

Common diagnosis at an unusual age - pulmonary oedema in a toddler

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Accepted 29 September 2018

DESCRIPTION

A 15-month-old toddler presented to the emergency department (ED) with a history of fatigue, rhinitis and reduced oral intake. The medical history was remarkable for diarrhoea (Enterohaemorrhagic *Escherichia coli* (EHEC), Shiga toxin) positive haemolytic uremic syndrome (D⁺-HUS) 3 months ago with microangiopathic haemolytic anaemia, thrombocytopenia, renal failure and hypertension. When HUS was diagnosed, he had a blood pressure of 117/82 mm Hg, anuria over 18 hours and a platelet count of $110 \times 10^9/L$ with fragmentocytes on blood film without evidence of complement dysfunction. The patient had come off dialysis after 1 month with persistent impaired renal function (peak creatinine 300 $\mu\text{mol/L}$, on discharge 205 $\mu\text{mol/L}$, estimated glomerular filtration rate (eGFR) 10 and 15 mL/min/1.73 m², respectively). He was on regular amlodipine, calcitriol and sodium bicarbonate. Parents reported normal urine output. Clinical examination showed respiratory rate 62/min, no recessions, heart rate 154/min, blood pressure 122/98 mm Hg, pulse oximetry 100% and normal temperature. Lung auscultation revealed bilateral inferior crackles; heart auscultation was normal except for a louder second heart sound. Liver was not palpable and peripheral oedema was absent. Chest X-ray, blood count and serum chemistry were ordered.

Imaging (supine) shows marked bilateral perihilar interstitial opacities, Kerley B lines on the left lateral inferior lung, no effusions and normal

heart size (figure 1). Laboratory results indicated anaemia (haemoglobin 7 g/dL), elevated serum creatinine (259 $\mu\text{mol/L}$, normal <31, eGFR 12 mL/min/1.73 m²) and mild hyperkalaemia (5.6 mmol/L). The patient was diagnosed with pulmonary oedema due to fluid overload secondary to renal failure and transferred for ultrafiltration and dialysis to a tertiary centre.

Non-cardiogenic pulmonary oedema can occur secondary to near drowning, postintubation,¹ trauma or transfusion, neurogenic pulmonary oedema,² renal failure, drugs or inhaled toxins.³

HUS has an incidence of 1.9–2.9 cases per 100 000 children age <3 to 5 years in industrialised countries but is much higher in Latin America (10–17 cases per 100 000 children in Argentina).⁴ Pulmonary oedema can occur in a small fraction of hospitalised patients.⁵

Overall, pulmonary oedema is rare in the setting of a general paediatric ED.

Learning points

- ▶ Pulmonary oedema in children presenting to the general paediatric emergency department is extremely rare.
- ▶ Treatment of pulmonary oedema is supportive and based on the underlying cause.

Contributors LS and TJN were treating physicians and drafted the manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent Parental/guardian consent obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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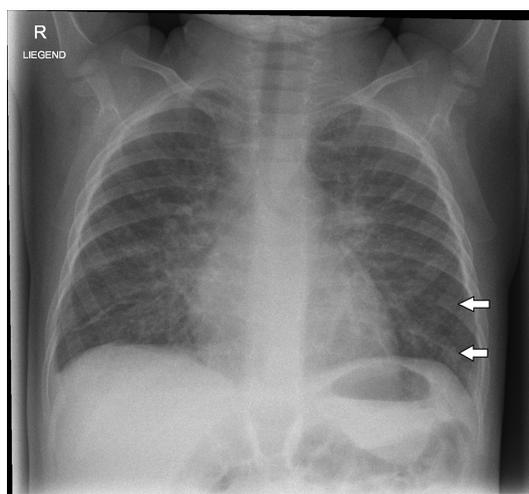


Figure 1 Chest X-ray supine, arrows indicate Kerley B lines.



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To cite: Simma L, Neuhaus TJ. *BMJ Case Rep* Published Online First: [please include Day Month Year]. doi:10.1136/bcr-2018-225389

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