

## Images in Medicine

### Roth spots: A clue to the diagnosis of infective endocarditis



Fig 1. Roth spot (arrow)

A 65-year-old female was admitted with low-grade fever interspersed by spikes for 2 months. On examination, the patient had fever, a pansystolic murmur in the left parasternal area suggestive of a ventricular septal defect (VSD), and mild splenomegaly. Investigation revealed haemoglobin of 12.5 g/dl, total leucocyte counts of 18 350/cmm, erythrocyte sedimentation rate of 68 mm/1st hour, quantitative C-reactive protein 76 mg/L, urine protein 1+, red blood cells 5–6/high power field (hpf), white blood cells 4–5/hpf, 24-hour urine protein 500 mg, creatinine 1.4 mg/dl, and sterile urine and blood cultures. Transthoracic 2D echo showed a VSD with a bidirectional shunt and normal biventricular function. Fundus examination showed retinal haemorrhages with a pale centre, a characteristic of Roth spots (Fig. 1). She was treated with empirical antibiotics for infective endocarditis (IE) and improved symptomatically with resolution of glomerulonephritis and fever. Presence of Roth spots and cutaneous lesions like Janeway lesions, splinter haemorrhages, and Osler nodes are important clues and diagnostic aids in the diagnosis of IE.<sup>1</sup> Roth spots are white-centred retinal haemorrhages and are commonly associated with IE, severe anaemia, collagen vascular diseases, leukaemia, hypertensive retinopathy, pre-eclampsia, anoxia, human immunodeficiency virus, etc. The white centre is likely due to fibrin-platelet thrombus or leucocyte accumulation at the site of vessel rupture. They were first described by Moritz Roth, a Swiss physician, in 1872. They are considered pathognomonic of IE and were initially attributed to septic emboli. However, they are currently attributed to retinal capillary rupture, with subsequent activation of the coagulation cascade and endothelial dysfunction.<sup>2,3</sup> Despite multiple causes for Roth spots, their presence provides a strong clinical credence to the diagnosis of IE.

*Conflicts of interest.* None declared

#### REFERENCES

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AJAY JARYAL, KAPIL SHARMA, MANVI SHARMA  
*Department of Medicine*  
[drjayjaryal@gmail.com](mailto:drjayjaryal@gmail.com)

SOBIA F. TAK  
*Department of Ophthalmology*

NAVDEEP SINGH SIDHU  
*Department of Cardiology*

SANJAY VIKRANT  
*Department of Nephrology*

*All India Institute of Medical Sciences, Bilaspur, Himachal Pradesh, India*

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