


# An unexpected complication after bariatric surgery due to combine antidiabetic drugs; euglycemic diabetic ketoacidosis

 Serhat Doğan

Department of General Surgery, Kayseri Special Acibadem Hospital, Kayseri, Türkiye

Sodium-glucose co-transporter-2 (SGLT-2) inhibitors are a new class of antihyperglycemic drugs that regulate blood sugar levels.<sup>[1,2]</sup> They carry the risk of euglycemic diabetic ketoacidosis (euDKA), which is rare and also seen in our case.<sup>[3,4]</sup>

Our aim is to present the post-operative euDKA and management of a diabetic patient who underwent laparoscopic sleeve gastrectomy due to the use of Empagliflozin and Metformin, the first case in literature.

A 38-year-old male patient has been suffering from type 2 diabetes for 10 years. Oral antidiabetic medication (using SGLT-2 inhibitor - Synjardy®). Body Mass Index 38 kg/m<sup>2</sup>.

The patient had a tachycardia of 115/min. Tachycardia was evaluated as post-operative pain. The patient's highest blood glucose level measured was 198 mg/dl. The patient stated that he was thirsty. His extremities were cold. Bedside abdominal ultrasound was reported normal.

Echocardiography and cardiac examination were normal. Procalcitonin value was 9. Considering that intraabdominal sepsis may be present, broad-spectrum antibiotics were started. It was observed that the patient urinated 3000 cc in the last 3 hours. In the following process, the patient's mental state tended to sleep and the respiratory rate started to accompany tachypnea with a rate of 25/min. All measured sugar values were below 200 mg/

dl. He produced another 2000 cc of urine. Arterial blood gas and complete urinalysis were studied. PH: 7.23 (reference range: 7.35-7.45), and HCO<sub>3</sub> - 3 mmol/L (reference range: 20-28 mmol/L), Base deficit - 18 mmol/L (reference range: 4-14 mmol/L) came in. There were 3+ ketones in the urine. Although blood sugars were not high, it was thought that euglycemic diabetic ketoacidosis might be present.

The patient was followed by hourly blood glucose measurement, 4x1 day arterial blood gas measurement, and 12-hour biochemistry parameters. Insulin infusion was started to the patient starting from a dose of 1 unit/hour.

In the post-operative 15 days, insulin was discontinued under the supervision of an endocrinologist. The patient is currently in the post-operative second year, and his blood sugar is normal. He does not use any antidiabetic medication. The fact that none of the detected cases belonged to euDKA indicates that our patient was rare.

As a result, patients with poor glucose regulation after bariatric surgery and using oral antidiabetic drugs should be prepared more carefully preoperatively. Post-operative follow-up is important. Experienced teamwork is essential for the early detection of undesirable complications.



Received: 28.06.2024 Revision: 28.06.2024 Accepted: 04.07.2024

Correspondence: Serhat Doğan, M.D., Department of General Surgery, Kayseri Special Acibadem Hospital, Kayseri, Türkiye  
e-mail: drserhatdogan@gmail.com



This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

**Disclosures**

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** None declared.

**References**

1. Garofalo C, Borrelli S, Liberti ME, Andreucci M, Conte G, Minutolo R, et al. SGLT2 Inhibitors: Nephroprotective efficacy and side effects. *Medicina (Kaunas)* 2019;55:268.
2. Wiviott SD, Raz I, Bonaca MP, Mosenzon O, Kato ET, Cahn A, et al; DECLARE-TIMI 58 Investigators. Dapagliflozin and cardiovascular outcomes in type 2 diabetes. *N Engl J Med* 2019;380:347–57.
3. Goldenberg RM, Berard LD, Cheng AYY, Gilbert JD, Verma S, Woo VC, et al. SGLT2 Inhibitor-associated Diabetic Ketoacidosis: Clinical review and recommendations for prevention and diagnosis. *Clin Ther* 2016;38:2654–64.e1.
4. Singh M, Kumar A. Risks associated with SGLT2 inhibitors: An overview. *Curr Drug Saf* 2018;13:84–91.