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LUPUS NEPHRITIS, A GREAT MIMICKER

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CASE PRESENTATION

A 21-year-old woman presented with a 2-week history of fever, associated with anorexia and bilateral eye swelling. She had a history of dengue fever and herpes zoster infection, occurring 4 months and 2 months prior to this presentation, respectively. On examination, she was febrile, lethargic, and had bilateral periorbital oedema. Her blood pressure was 160/130 mmHg, pulse rate was 83 bpm, and temperature was mildly elevated at 37.5°C. Other physical examinations were normal. Initial investigations showed creatinine 76 µmol/, urea 3.5 mmol/L, sodium 136 mmol/L, potassium 4.2 mmol/L, albumin 25 g/L, alkaline phosphatase (ALP) 165 U/L, aspartate transaminase (AST) 17 U/L, alanine transferase (ALT) 7 U/L, haemoglobin 10.7 g/dL, white cell count 4.84 x 109/L, platelet 265 x 103/ L, erythrocyte sedimentation rate 100 mm/hr, C-reactive protein 3.5 mg/L. Urine FEME showed 3+ blood and 3+ protein, with a urine protein-to-creatinine index of 5 g/day. Anti-streptolysin O titre (ASOT) was positive, with a titre of 400 IU/mL. Immunology screening revealed low C3 and C4 levels (0.41 g/L and <0.08 g/L, respectively). Anti-neutrophil cytoplasmic antibodies (ANCA) and antinuclear antibody (ANA) were non-reactive. Virology screening was also non-reactive. A kidney ultrasound showed normal kidney size with preserved corticomedullary differentiation bilaterally.

DIFFERENTIAL DIAGNOSIS

1. Post-infectious glomerulonephritis
2. Serology-negative lupus nephritis

During follow-up, the patient has persistent proteinuria and hypoalbuminemia 3.4 g/day and 26 g/L. Hb 9g/dL, WCC 3.58 with lymphopenia 0.724 x 103 /uL. Further immunology testing showed a positive double-stranded DNA antibody (ds-DNA) titer of 641.8 IU/ml, extractable nuclear antigen panel was positive for anti-Smith, anti-ribosomal P and anti-RNP antibodies. The diagnosis was revised to Lupus Nephritis ISN/RPS Class IV.

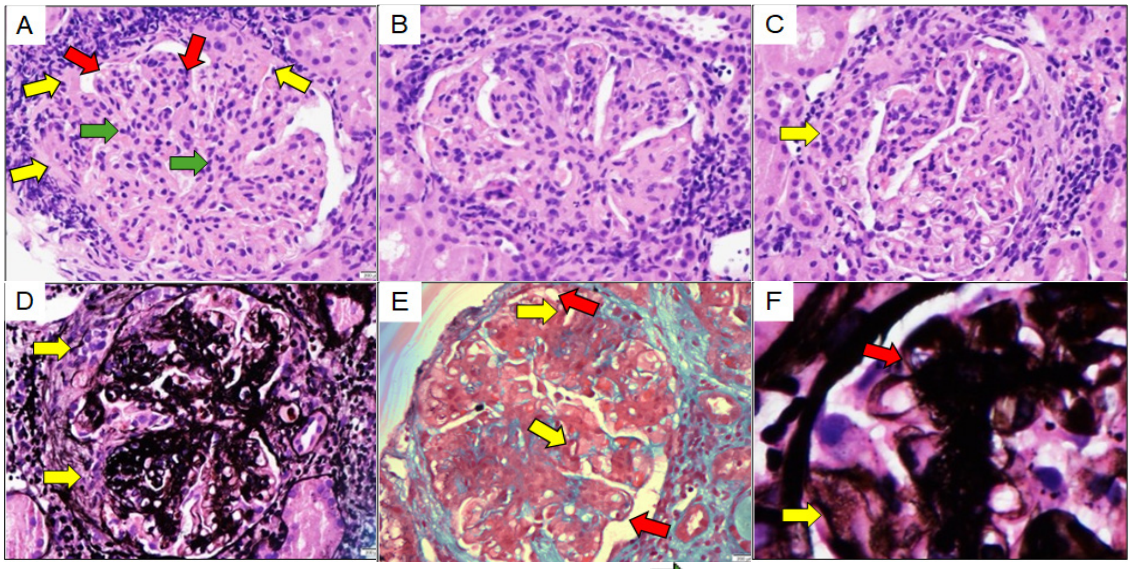

Fig 1. (A) A glomerulus showing mesangial hypercellularity, segmental endocapillary hypercellularity and segmental sclerosis with synechia of the capillary tuft to the Bowman's capsule, *H&E, 400x.* (B) Endocapillary hypercellularity accompanied by neutrophilic infiltrates and karyorrhectic debris, *H&E, 400x.* (C&D) Active crescents, *H&E and Methenamine Silver, 400x.* (E) Occasional subendothelial and subepithelial trichome red deposits, *Masson Trichrome, 400x.* (F) Part of the glomerulus showing glomerular basement membrane vacuolations and double contouring *Methenamine Silver, 400x (enlarged view).*

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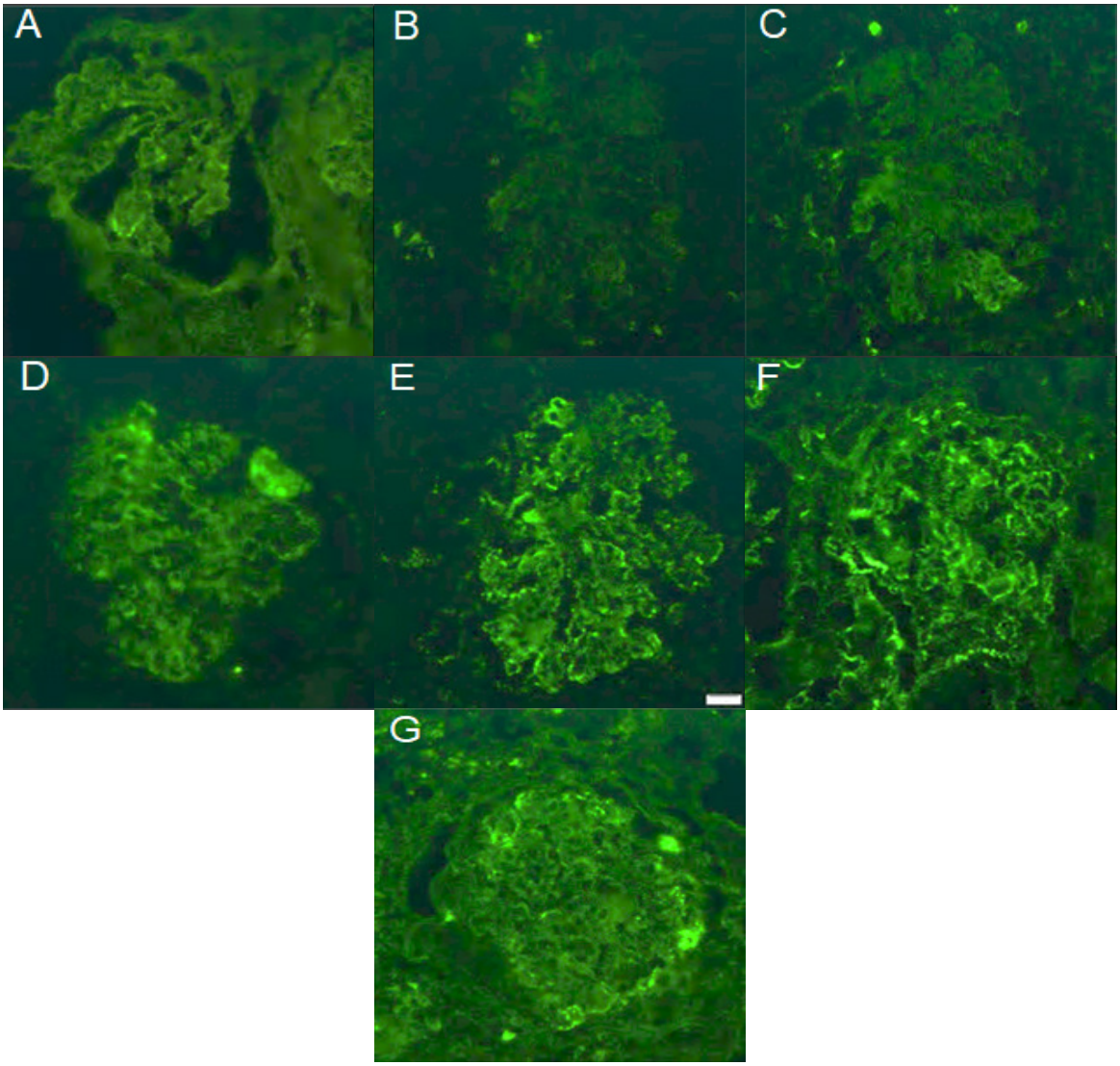

Fig 2. Composite image showing immunofluorescence microscopy with strong granular positivity along the glomerular capillary walls and mesangium for IgG, C3, C1q, Kappa and Lambda light chains, and to a lesser intensity for IgA and IgM. ***A:IgG B:IgA C:IgM D:C3 E:C1q F:Kappa G:Lambda***

LEARNING POINTS

1. Infection-related glomerulonephritis and lupus nephritis share similar histological features, which can be very difficult to distinguish
2. A full-house immunofluorescence pattern is not specific to lupus nephritis; it can also be observed in various other kidney diseases, such as post infectious glomerulonephritis (PIGN), membranous nephropathy (MN), IgA nephropathy, membranoproliferative glomerulonephritis (MPGN), and certain types of unclassified mesangial glomerulonephritis
3. A negative ANA should have not ruled out SLE especially in the presence of other positive antibodies and clinical manifestation