

Euglycaemic diabetic ketoacidosis in a young adult with type 1 diabetes and an eating disorder

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A 17 year old female presented to our young adults clinic in healthcare transition from paediatric endocrinology. She had a 12 year history of poorly controlled type 1 diabetes (T1DM) (recent HbA1c 18.2%), and a 3 year history of restrictive-type eating disorder. Her diabetes treatment was a basal-bolus insulin regimen, but she intentionally omitted doses to facilitate weight loss. She did not complain of feeling unwell and denied recent acute illness. She weighed 42kg (BMI 18.4kg/m²). On examination, her blood pressure was 120/60mmHg (no postural drop), pulse 118bpm (sinus rhythm), respirations 18 breaths/minute, and she was mildly dehydrated clinically. Capillary glucose was near-normal at 9.9mmol/L, however fingerprick ketones were significantly elevated to 6.0mmol/L. Venous blood gas confirmed a metabolic acidosis with pH 7.18 (subsequently calculated to be high-anion gap).

Her diagnosis was euglycaemic diabetic ketoacidosis in the setting of chronic starvation and insulin omission, on a background of T1DM and restrictive-type eating disorder.

She was admitted to ICU for intravenous normal saline, dextrose, insulin infusion and electrolyte replacement, with resolution of the ketoacidosis over 24 hours. She is receiving ongoing care for her T1DM and eating disorder through a multidisciplinary team approach involving the endocrinologist, diabetes educator, dietitian, psychologist and psychiatrist.

Teaching points:

- While diabetic ketoacidosis (DKA) is generally defined as the triad of hyperglycaemia (blood glucose > 11.0mmol/L), ketosis and metabolic acidosis, it can also occur rarely with near-normal glucose levels.
- Euglycaemic DKA can occur in people with T1DM and chronic starvation.
- A high index of suspicion is required as presentation may include minimal acute symptoms.
- Individuals with T1DM have a higher prevalence of dysfunctional eating behaviours and overt eating disorders. The care of these people with dual diagnoses can be highly challenging, and optimally requires a multidisciplinary team approach.
- This case highlights the value of point-of-care blood ketone assessment.