# Nonproliferative stage



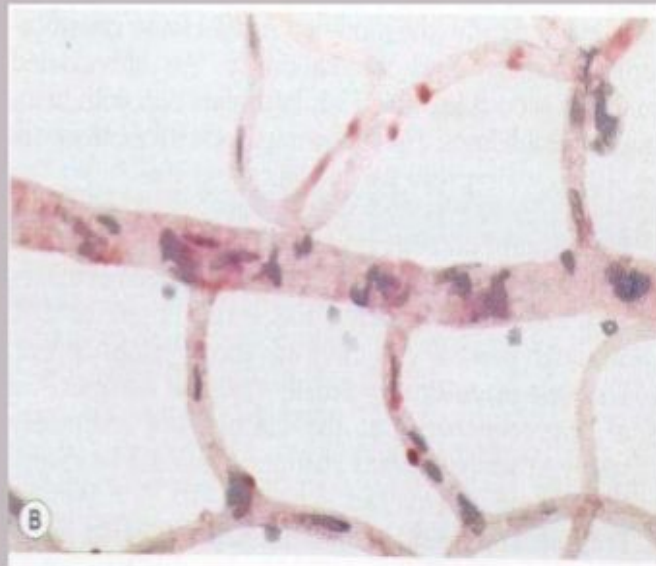


## MICRO ANEURYSMS

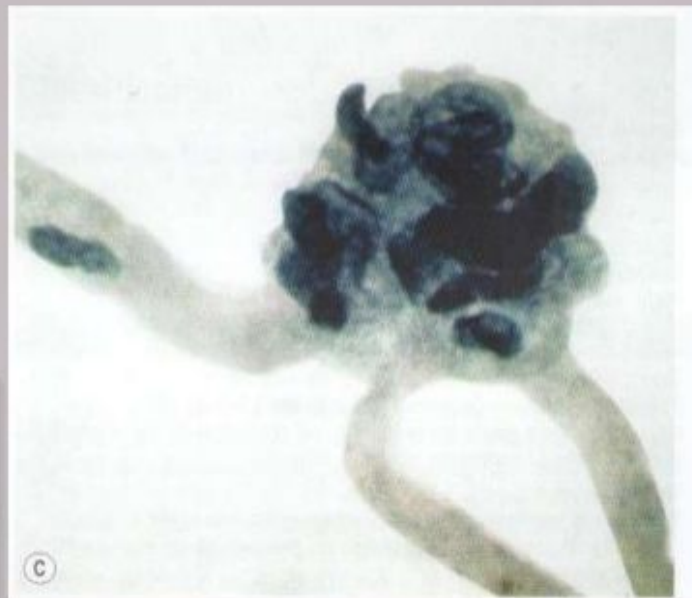




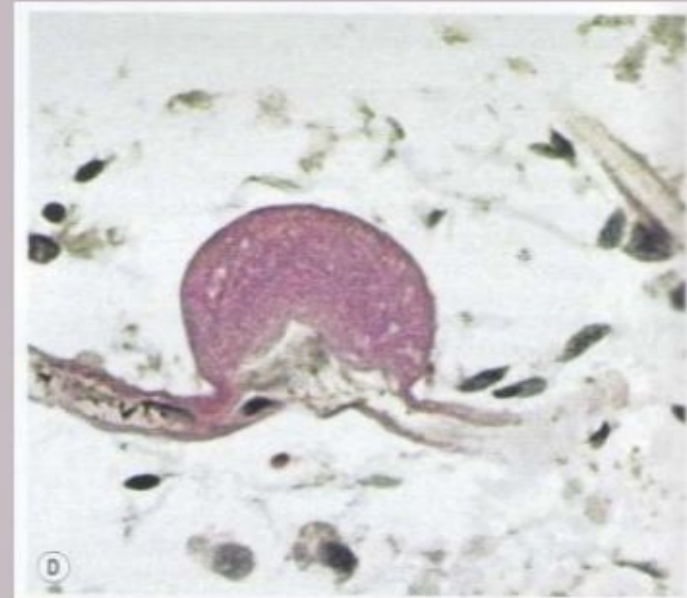
**NORMAL CAPILLARIES**



**PERICYTE LOSS**

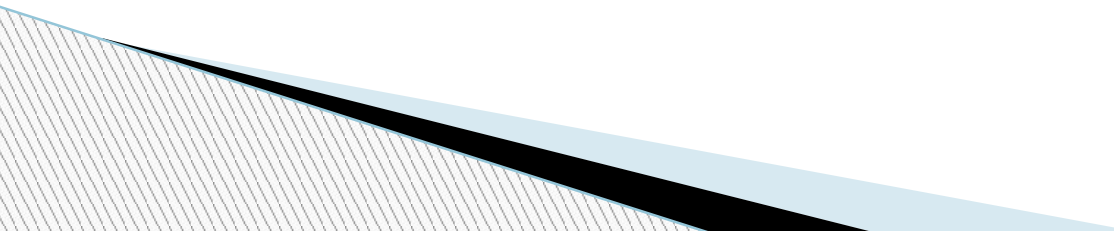


**MICRO ANEURYSM**



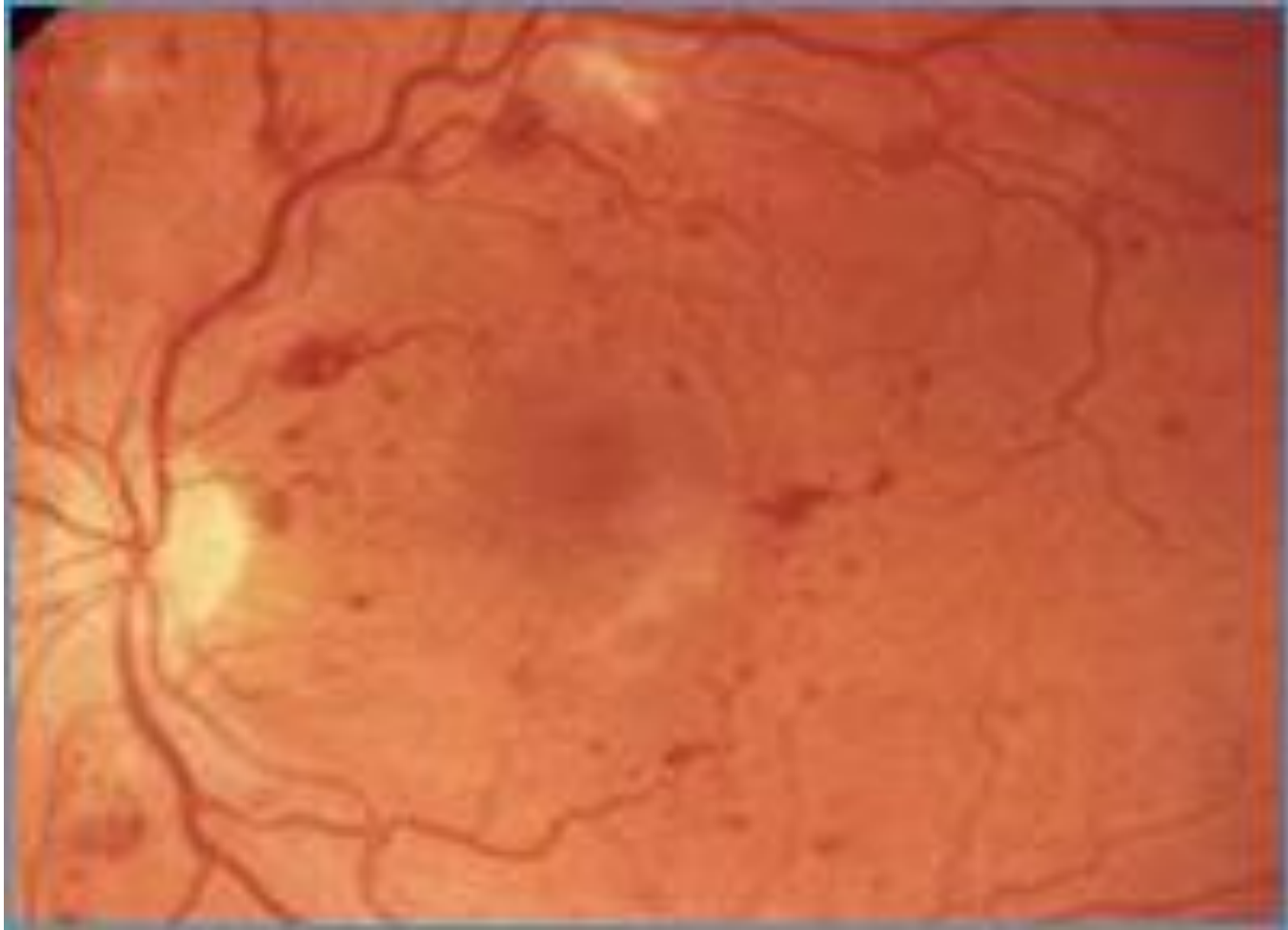
**THROMBOSED  
MICRO ANEURYSM**

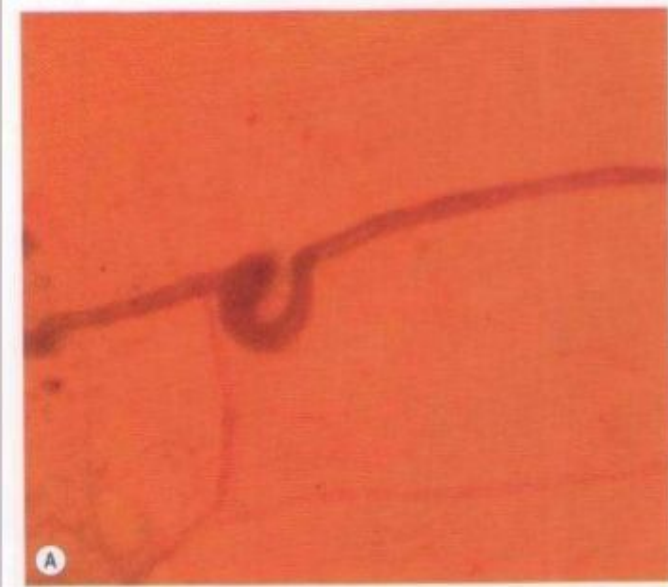
# Preproliferative stage

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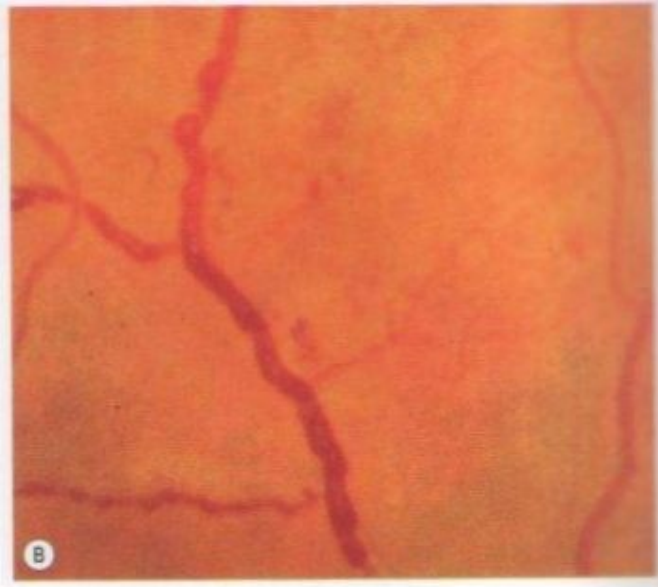


# Preproliferative stage

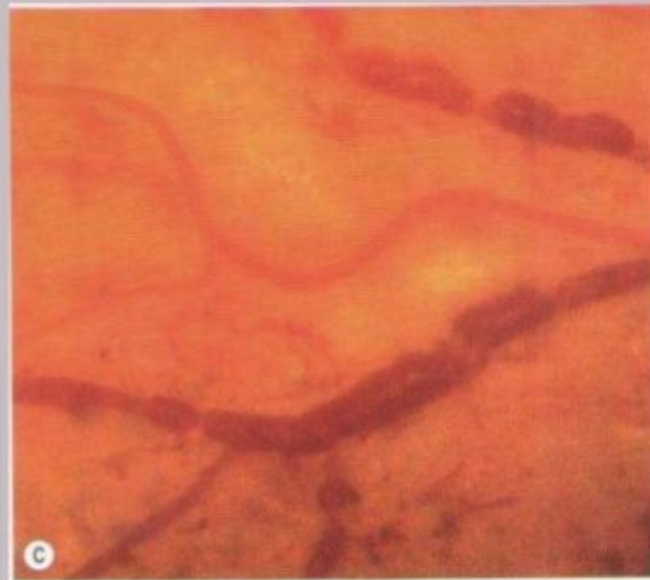




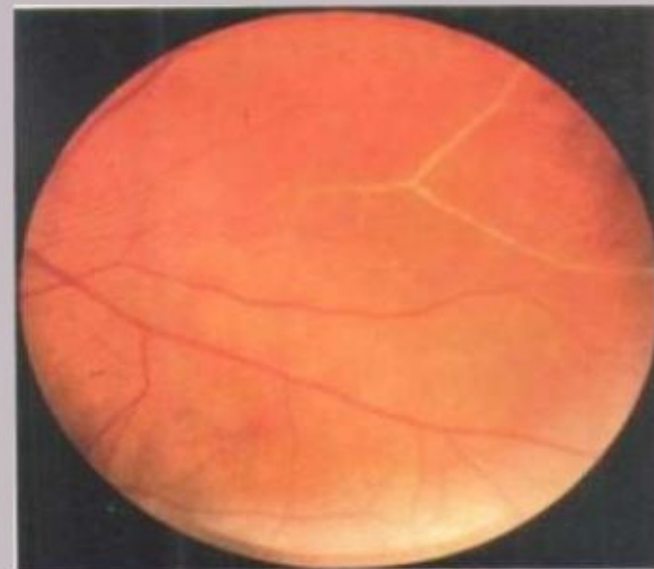
**Venous Loop**



**Venous Beading**



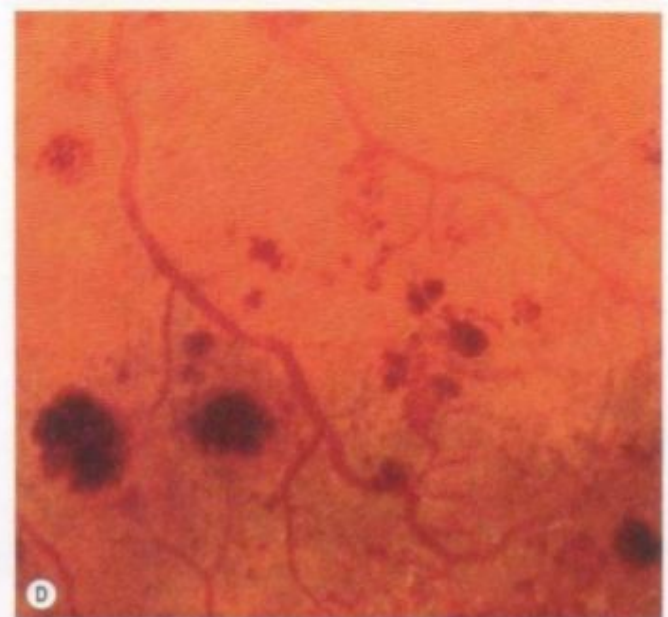
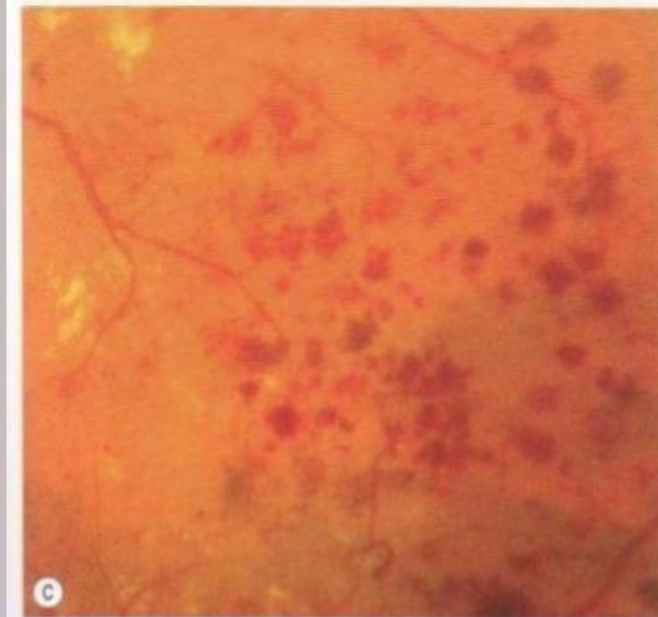
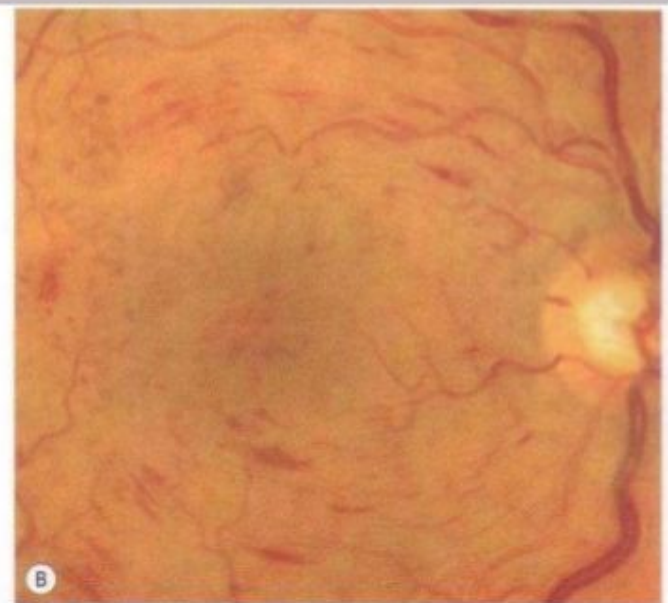
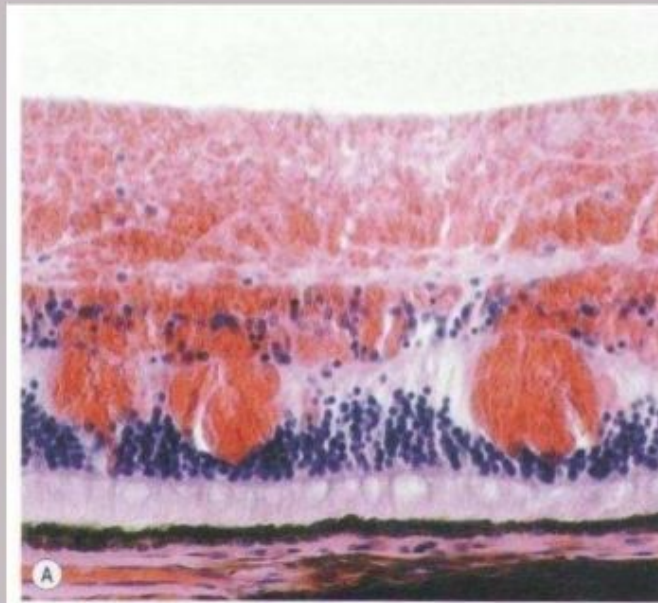
**Venous Segmentation**



**Retinal arteriole obliteration**



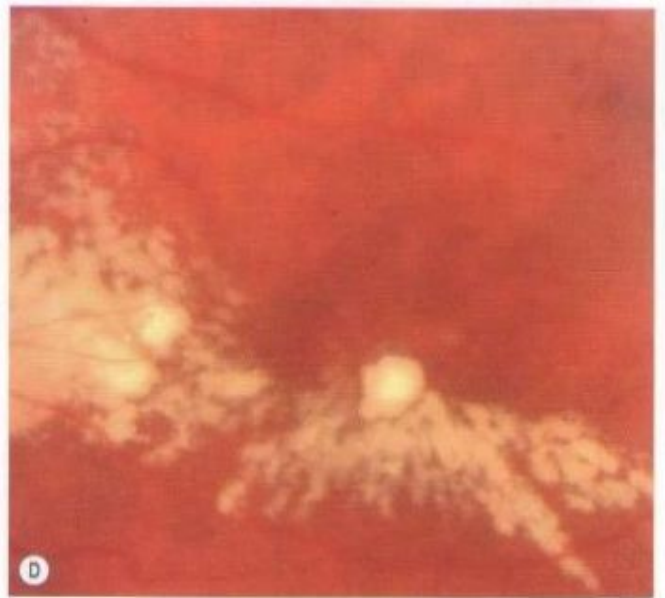
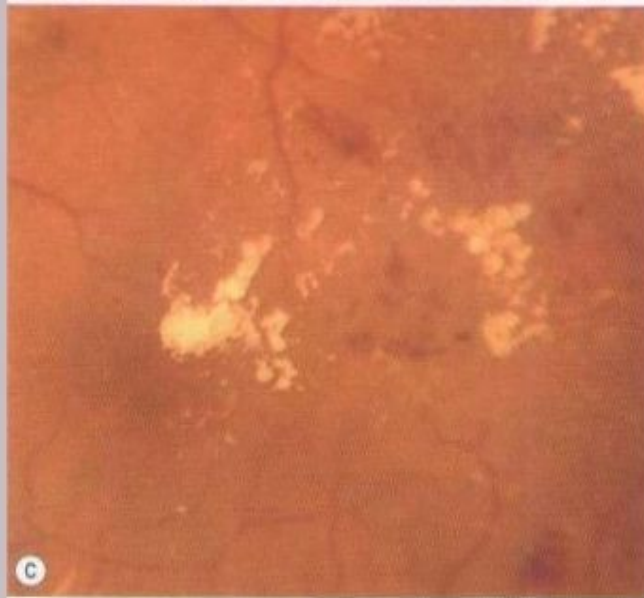
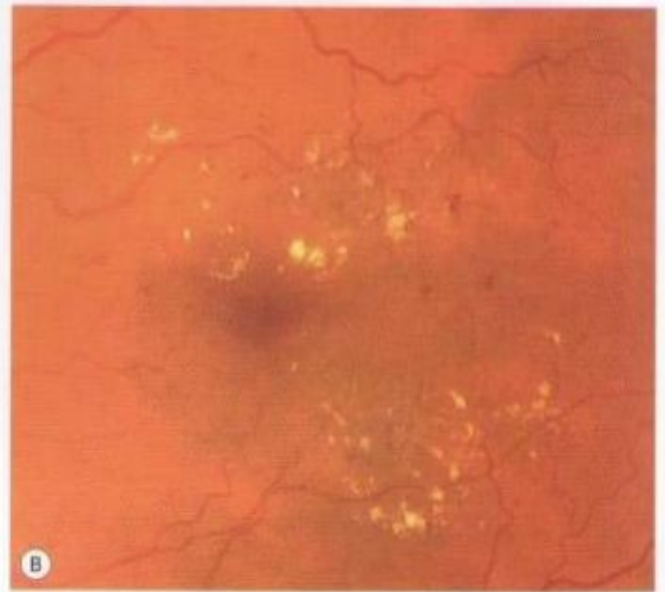
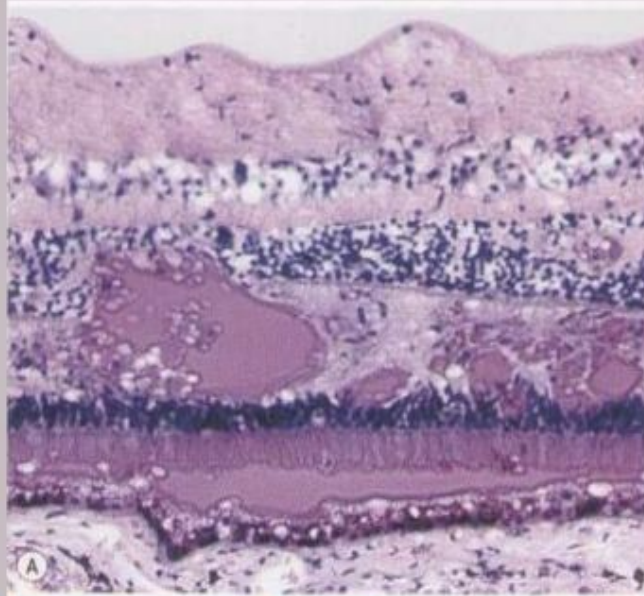
# INTRARETINAL HEMORRHAGES



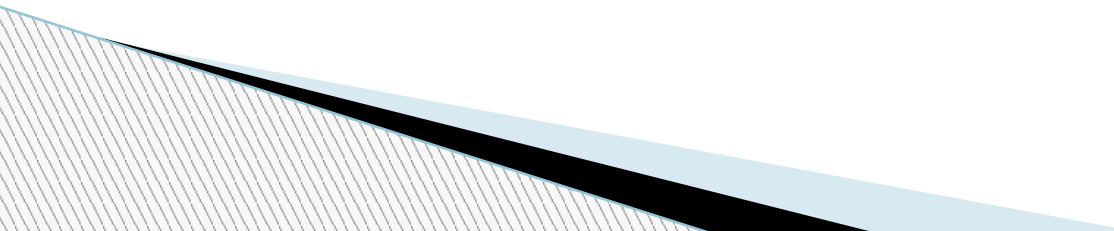
**Fig. 13.5** Retinal haemorrhages. (A) Histology shows blood lying diffusely in the retinal nerve fibre and ganglion cell layers and as globules in the outer layers; (B) retinal nerve fibre layer haemorrhages; (C) deep dot and blot haemorrhages; (D) deep dark haemorrhages



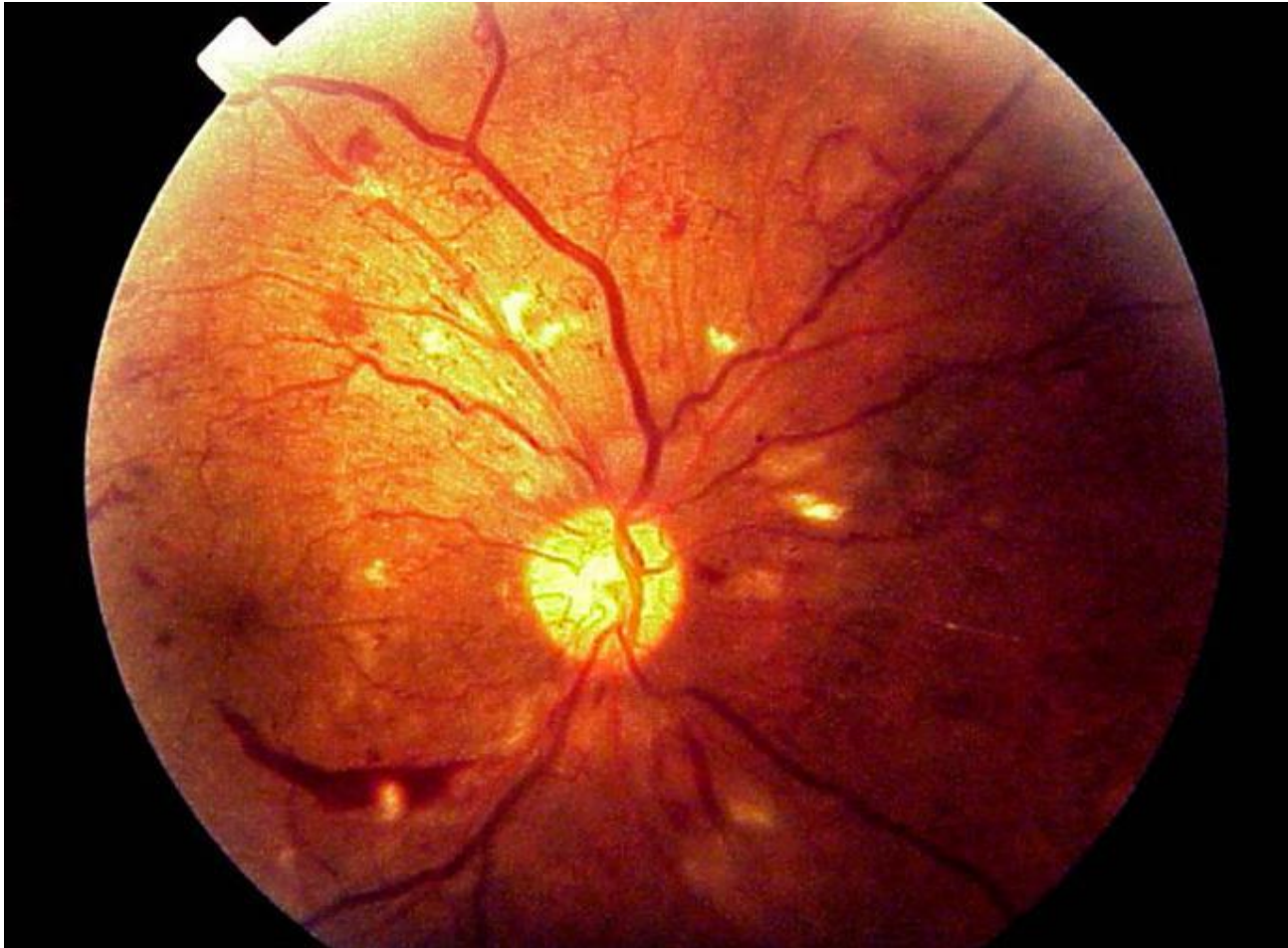
**EXUDATES**  
**(HARD)**



# Proliferative stage

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



# PROLIFERATIVE DR

NEO  
VASCULARIZATION  
: DISC

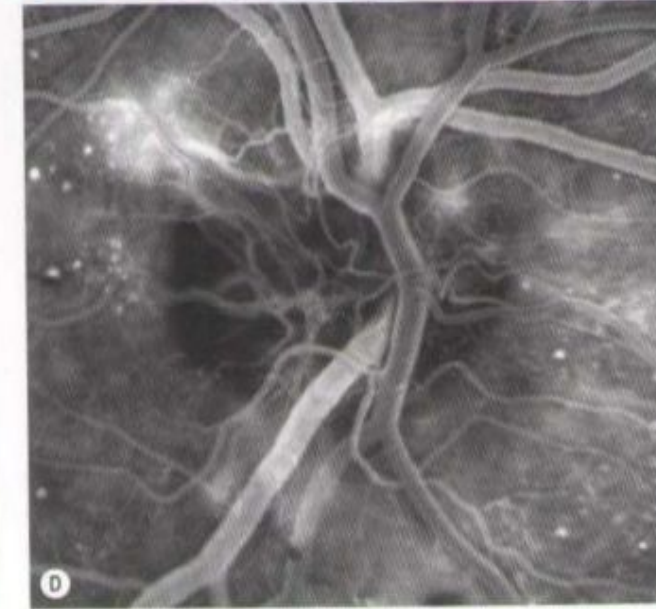
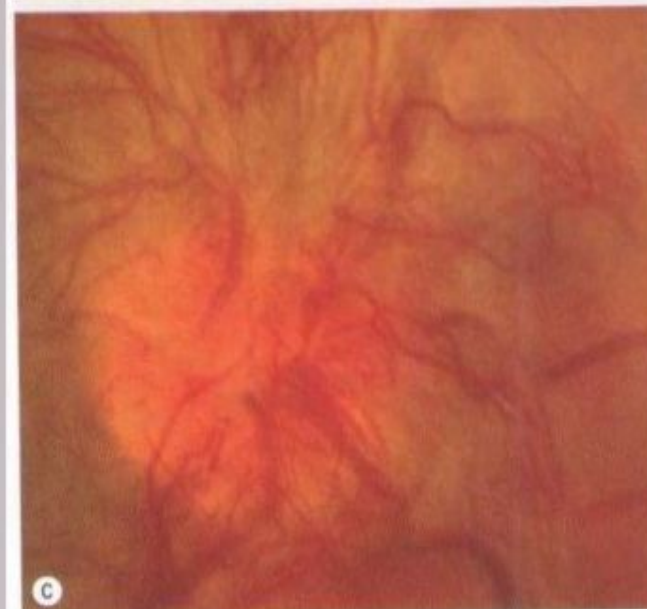


Fig. 13.16 Disc new vessels. (A) Mild; (B) severe; (C) very severe; (D) FA early phase highlights the vessels

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 a light-colored sclera. The background is a soft, out-of-focus grey.

**Thank you for your  
attention**

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