



Gross hematuria, edema, and hypocomplementemia in a 9-year-old boy: Questions

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Case presentation

A 9-year-old boy was admitted to our hospital with the complaints of gross hematuria and intermittent periorbital edema for 20 days.

Twenty days before admission to our hospital, an examination had been performed at a local hospital: white blood cells $6.65 \times 10^9/L$, neutrophils 39.9%, hemoglobin 121 g/L, platelets $343 \times 10^9/L$, routine urine test: protein (3+), red blood cells 485/ μL , anti-streptococcus O (ASO) 370.0 IU/mL, and complement 3 (C3) 0.61 g/L.

He had been diagnosed with acute poststreptococcal infection glomerulonephritis (APSGN) in the local hospital and treated with antibiotics and diuretics. Edema improved, and gross hematuria disappeared. But his edema recurred, and he was admitted to the Department of Nephrology at our hospital.

Patient history: Cataract surgery was at the age of 6 years.

Family history: Mother had microscopic hematuria and proteinuria with normal kidney function.

Upon physical examination, the patient showed blood pressure 100/53 mmHg, mild edema of both eyelids, and the lower extremities. Nothing else was remarkable. Table 1 shows the test results.

Questions

1. What is the differential diagnosis?
2. What would you expect to see on kidney biopsy?
3. Which additional diagnostic tests would you perform for the diagnosis?
4. What is your diagnosis?

The answers to these questions can be found at <http://dx.doi.org/10.1007/s00467-022-05539-9>

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Table 1 Laboratory results upon hospital admission

	Value	Range	Unit
White blood cells	7.03	3.85–10.00	10 ⁹ /L
Neutrophils	3.30	1.08–5.80	10 ⁹ /L
Hemoglobin	110	120–160	g/L
Platelets	341	100–320	10 ⁹ /L
Serum creatine	32.8	27.0–62.0	μmol/L
Blood urea nitrogen	4.1	2.9–7.1	mmol/L
Serum albumin	26.3	39.0–53.0	g/L
Cholesterol	5.8	2.8–5.7	mmol/L
Complement C3	0.79	0.80–1.26	g/L
Complement C4	0.17	0.10–0.40	g/L
Serum IgA	2.25	0.33–1.78	g/L
Serum IgG	3.39	5.96–13.64	g/L
Serum IgM	0.92	0.52–2.42	g/L
ASO	369	0–408	IU/mL
24-hour urine protein	2.50	0–0.15	g/24 h
Urine microalbumin	1500	0–30	mg/L

Declarations

Conflict of interest The authors declare no competing interests.

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