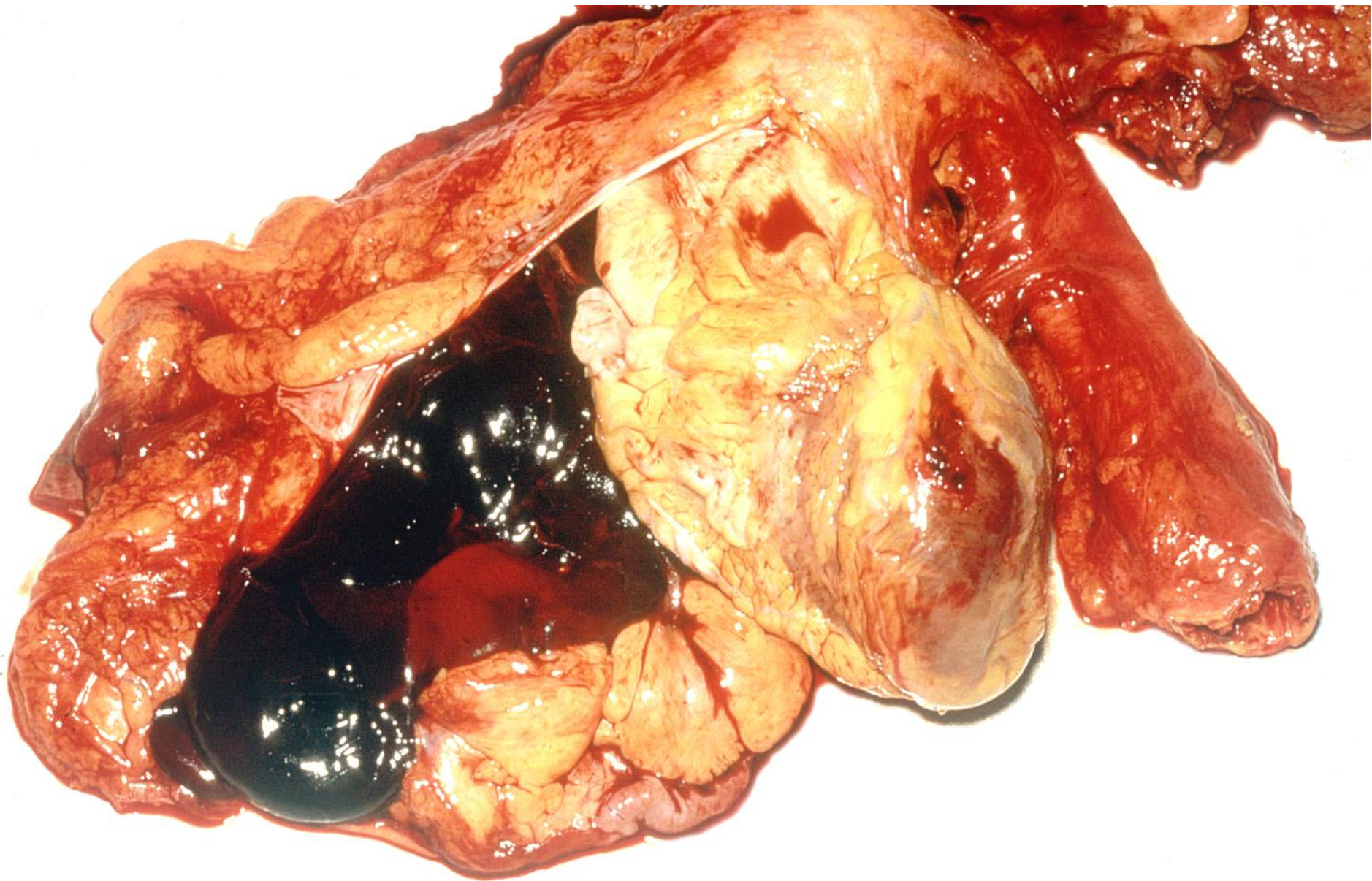


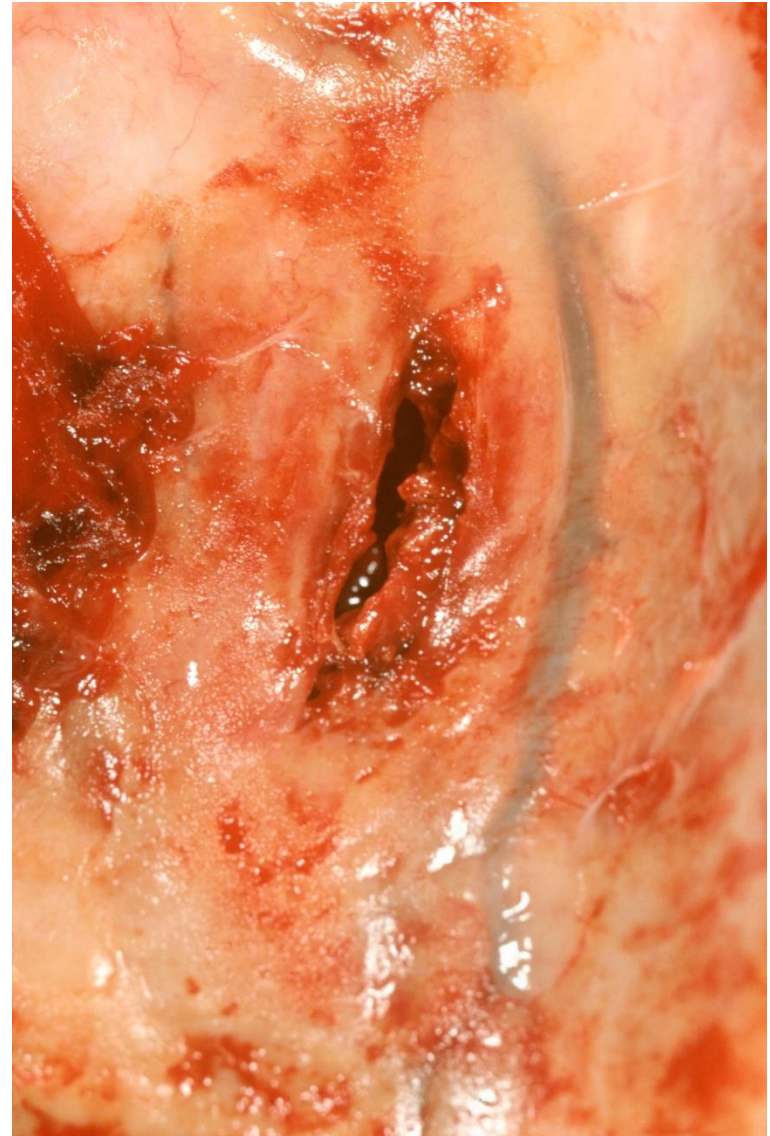
Post Mortem Histology Seminar

Patrick J Gallagher
September 2020

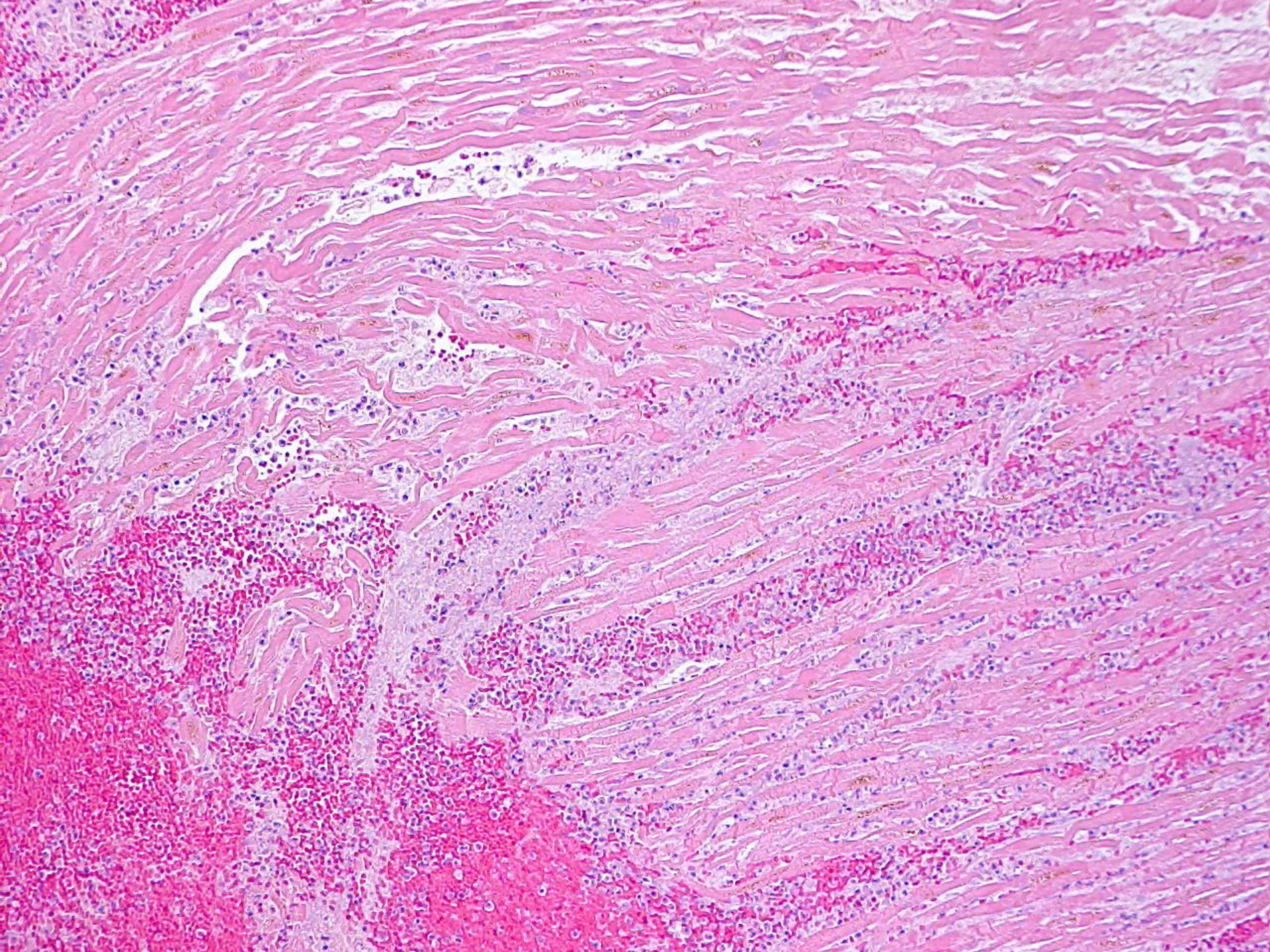
Case 1

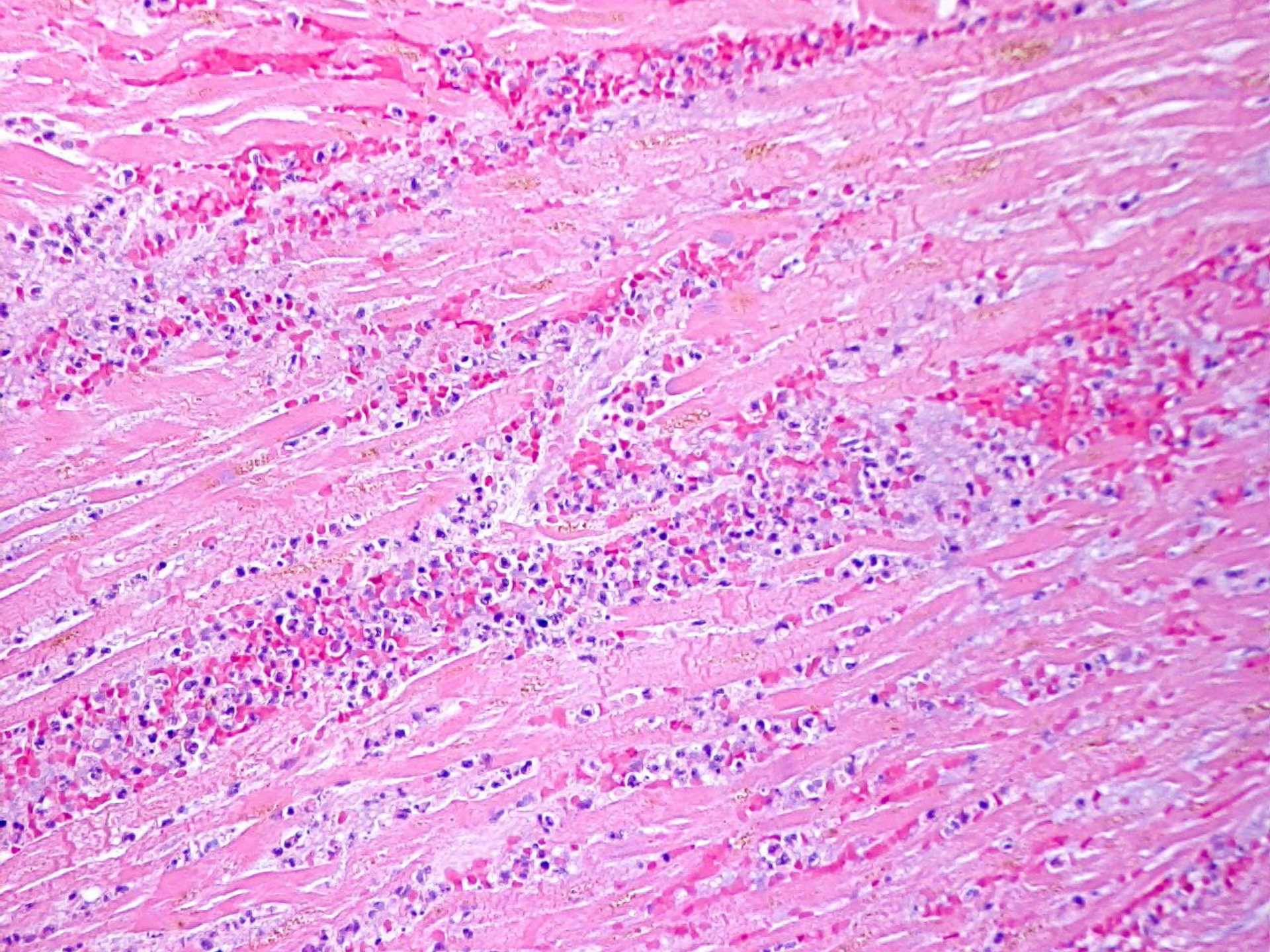
- Died suddenly whilst drinking tea with a friend
- Haemopericardium due to ruptured myocardial infarct
- No history of recent chest pain
- No cardiac medications
- Confused but self caring and orientated

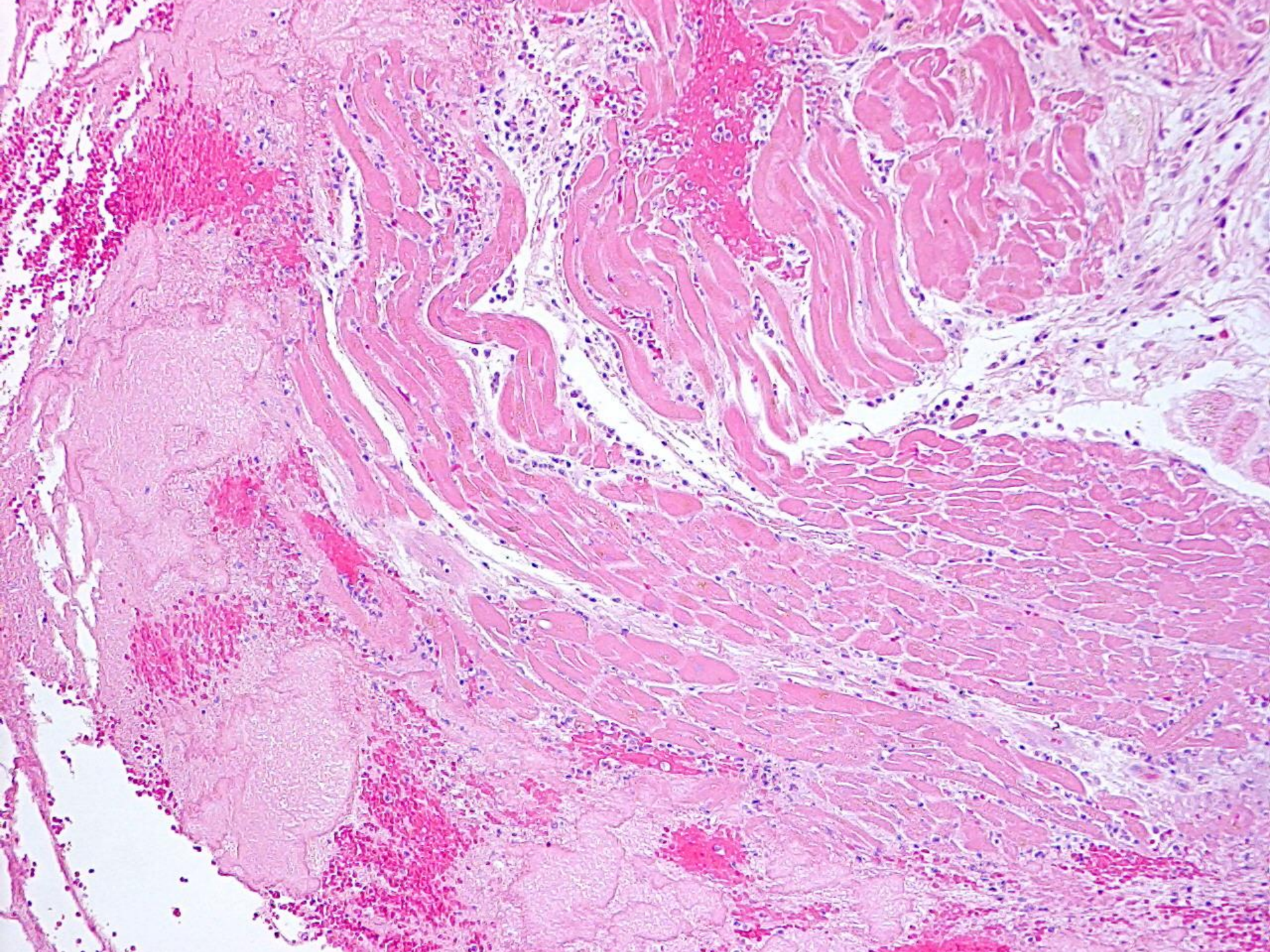


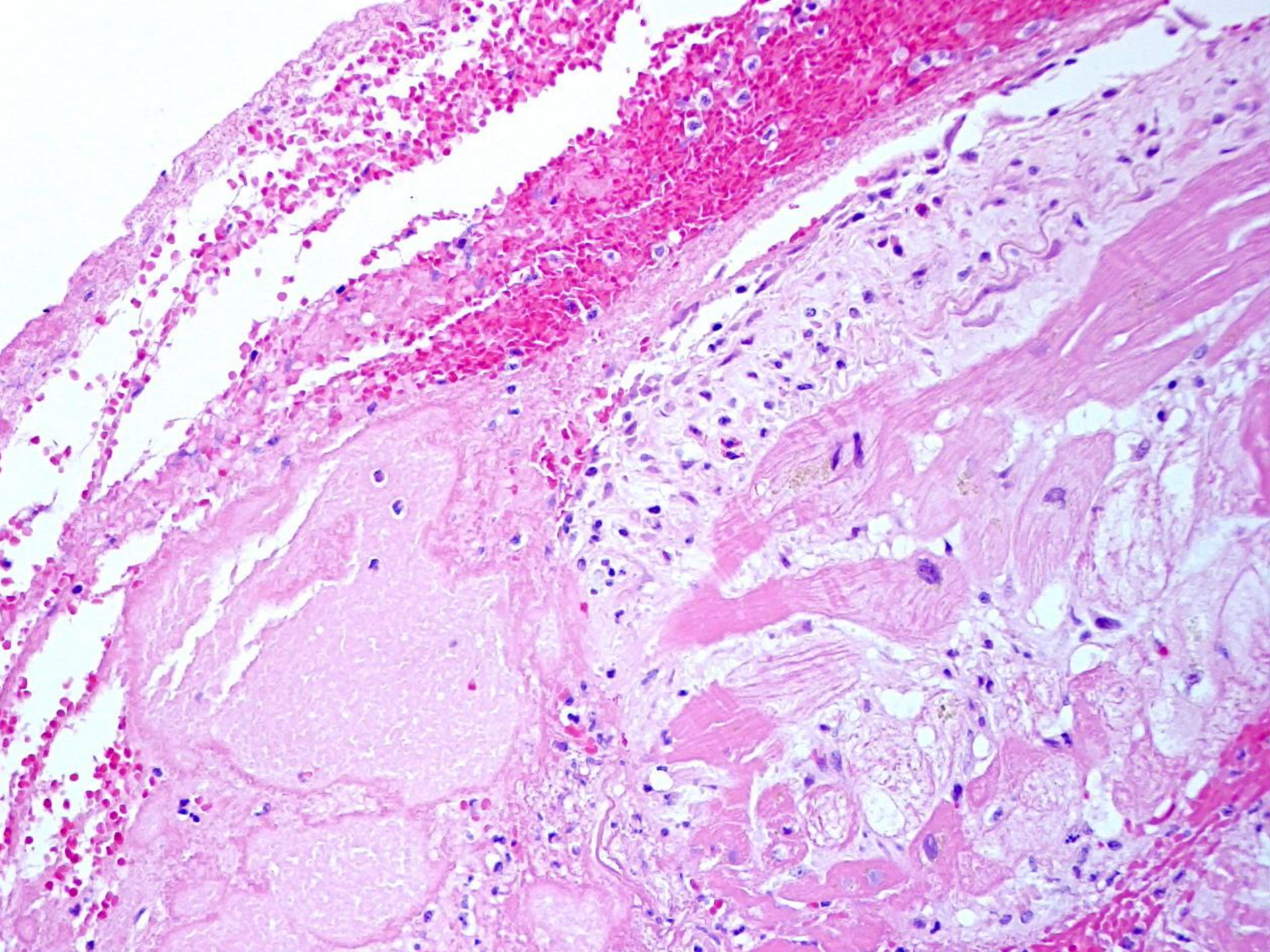


Ruptured acute myocardial infarct



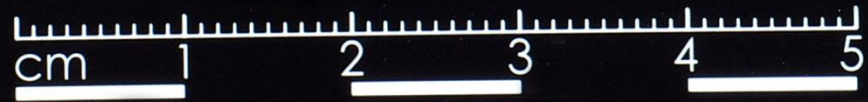






Cardiac Ruptures

- The classical teaching is that the left ventricular myocardium ruptures 3 or so days after an infarct
- This is the stage when the myocardium is soft and macroscopically infarcted
- Some ruptures occur much earlier
- These are the result of shearing between kinetic and akinetic myocardium



Silent Myocardial Infarction

- 10-15% of myocardial infarcts are said to be pain free
- This is probably higher in the post operative period
- A one year study of all sudden cardiac deaths included 51 patients with undoubted healed infarcts
- Only 18 of these had a record of an infarct

Sudden Death Autopsies

- 60% of cases in a provincial city
- 60% of these are cardiac in origin
- 30% ideal histology rate in cardiac deaths, probably less in non cardiac deaths
- 10-15% ideal overall toxicology rate
- Less than 5% have inquests
- About 3% are unexplained

Sudden Cardiac Death

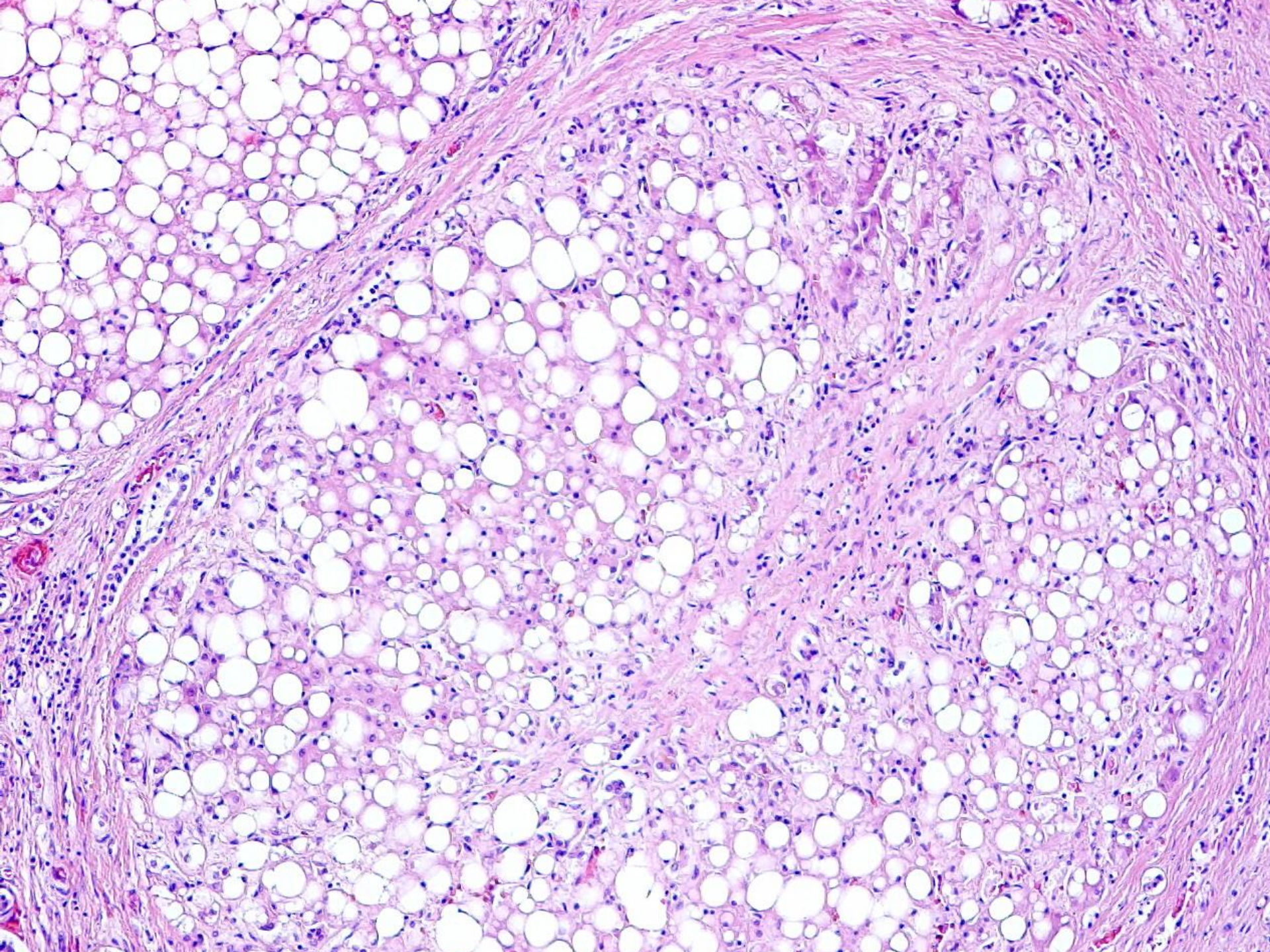
Davies' Criteria

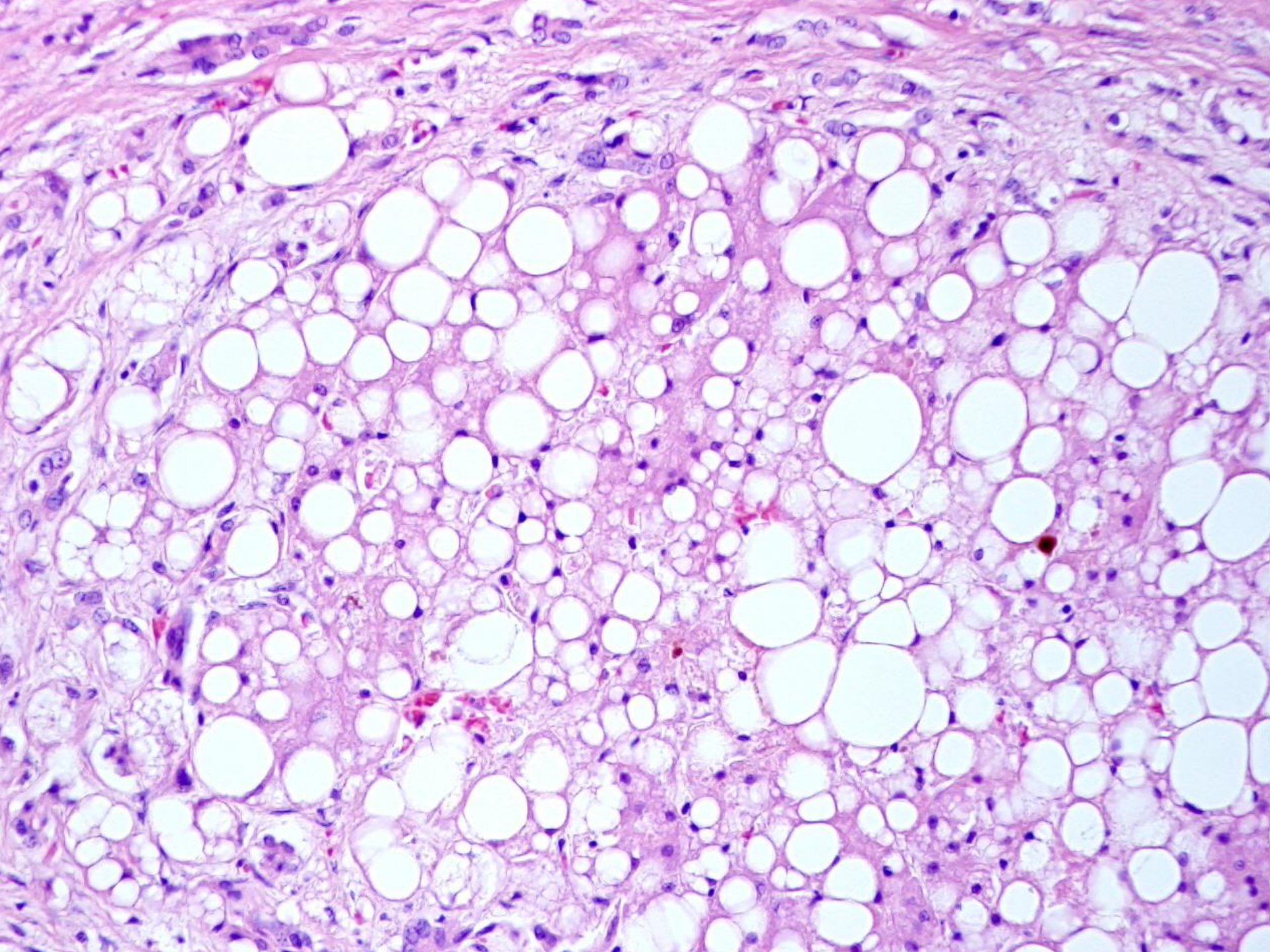
1. Acute coronary thrombosis \pm infarction
2. Coronary narrowing + healed infarction
3. Coronary narrowing but no infarction
4. Heart failure (without coronary narrowing)
5. Structurally normal heart

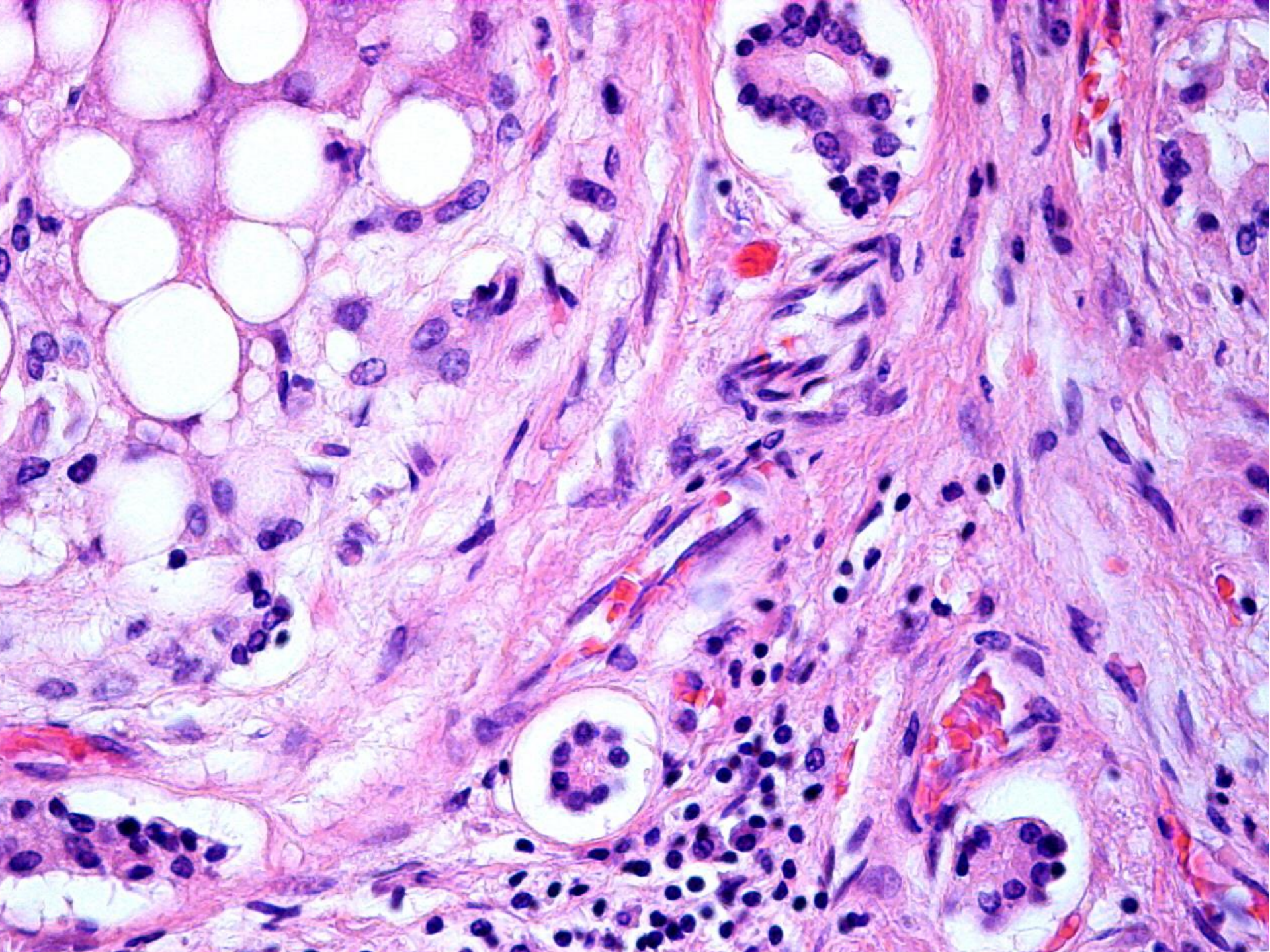
Case 2

- Male 46. Type 1 diabetes
- Cirrhosis of liver with oesophageal varices
- Underwent repeat TIPSS procedure one week before sudden death
- No technical complications of this at PM
- Severe coronary artery disease with ? a coronary thrombosis



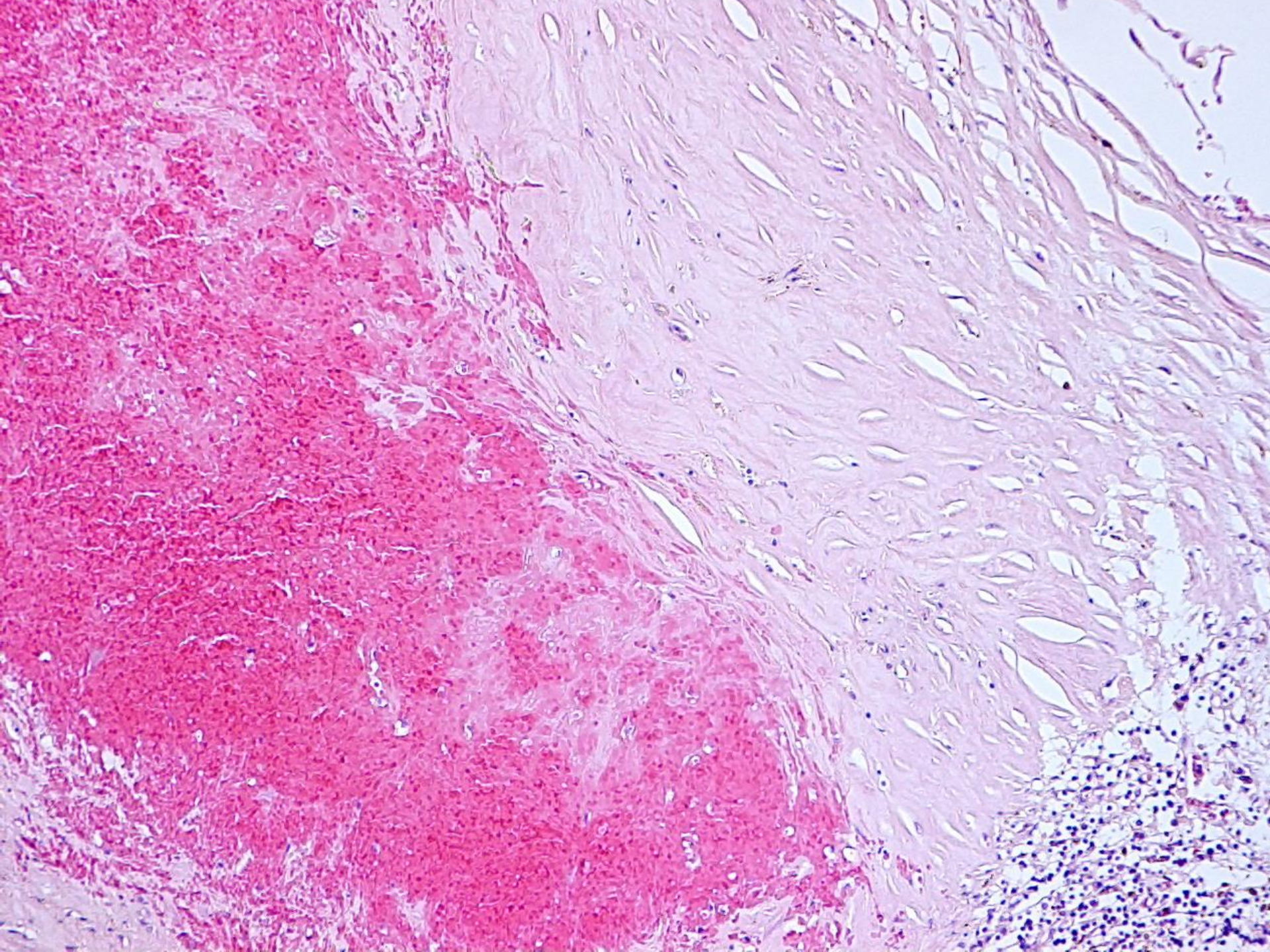


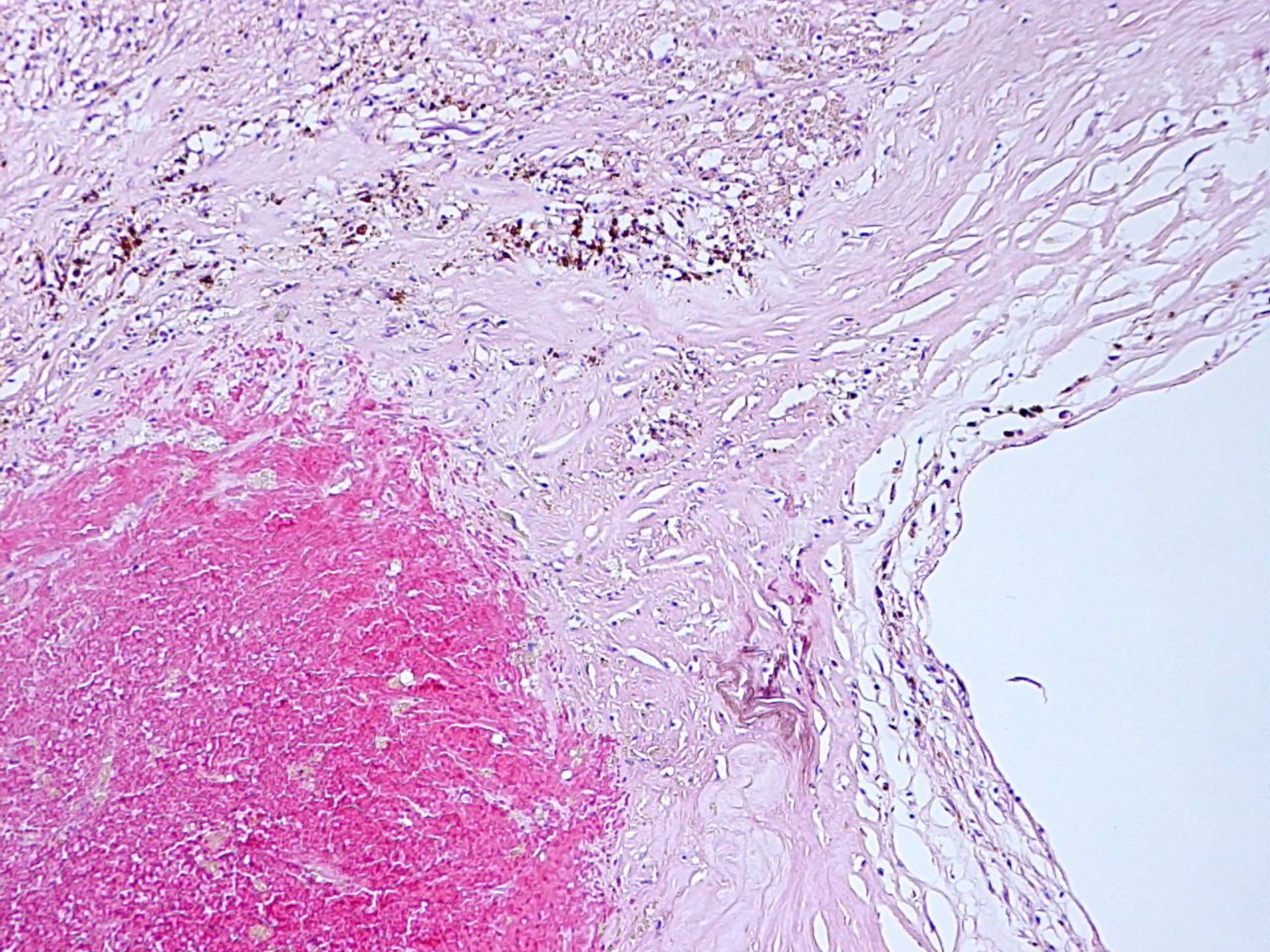


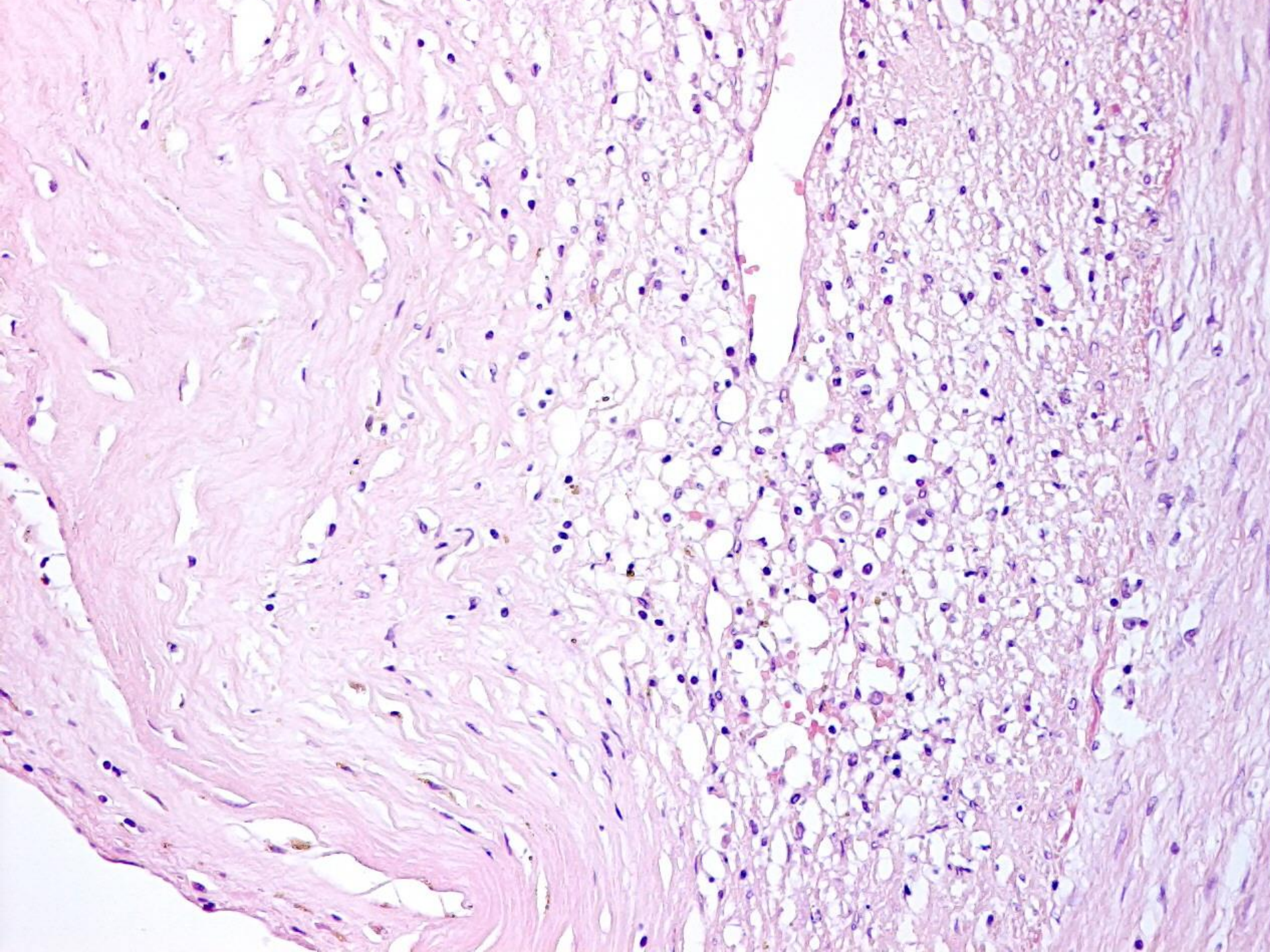


Deaths in Alcoholics

- In a post mortem study alcoholics were 12 years younger than non alcoholics
- The incidence of ischaemic heart disease appeared to be reduced
- The incidence of heart failure without coronary heart disease was increased
- 1.3% of post mortems were unexplained arrhythmic deaths in alcoholics







Coronary Artery Pathology

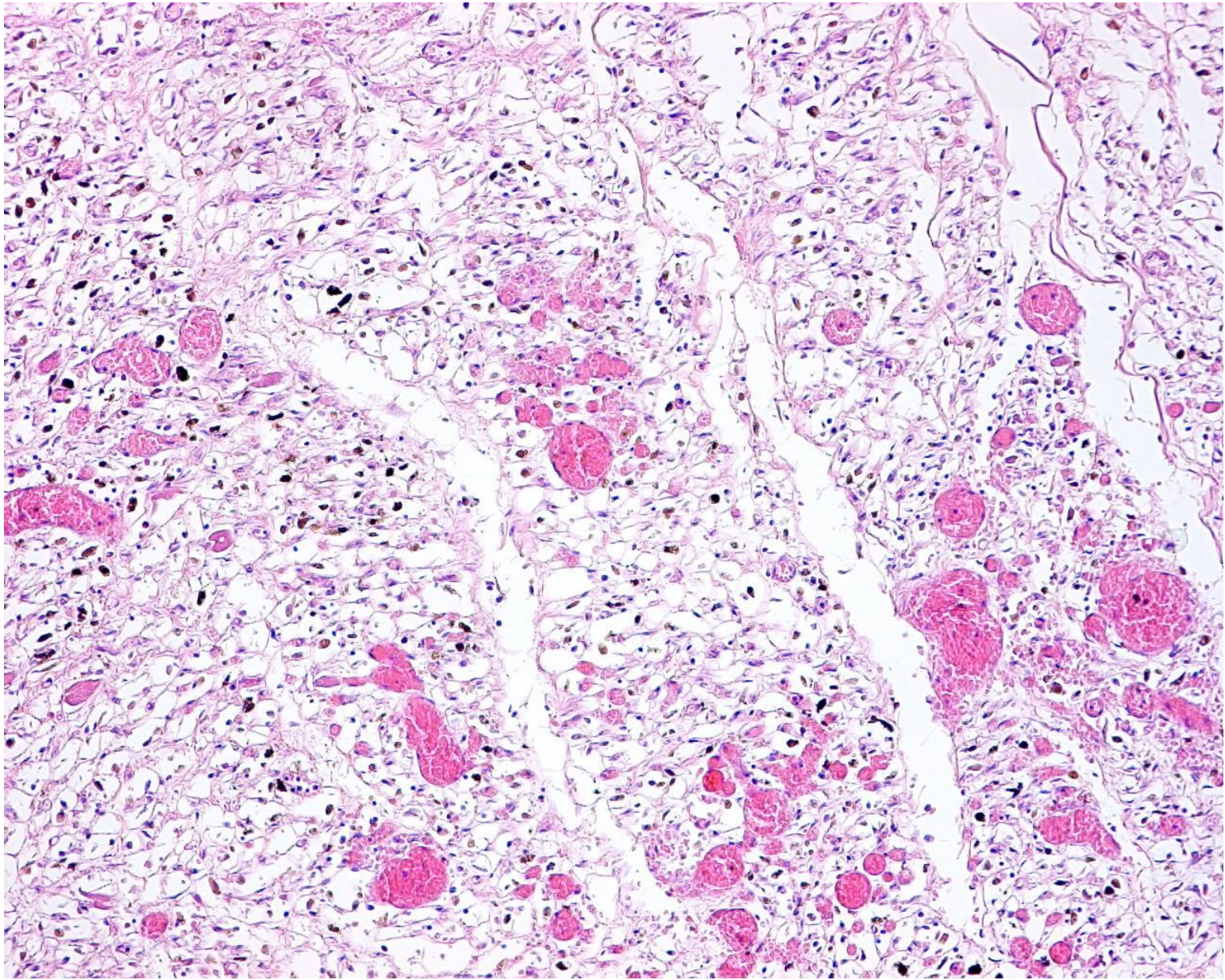
- Macroscopic appearances of atheromas can be very misleading
- Distinguish coronary artery thrombosis, intraplaque haemorrhage and severe coronary artery narrowing
- Take a long length of the critical coronary artery stenosis for histology, especially if heavily calcified

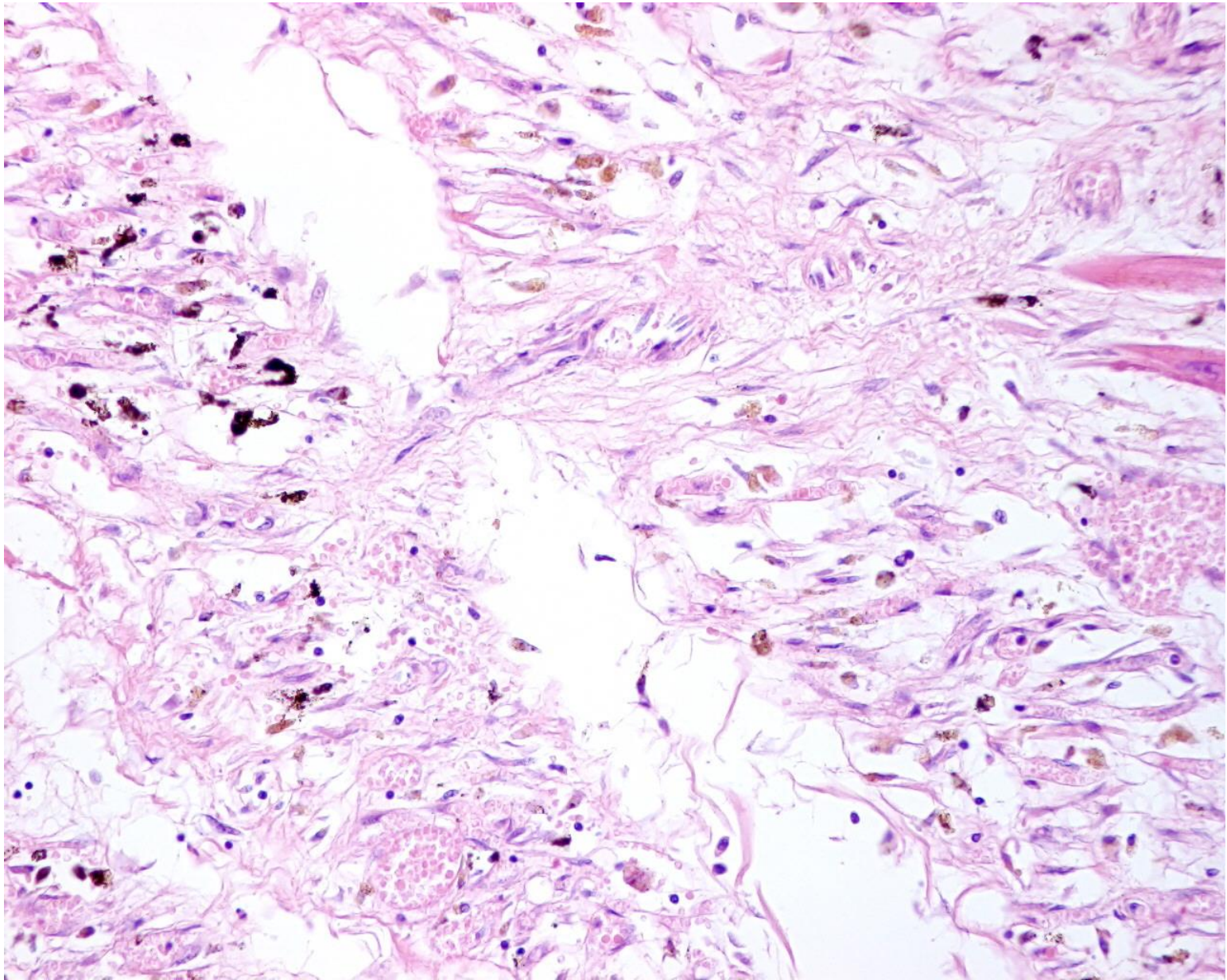
Case 2 Summary

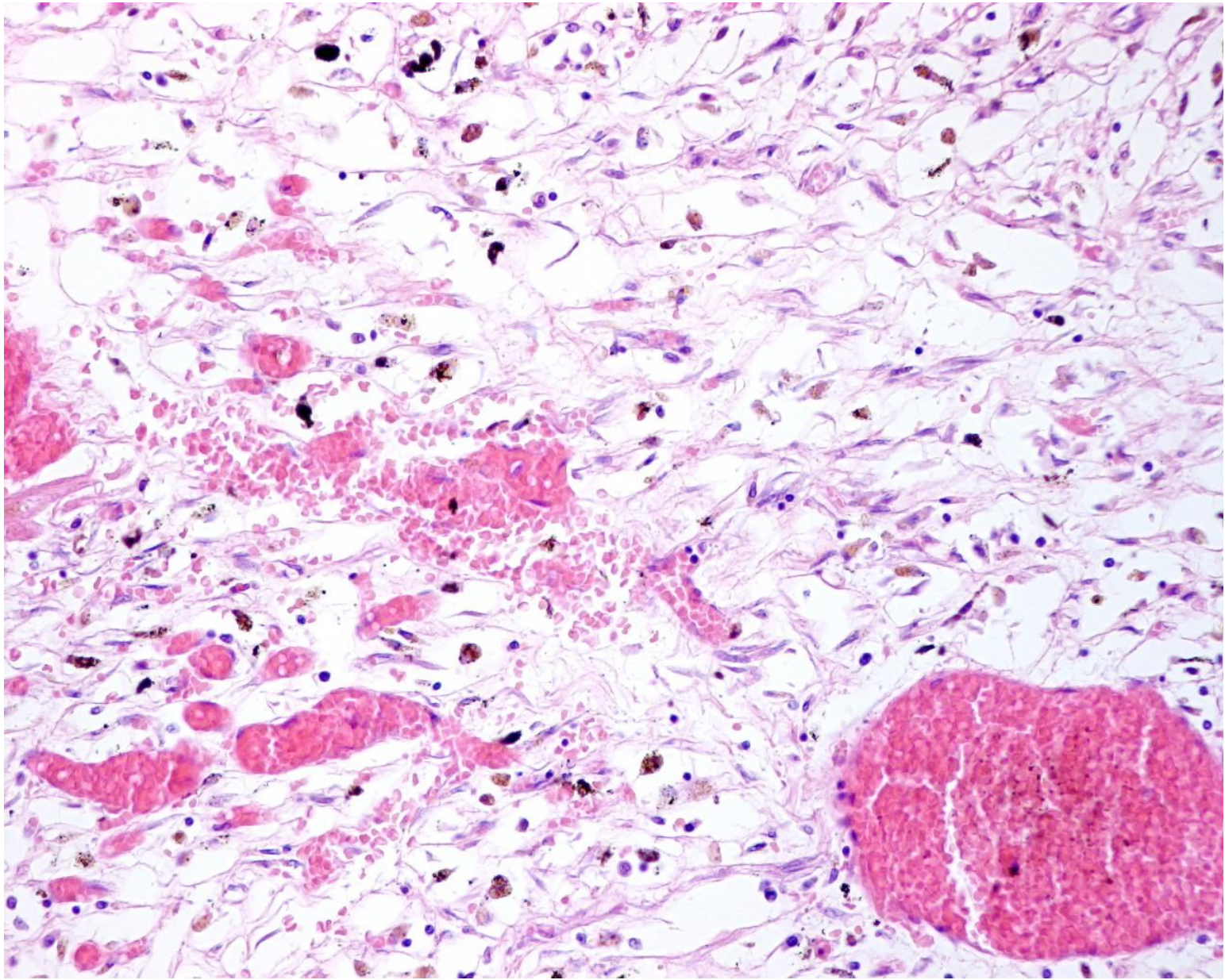
- Post mortem ordered to exclude technical complications of TIPSS
- Advanced cirrhosis but no recent haemorrhage
- Death from haemorrhage into an atheromatous plaque
- Good evidence that repeated intraplaque haemorrhage contributes to enlargement of lesions

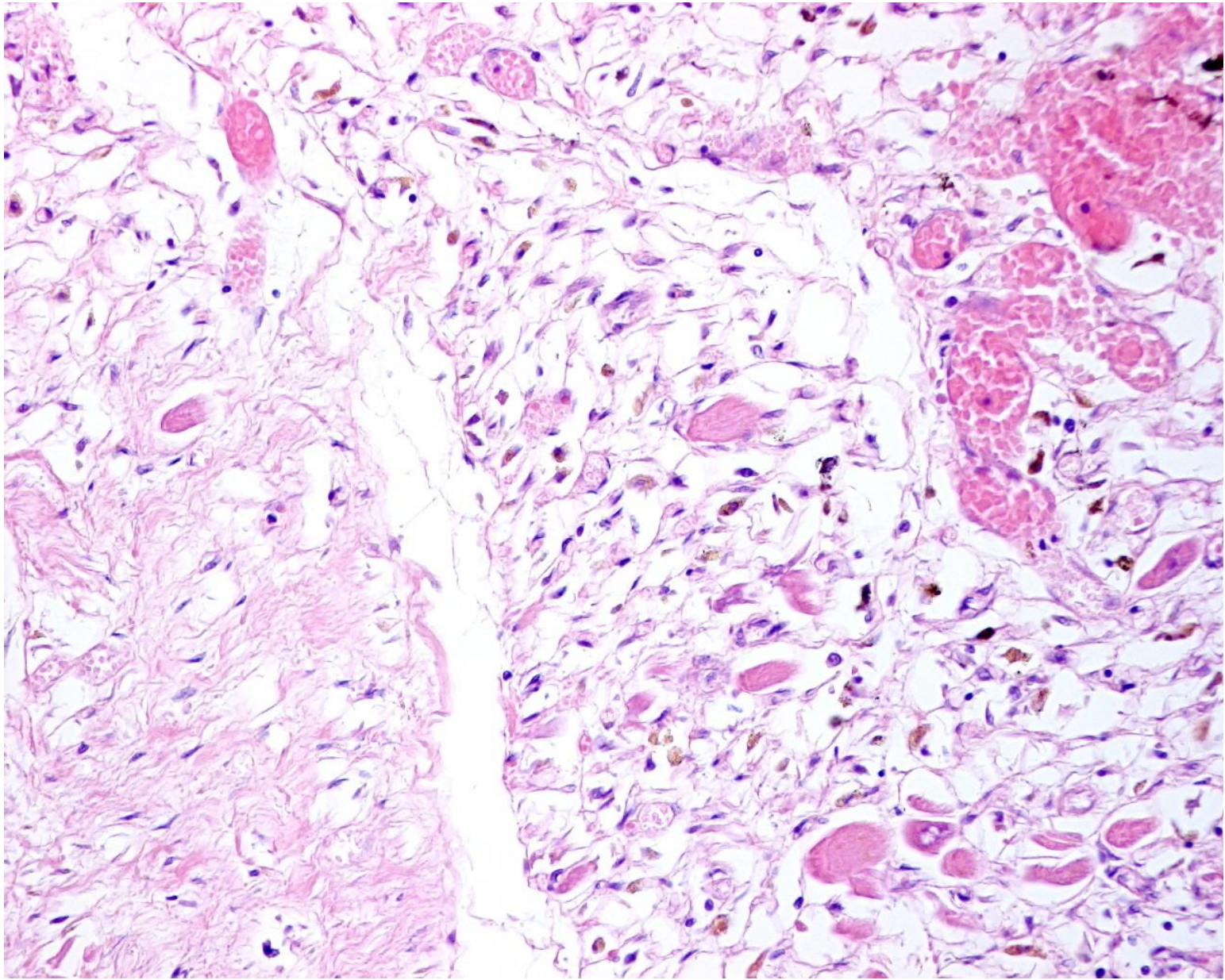
Case 3

- Male 57
- Admitted with acute onset chest pain
- Prompt diagnosis and treatment
- Discharged on day 6
- Died suddenly at home day 10
- PM to exclude complications related to his treatment

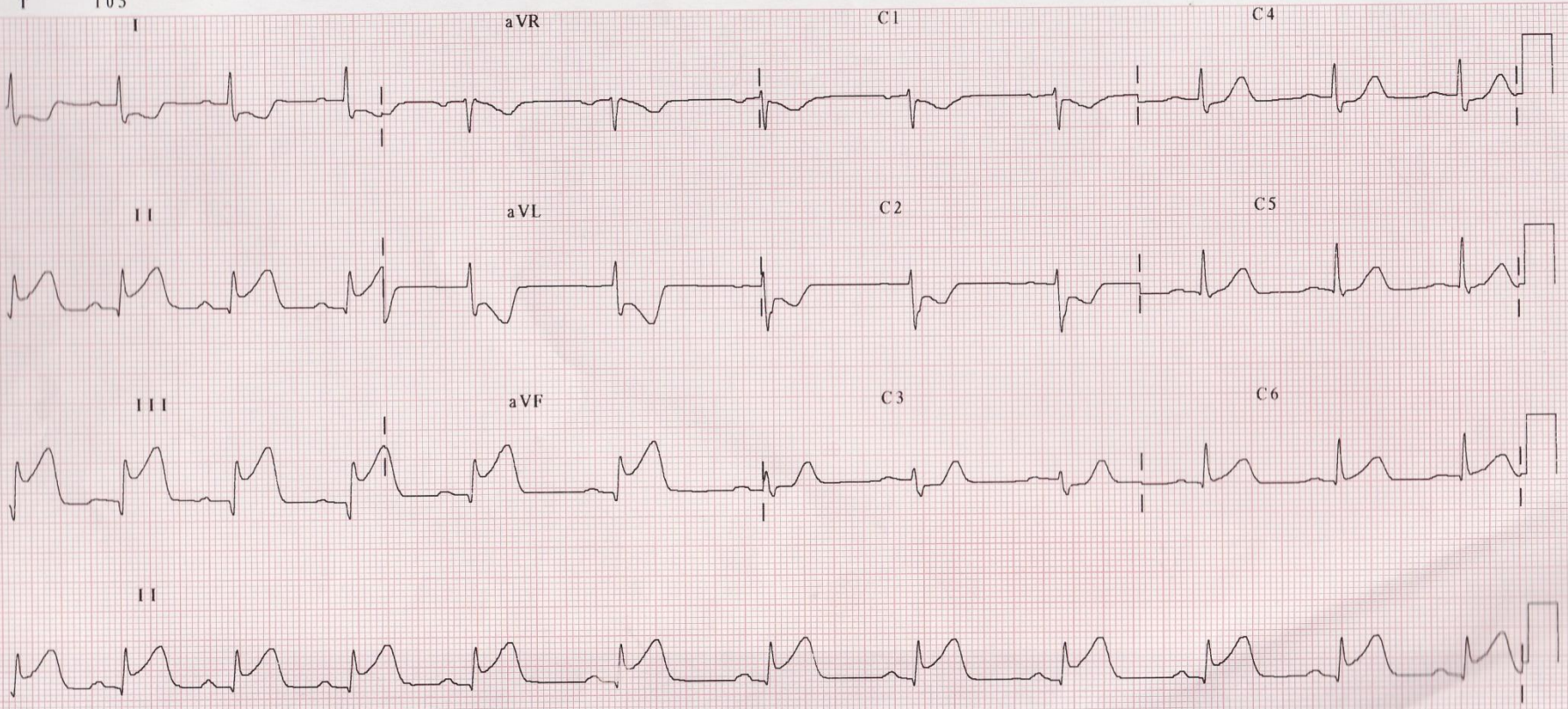






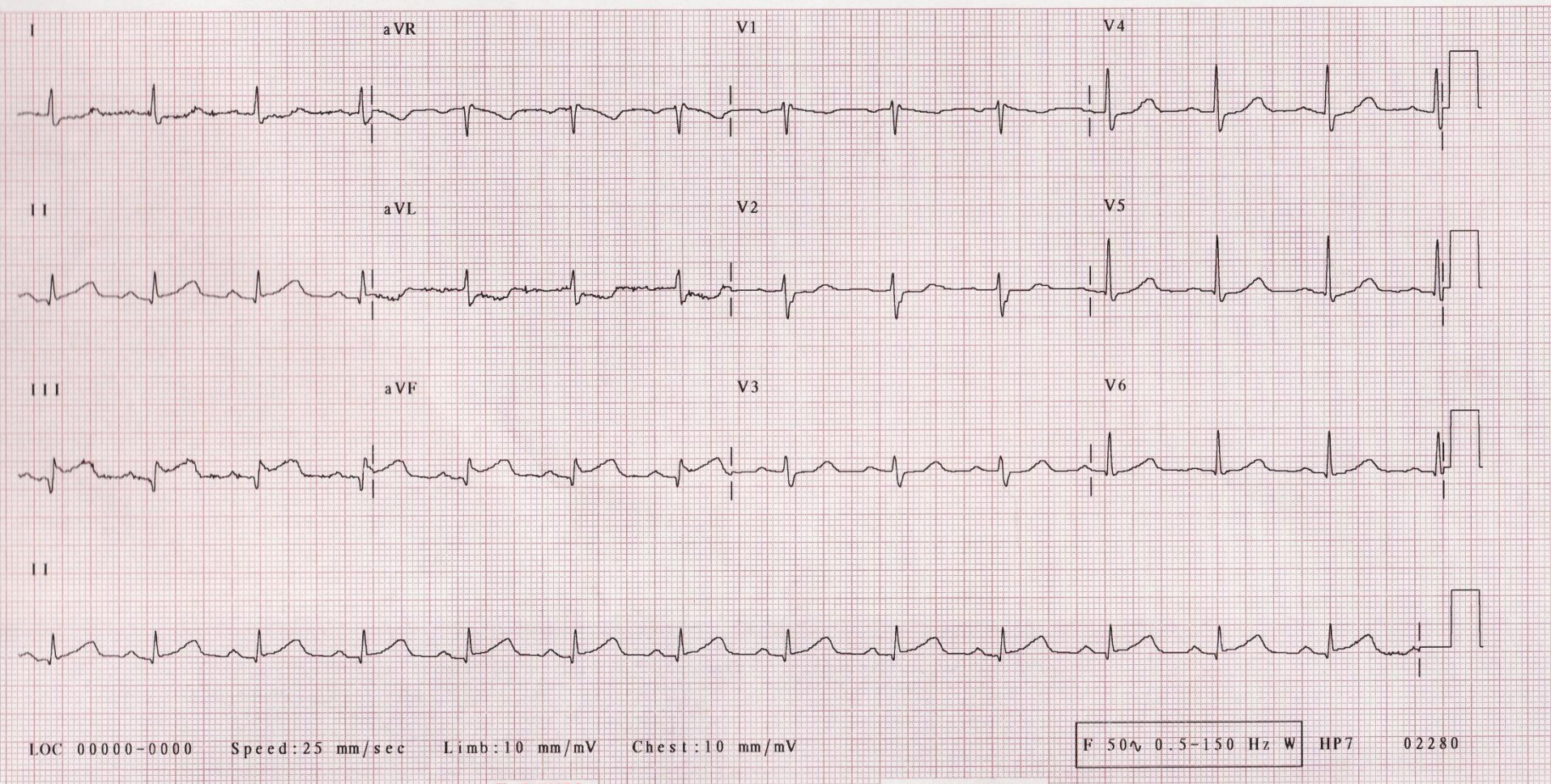


QRS 83
T 105



25 mm/s 10 mm/mV F 0.5 Hz - 40 Hz W HP709 26012

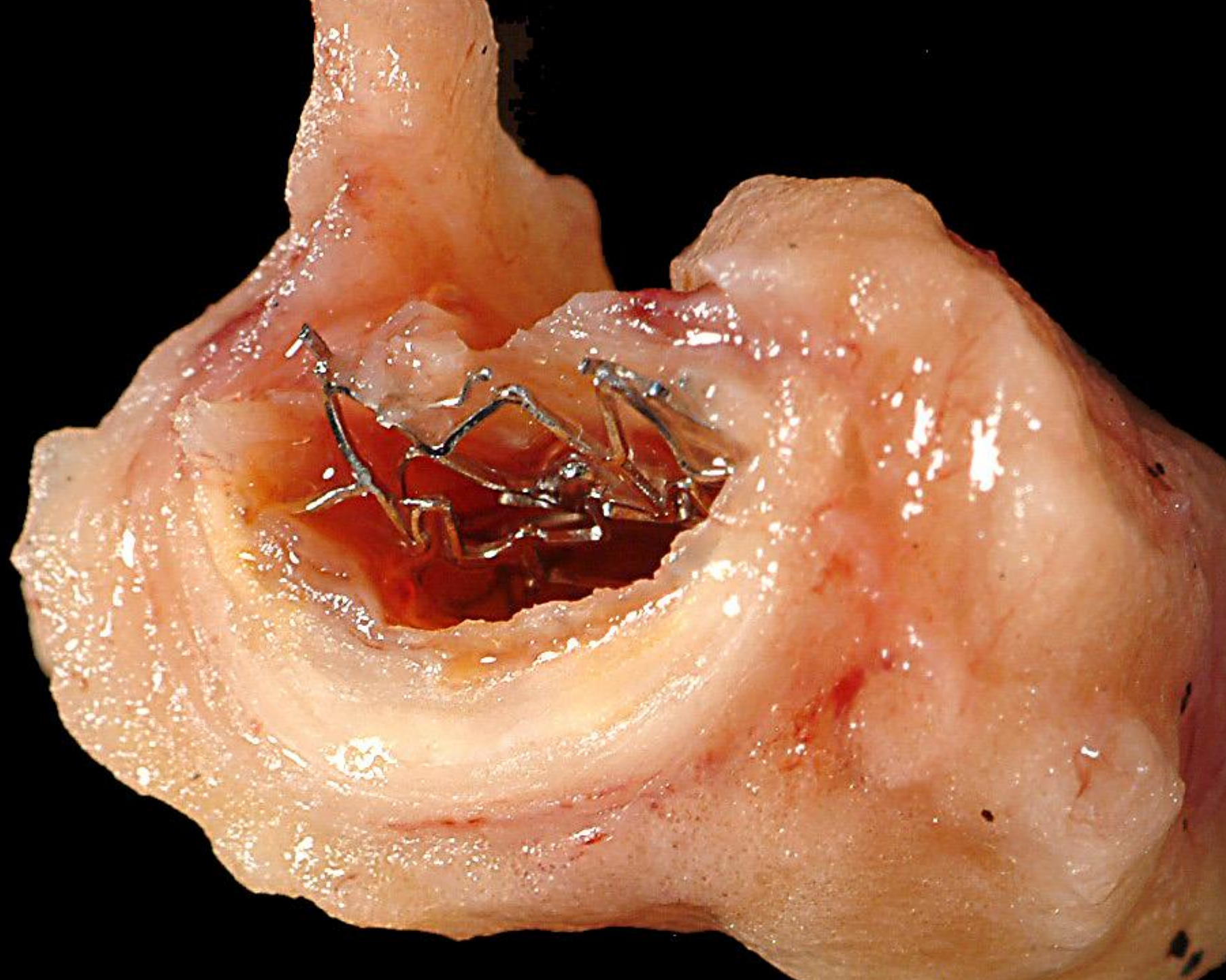
Admission



10 minutes after Tenecteplase

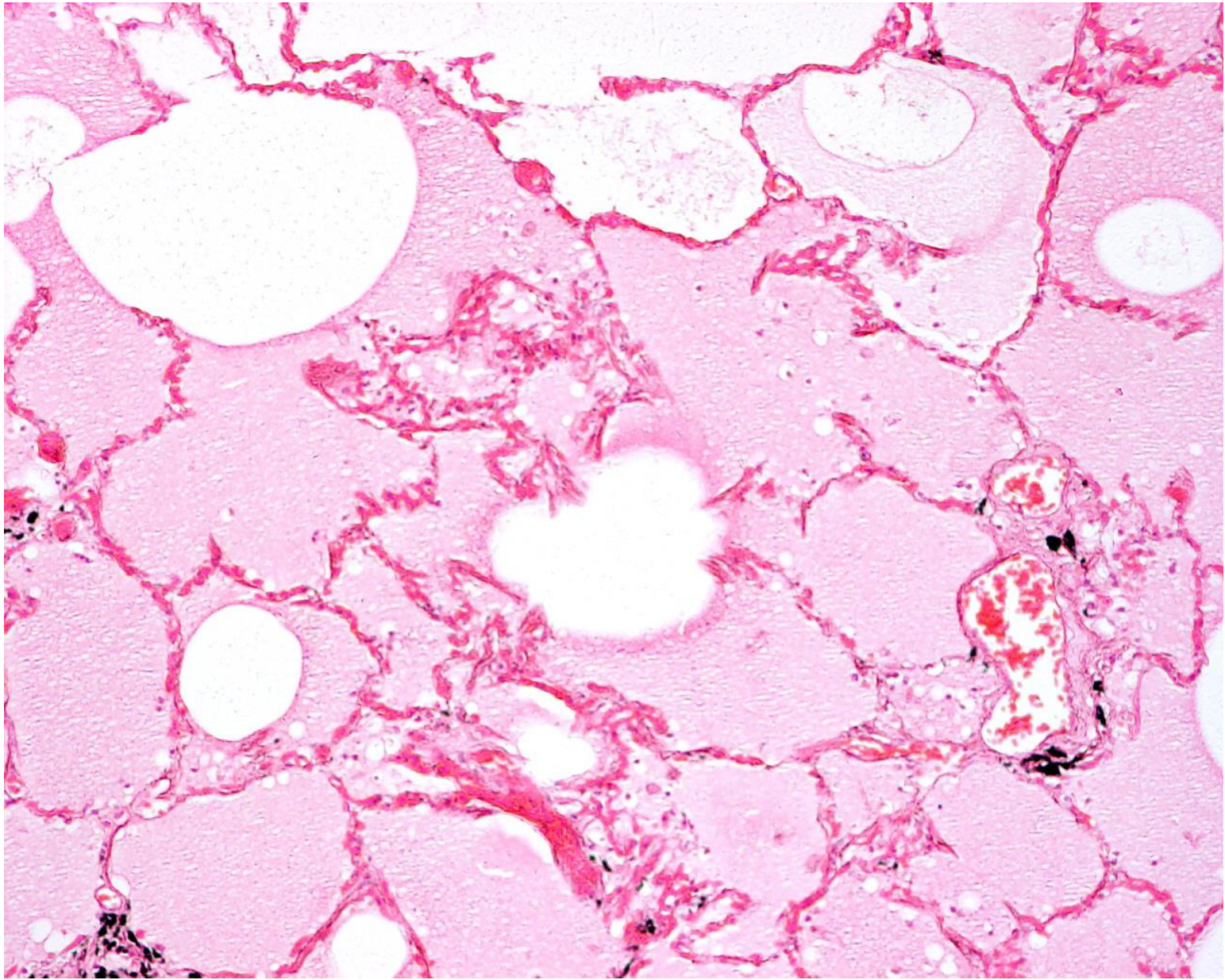
Day 3 PCI

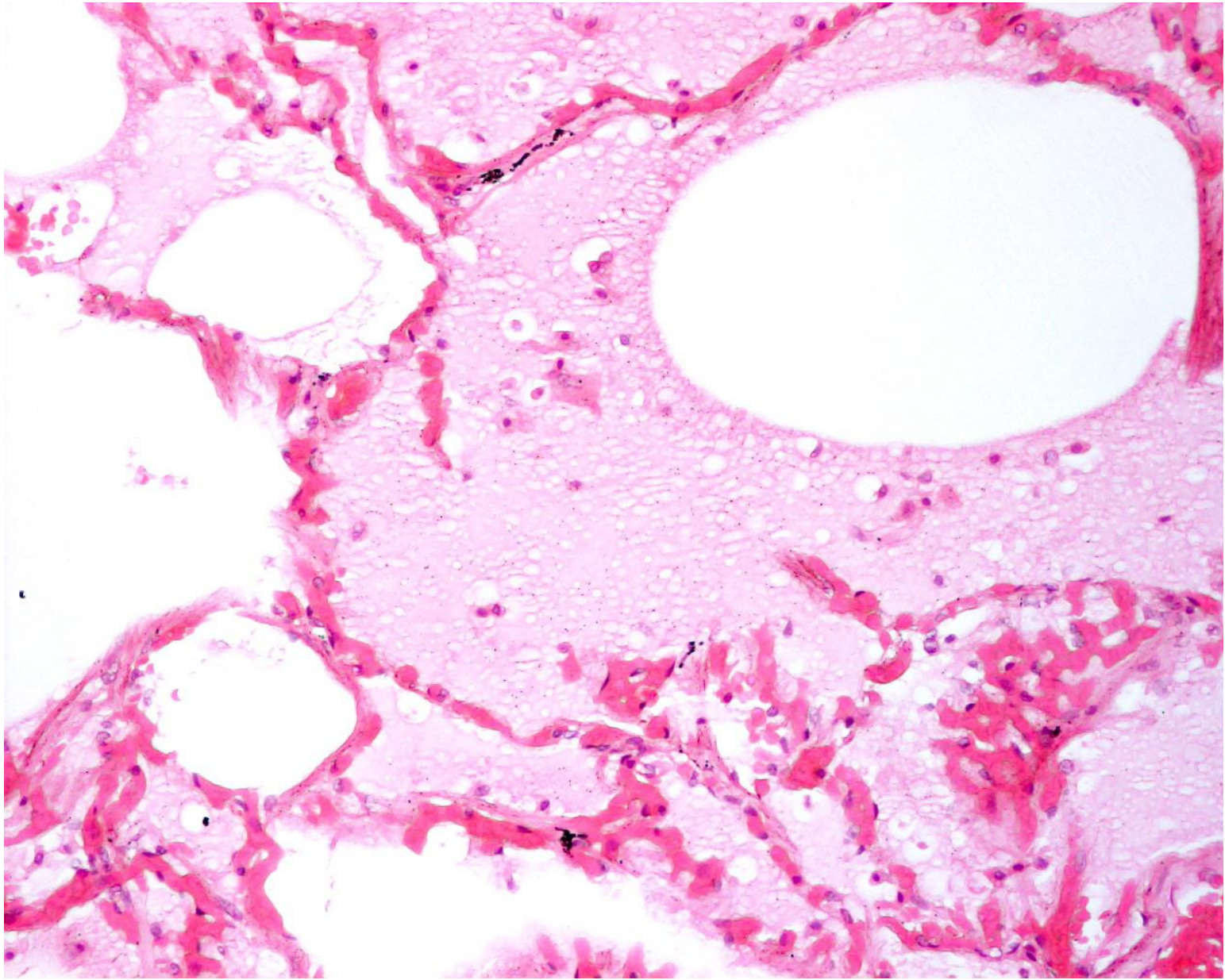
- Occlusion of the proximal portion of the right coronary artery and the LAD
- Angioplasty and drug eluting stents
- Clopidogrel and abciximab started
- Very well after the procedure
- Discharged home on day 6









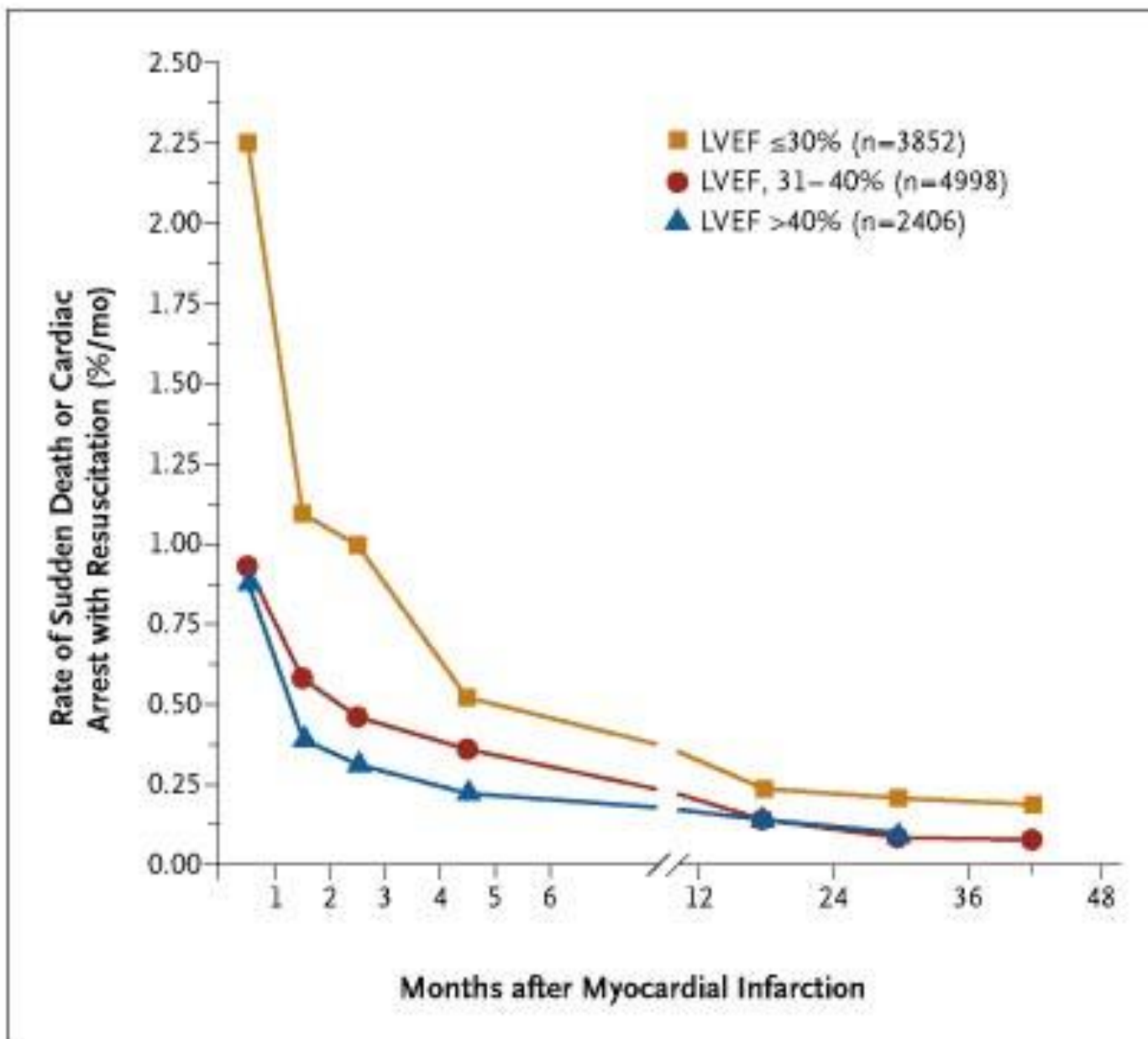


Post Mortem Pulmonary Oedema

- Most common cause is acute cardiac failure. Variable severity, not always present.
- In a series of patients dying of acute ischaemia mean weights were R 670g and L 545g
- Other common causes at PM are raised intracranial pressure and drug overdose

Sudden Death after MI

- Risk of sudden death is greatest in the first month and levels out after about 1 year
- Some risk in all patients, not just those with impaired LV function
- Assumed to be due to ventricular fibrillation
- Debate as to how these deaths can be reduced

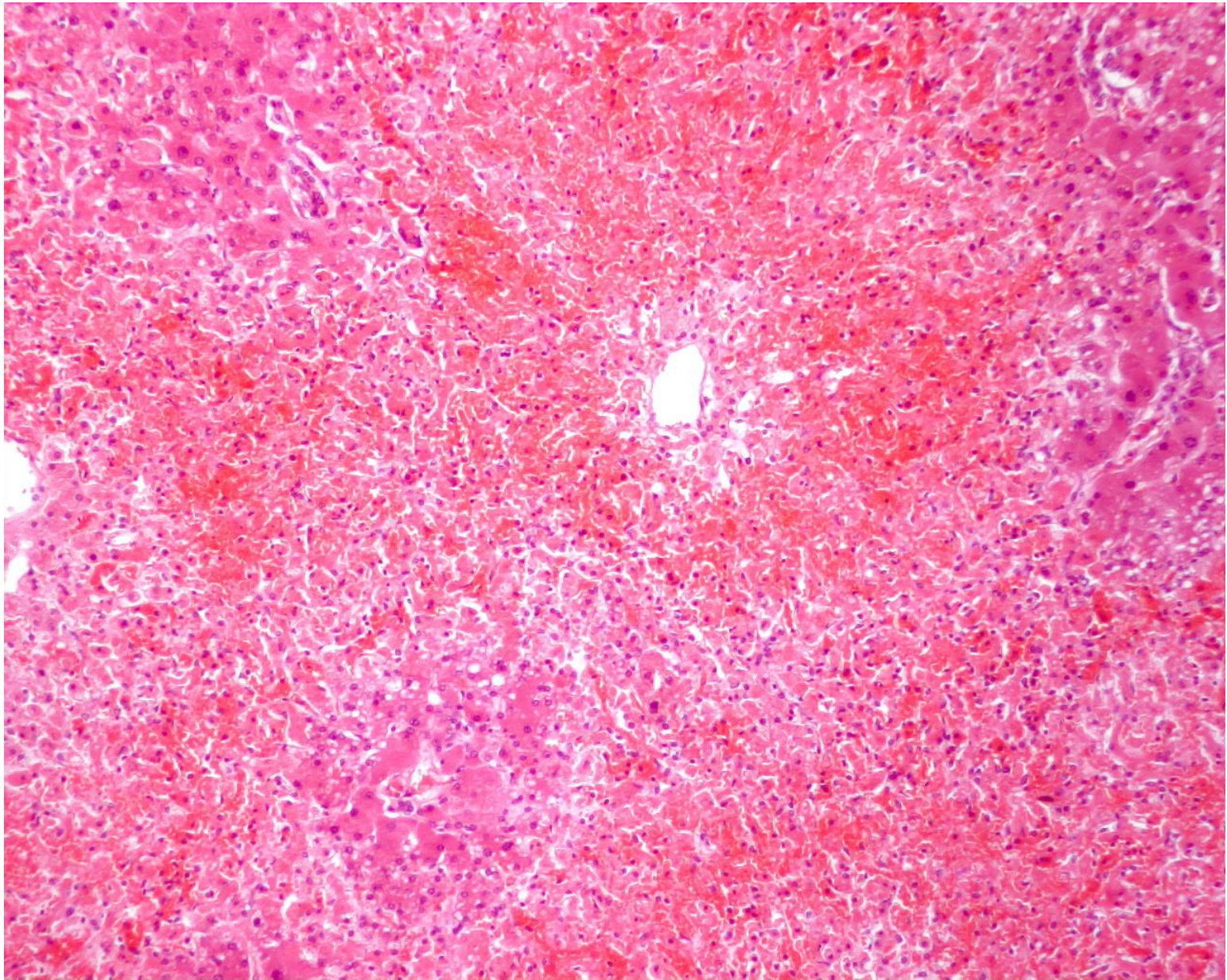


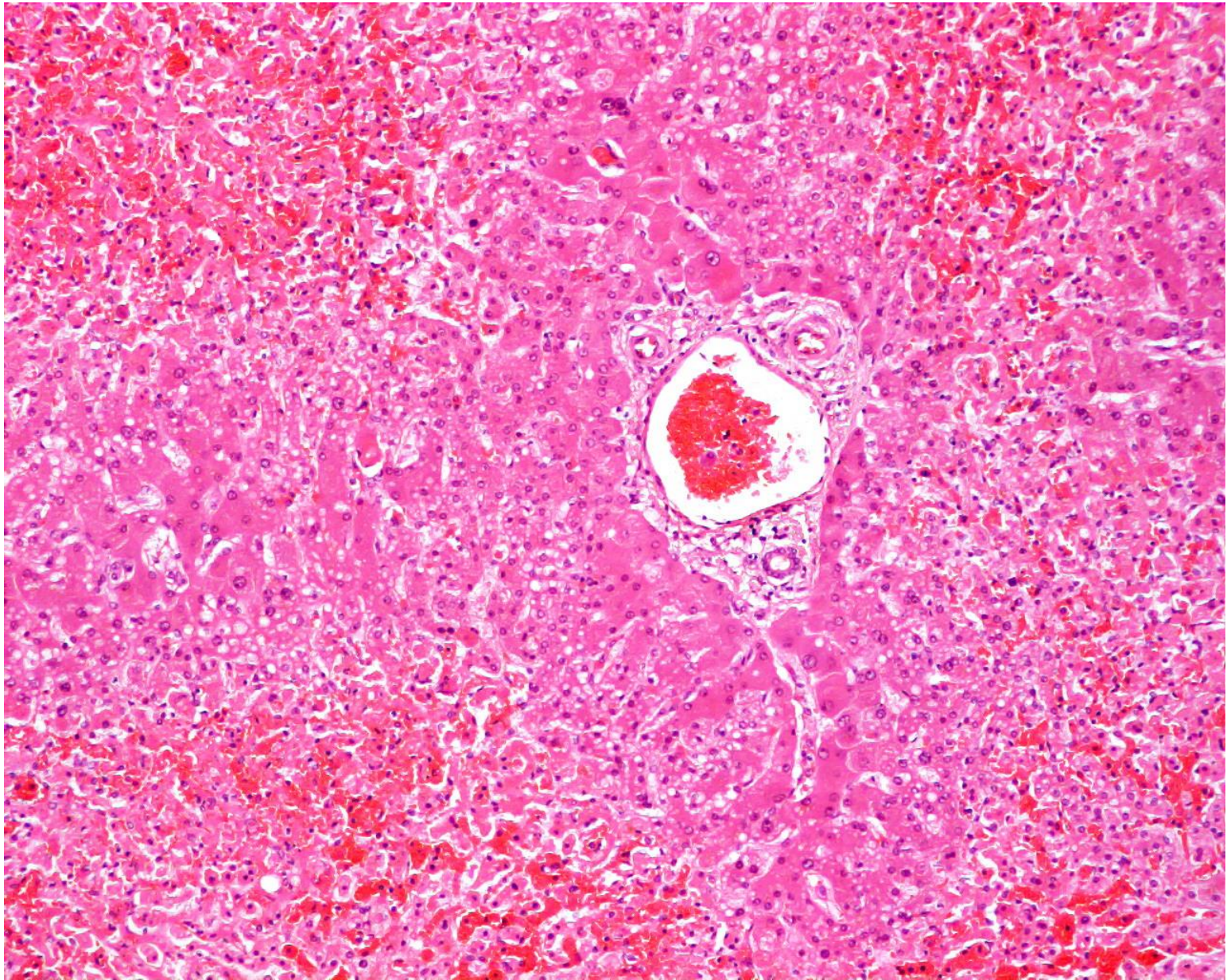
Solomon et al NEJM 2005;352:2581

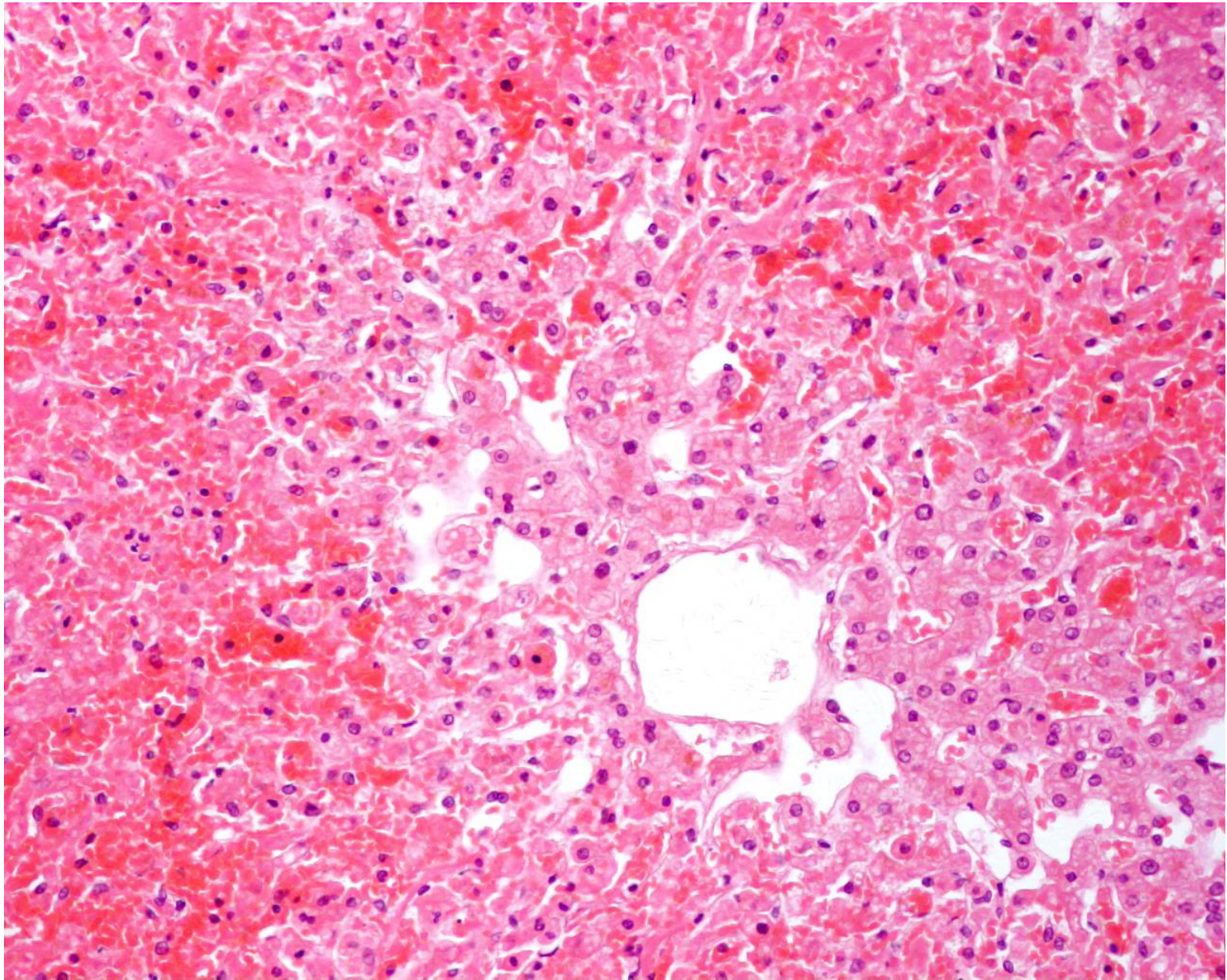
Case 4

- F 58 Severe congestive cardiac failure
- Longstanding diabetes
- Sudden death
- Severe liver congestion
- Pleural effusions
- Pale kidneys, 130g and 118g







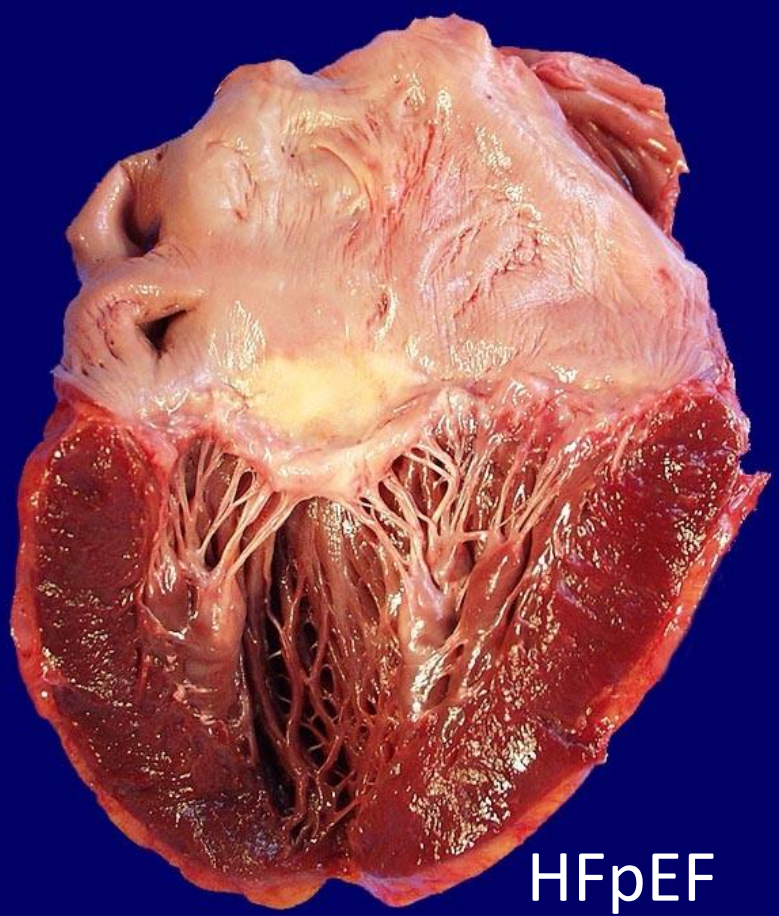


Diabetes and Heart Disease

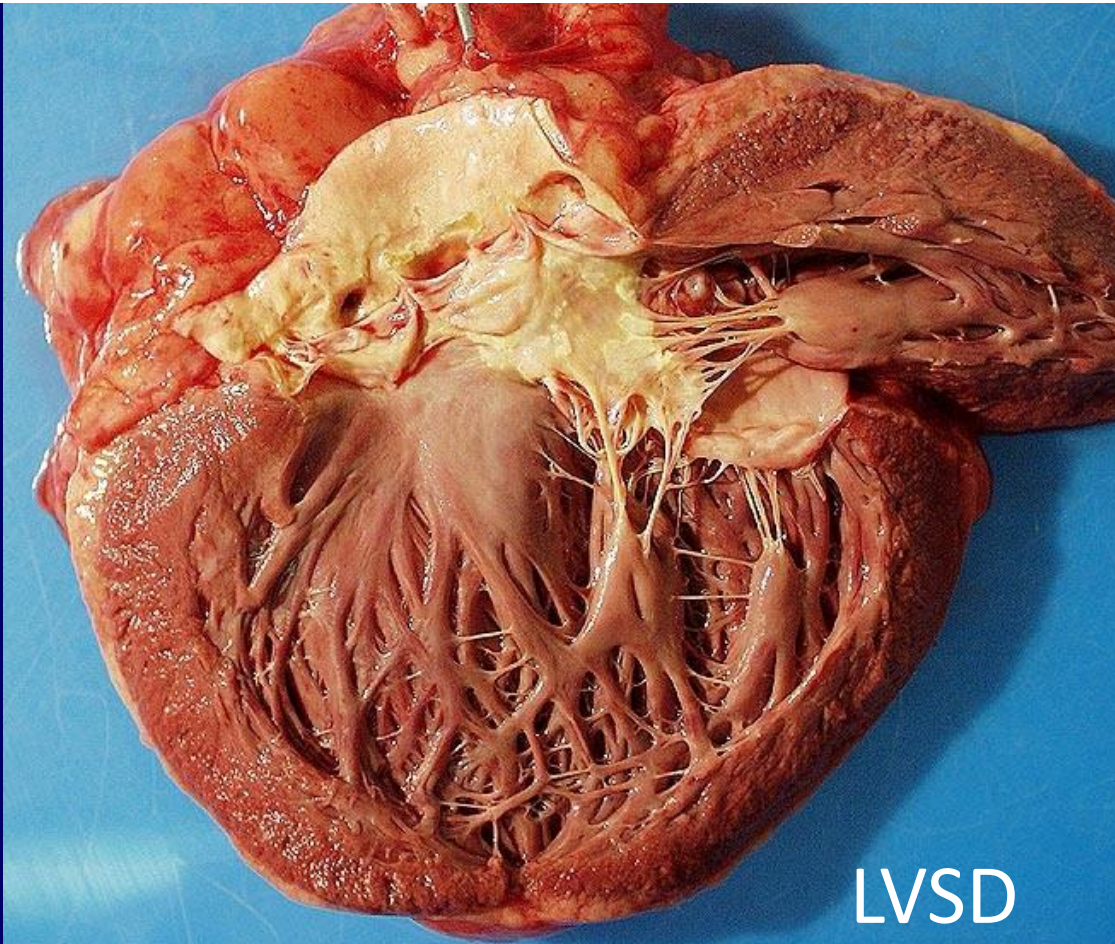
- Relative risk for CHD increased by 3.5 x in females and 2.3 x in males
- 3 x greater risk of hypertension
- Diabetes is an independent contributor to increased left ventricular mass, especially in females
- No specific histological changes in the heart

How to Diagnose Heart Failure

- The diagnosis can be very difficult
- In compensated heart failure there may be no post mortem changes
- Pedal oedema is non specific
- Heart weight may not be increased especially in elderly females
- Ventricular dilatation, hepatic congestion and pleural effusions are key features



HFpEF

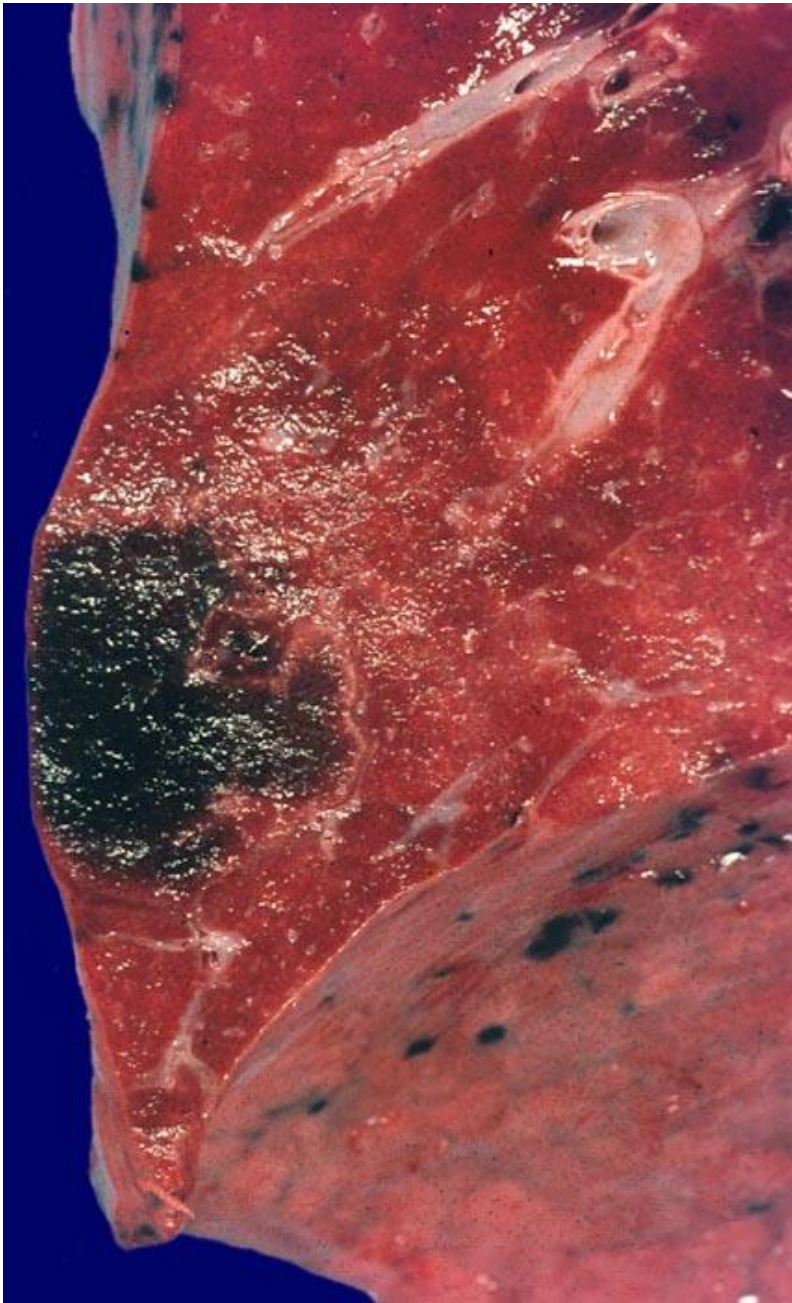


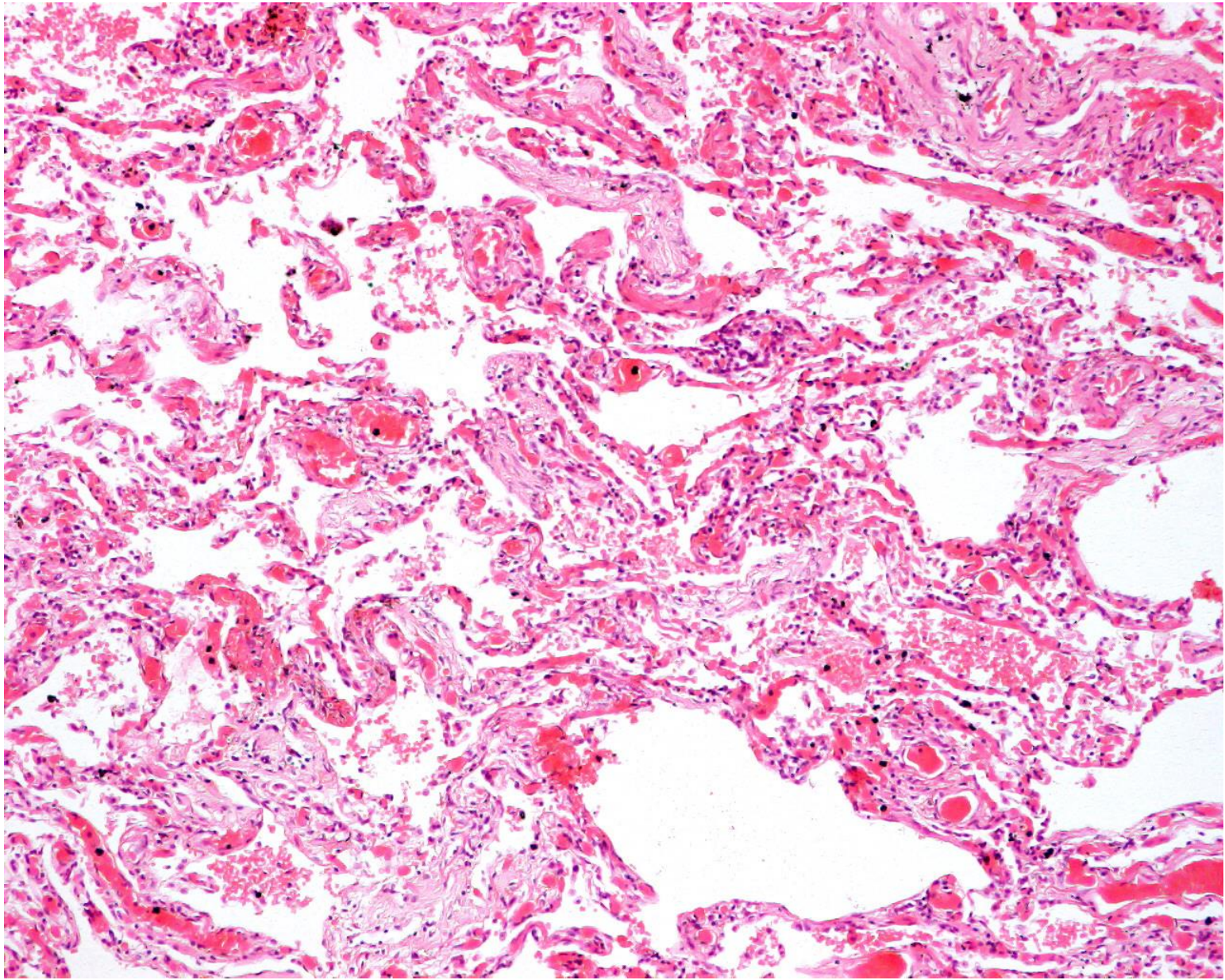
LVSD

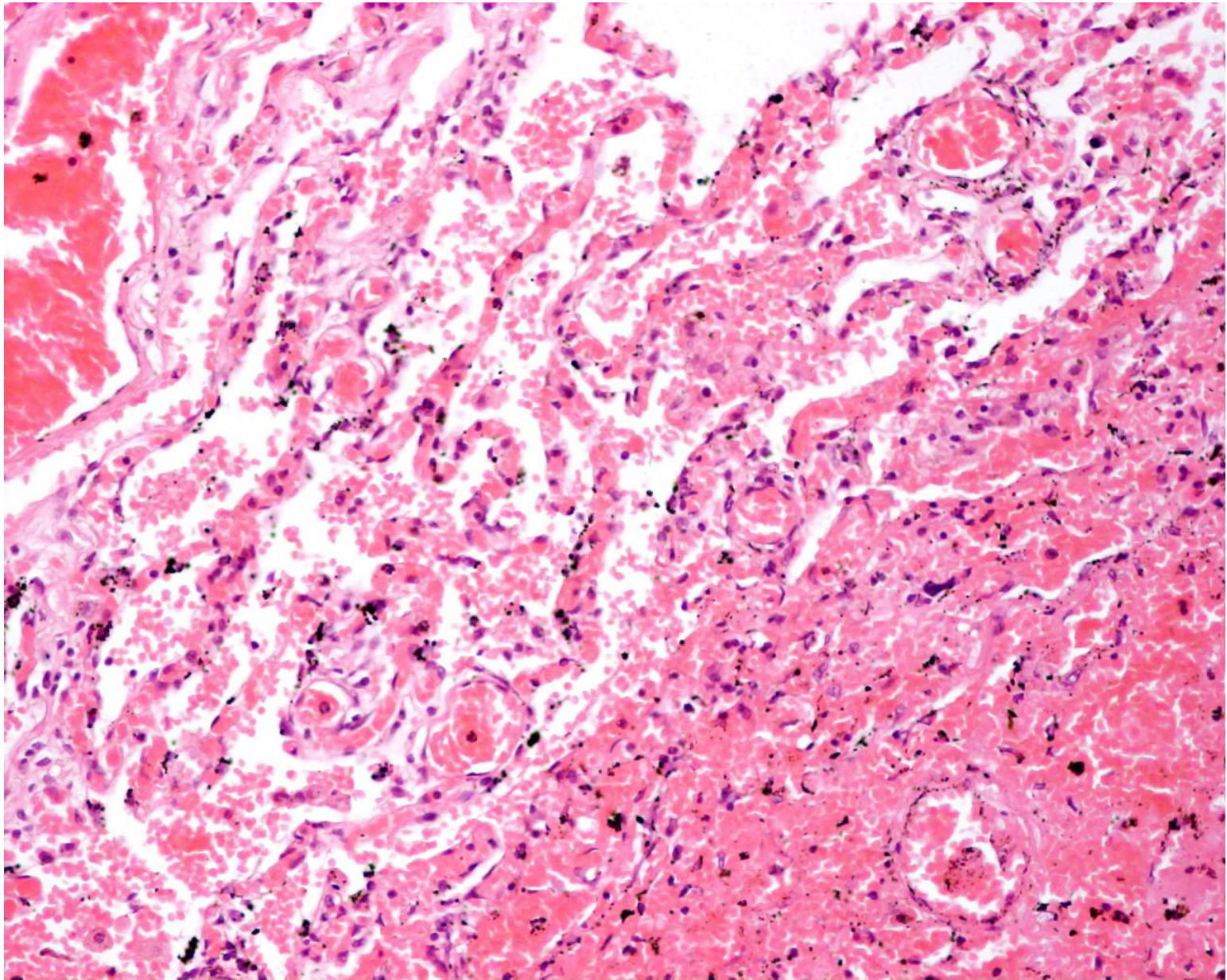
Sudden death in heart failure

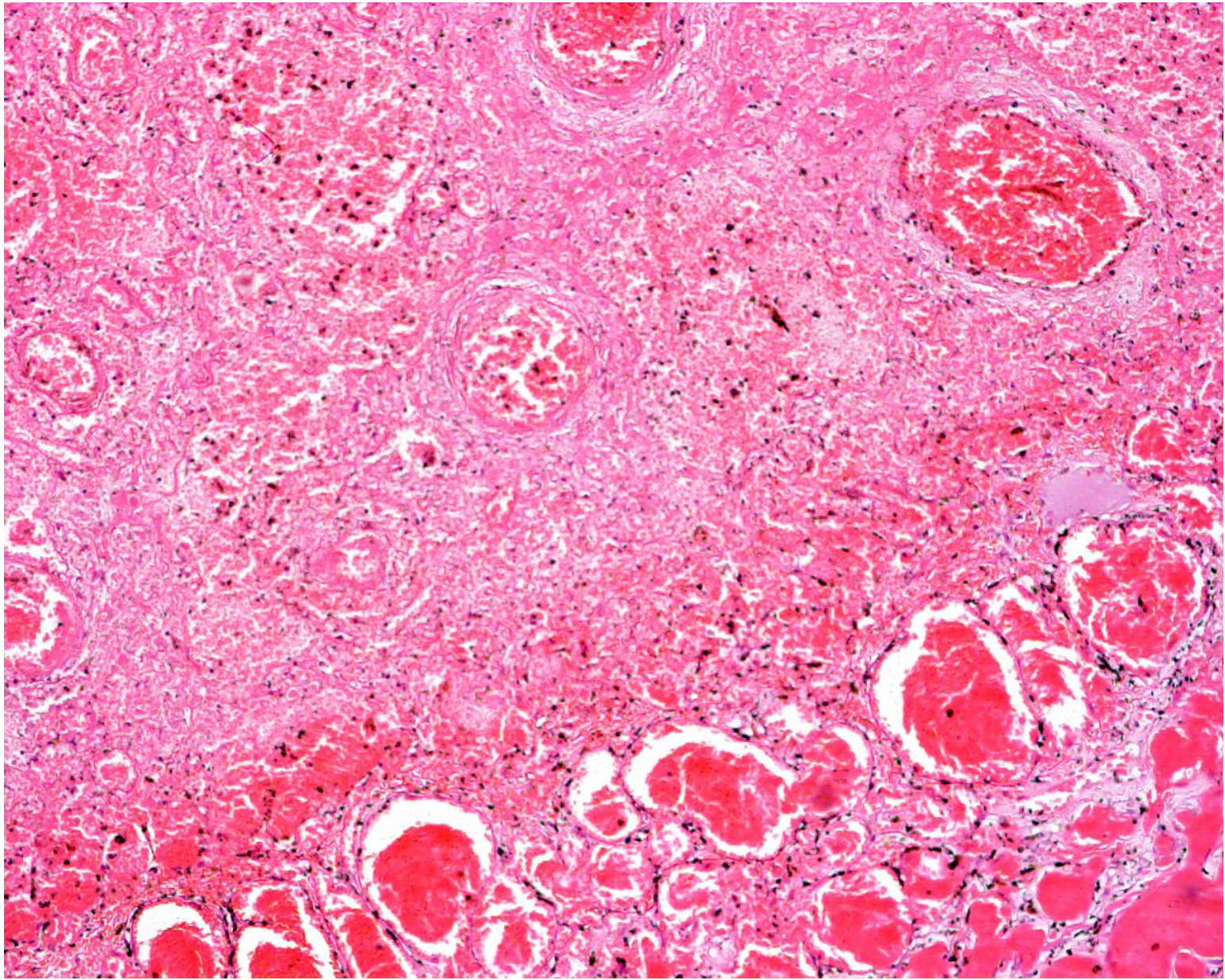
Case 5

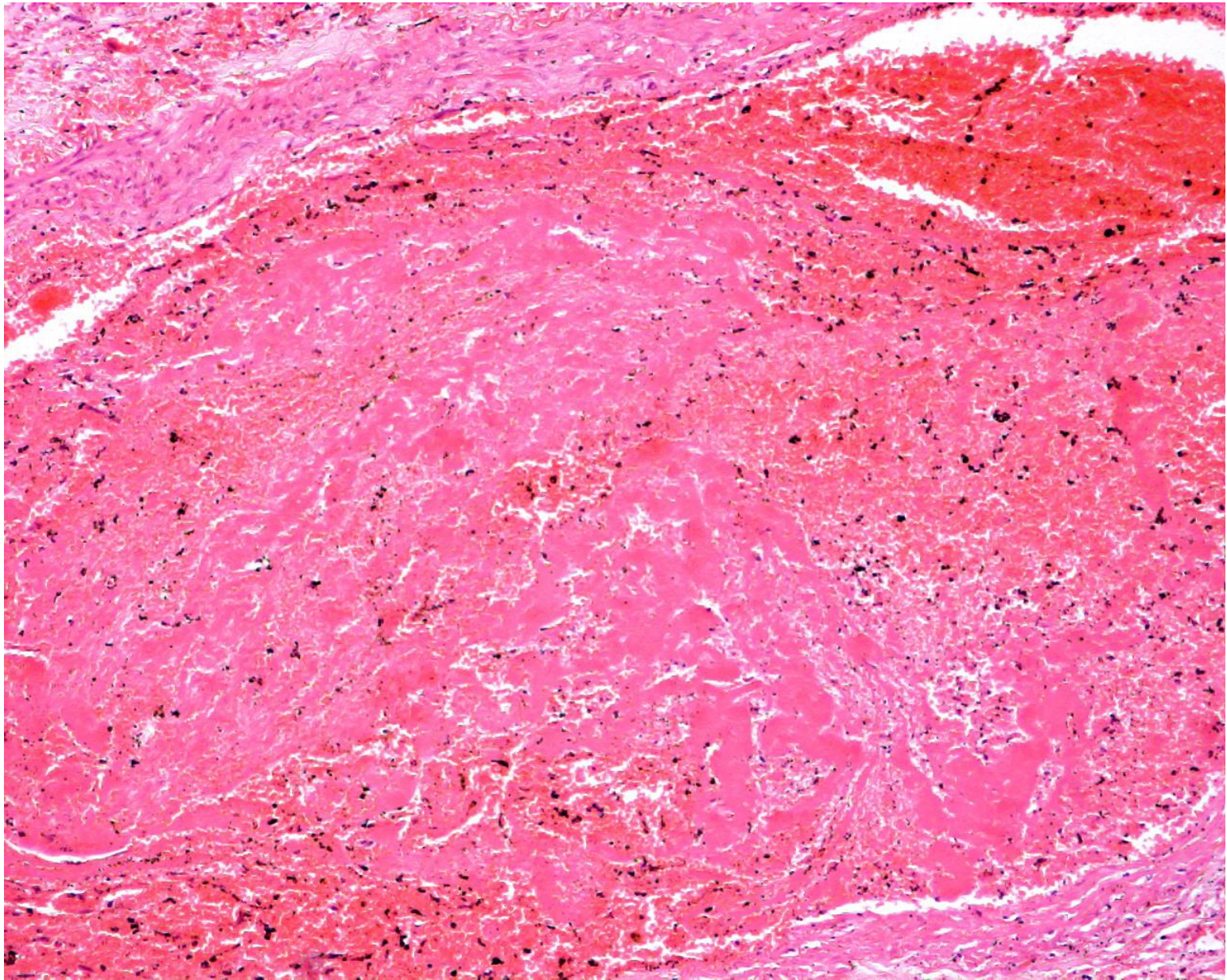
- F 79 Died of pulmonary embolism
- Evidence of pulmonary infarction
- No obvious risk factor. Self caring
- BMI 25.6, calves symmetrical
- No occult malignancy
- Spleen weight 500g. Congested with no focal lesions but no recent blood count











Case 5 Summary

- Ambulant patient with an established pulmonary infarct and an embolus
- In these autopsies look carefully for occult malignancy
- Check the most recent haematology
- Massive Public Health problem. Why is thromboembolic disease so common in the community?