

## CASE REPORT

Medicine Science 2021;10(4):1546-9

# An unusual cause of hypoglycemia; the case of a male patient with Munchausen's Syndrome

 Selin Genc<sup>1</sup>,  Bahri Evren<sup>1</sup>,  Ayshe Slocum<sup>2</sup>,  Abdulkadir Bozbay<sup>1</sup>,  Emine Sener Aydin<sup>1</sup>,  Ibrahim Sahin<sup>1</sup>

<sup>1</sup>Inonu University, Faculty of Medicine, Department of Endocrinology and Metabolism, Malatya, Turkey

<sup>2</sup>Inonu University, Faculty of Medicine, Department of Internal Medicine, Malatya, Turkey

Received 24 May 2021; Accepted 31 July 2021

Available online 24.11.2021 with doi: 10.5455/medscience.2021.05.182

Copyright@Author(s) - Available online at [www.medicinescience.org](http://www.medicinescience.org)

Content of this journal is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.



### Abstract

Munchausen's Syndrome is a psychiatric illness in which patients create potentially life-threatening symptoms for the purpose of admission to a hospital or other primary gains. A 23-year-old male patient was admitted to the Inonu University, Turgut Ozal Medical Center Endocrinology Inpatient Unit with hypoglycemic attacks. The patient had hypoglycemia that required intensive dextrose infusion. Studies conducted after his hospitalization revealed that the patient intentionally injected himself with high doses of insulin in order to be hospitalized. A diagnosis of factitious hypoglycemia and Munchausen Syndrome (MS) was made. The patient was followed up with recommendations from the psychiatry department. Factitious hypoglycemia, resulting from deliberate usage of blood glucose-lowering medications in the absence of hyperglycemia, is characterized by frequent episodes of hypoglycemia and recurrent hospitalizations and causes a variety of severe symptoms. Typical signs include low blood glucose levels, suppressed c-peptide and pro-insulin levels, and inappropriately high insulin levels. The purpose behind the current case report is to emphasize the significance of considering MS in the differential diagnosis of patients presenting with hypoglycemia and, although it is more prevalent among females, to demonstrate that this psychiatric illness can also present itself among male patients.

**Keywords:** Hypoglycemia, insulin, Munchausen Syndrome

### Introduction

Factitious hypoglycemia results from a deliberate attempt to lower blood glucose levels. It is more common among women with diabetes in their third and fourth decades [1,2]. Not only does it cause diagnostic difficulties for endocrinologists that encounter it, but it also leads to unnecessary testing and, therefore, increase in costs as clinicians try to exclude other causes of hypoglycemia [3].

Although MS is rare, it can be missed or misdiagnosed. Its prevalence is around 0.5-2% [4-6]. It has been reported that more than 50% of patients present with traumatic skin injuries or lesions such as injection [7]. Childhood abuse or neglect, poor parenting, marital problems, substance addiction, and stressful life events are factors that contribute to this behavior [8,9].

MS may be associated with substance abuse, mood disorders, anxiety, personality disorders, and a history of suicidal thoughts or suicidal attempts. Malingering, borderline personality disorder, delusional personality or other psychiatric diseases should be considered in the differential diagnosis.

Physical examination is usually non-specific. It may show abnormal vital signs such as tachycardia and hypothermia, and sweating may be observed on skin examination. In some patients, careful skin examination for skin lesions, hidden catheters and disturbances caused by insulin needle marks may help reveal this disorder [10-12].

Typical findings include low blood glucose levels, suppressed c-peptide, and an inappropriately high insulin level. Recognition of these psychiatric presentations is essential to stabilize patients and avoid unnecessary testing.

Herein, we present an unusual case of a young adult male patient without diabetes who was hospitalized for frequent hypoglycemia attacks.

\*Corresponding Author: Selin Genc, Inonu University, Faculty of Medicine, Department of Endocrinology and Metabolism, Malatya, Turkey  
E-mail: [nilesenay@hotmail.com](mailto:nilesenay@hotmail.com)

## Case

A 23-year-old male patient was admitted to our clinic with complaints of generalized weakness, dizziness, sweating, and weight loss. The patient, who had present complaints for the last 1 month, stated that his blood glucose levels measured by his father's glucose meter at home several times measured at around 40-55 mg / dL and that he could have complaints both pre- and post-prandially. He stated that he applied to different health institutions with this complaint, but a diagnosis could not be made. The patient's blood pressure was 110/65 mmHg, heart rate 124 beats / min and respiratory rate 19 / min, temperature 37.8 ° C, oxygen saturation 98% at room air, and plasma glucose (PG) level 51 mg / dL. Electrocardiogram was normal sinus rhythm. Patients' history did not reveal any other abnormalities. He stated that he had no history of allergy or illegal drug use. He reported that he smoked but did not drink alcohol. It was found that the patient's father had a diagnosis of type 2 diabetes mellitus (T2DM) and was using insulin for blood glucose regulation. The patient had a weak and debilitated appearance, and his body mass index was calculated as 20 kg /m<sup>2</sup>.

During the period he was hospitalized, the patient developed hypoglycemia on three occasions. On the first occasion The patient's plasma glucose (PG) was 51 mg / dL and 500 cc infusion of %5 dextrose was administered immediately . Meanwhile, c-peptide was determined as 0.335 ng/ml, insulin as 2.00 uUL / mL, hemoglobin A1C (HbA1C) as 5.2%. Laboratory values of the patient at the time of admission are given in Table 1. On the second occasion , the patient's hypoglycemia was mild; blood glucose was measured as 65 mg/dL, c-peptide as 3.74 ng / ml, insulin as 33 uUL / ml and the patient's hypoglycemia was resolved with 200 cc of fruit juice, which contained 24.4 gr of glucose. The third occurrence of hypoglycemia was more severe .When the symptoms recurred in the follow-up of the patient and fingertip blood glucose was measured as 33 mg / dl. The patient's plasma glucose was measured as 35 mg/dl, c-peptide 0.412 ng / ml, insulin 14.4 uUL / ml (Table 2). 100 cc of %10 dextrose was administered immediately upon detection of hypoglycemia. This was followed by a 1000 cc infusion of %5 dextrose over 5 hours. It took about 10 hours for the patient's clinical status to improve following this third occurrence.

**Table 1.** Patient's laboratory test results before admission

| Parameters                      | Case  | Reference range |
|---------------------------------|-------|-----------------|
| Glucose (mg/dl)                 | 51    | 70-105          |
| Sodium (mEq/L)                  | 140   | 136-145         |
| Potassium (mEq/L)               | 4.4   | 3.5-5.1         |
| Chloride (mmol/L)               | 106   | 98-107          |
| Creatinine (mg/dl)              | 0.8   | 0.57-1.25       |
| Hemoglobin (g/dl)               | 16    | 13.6-17.2       |
| Leucocyte (10 <sup>3</sup> /uL) | 7.49  | 4.3-10.3        |
| Insulin (uIU/ml)                | 2.0   | 0-29.1          |
| C-peptide (ng/ml)               | 0.335 | 0.9-4           |
| HbA1C (%)                       | 5.2   | 4-6             |
| TSH (U/ml)                      | 4.26  | 0.35-4.55       |
| sT4 (ng/ml)                     | 1.26  | 0.83-1.43       |
| Cortisol (ug/dl)                | 13.67 | 3.09-22.40      |
| Somatomedin-C (IGF-1)           | 152   | 98.7-289        |

Abdominal tomography was performed to exclude any pancreatic mass or malignancy; there was no obvious pathology. Meanwhile, endoscopic ultrasonography (EUS) was planned for the patient for possible small pancreatic lesions that radiologically could not be determined. Also the reason why the patient's temperature was 37.8 degrees could not be attributed to any cause such as infection or malignancy. In the follow-ups, repeated measures was normal. Although the patient complained of weight loss, it was not objectively confirmed or observed weight loss, as the patient

did not routinely weigh himself. Being a construction worker, his occupation involved serious physical expenditure.

Standard drug inquiry and screening was performed to exclude toxicity. Factitious hypoglycemia was considered in the patient and the patients was re-evaluated for possible injection sites on physical examination, but there were no apparent skin lesion. The patient and his relatives were interviewed separately. The patient stated that he did not apply insulin externally. The relative of the

**Table 2.** Patient's laboratory test results before and after admission

| Parameters             | 1.Control | 2.Control | 3.Control |
|------------------------|-----------|-----------|-----------|
| Plasma glucose (mg/dl) | 51        | 65        | 35        |
| Insulin (Uul/ml)       | 2.0       | 33.1      | 14.4      |
| C-peptide (ng/ml)      | 0.335     | 3.74      | 0.412     |

patient, after being informed about factitious hypoglycemia, stated that he detected a needle tip with an insulin pen (insulin aspart) among the belongings of the patient.

The patient stated that he was curious about the insulin injections of his father, who has a diagnosis of type 2 diabetes (T2DM). The patient's father's insulins were insulin aspart and insulin detemir. During his interview, the patient revealed that he was responsible for administering his father's insulin treatment. This situation can be interpreted as a situation that raises suspicion in terms of the patient's clinical presentation. When the patient was questioned in more detail, it was understood that he was experiencing some difficulties at home and at work. A psychiatric consultation was requested for the patient. Prior to the psychiatric evaluation, the patient was held under observation and prevented from accessing his father's insulin. The patient did not develop hypoglycemia during the 48 hours he was observed. During his psychiatric evaluation, the patient confessed he was self-administering his father's insulin. The patient was evaluated and diagnosed with Munchausen Syndrome after the psychiatry interview and psychiatry outpatient clinic follow-up was recommended. Therefore, further examinations and testing planned for the patient were canceled. The patient whose blood glucose levels stabilized was discharged with the recommendations.

## Discussion

Munchausen Syndrome (MS) is a psychiatric disease in which patients harm themselves and create life-threatening symptoms for hospitalization or other primary gains and subconscious psychological motives [13,14]. In the diagnostic and statistical manual of mental disorders IV (DSM-IV), MS as factitious disorder includes three criteria: 1) deliberate production of physical or psychological signs or symptoms; 2) patient role assumption as motivation; and 3) lack of external benefits such as malingering [13].

The aim in MS is to adopt the role of the patient and to attract attention. For this purpose, they may show behavioral disorders and can cause severe health problems by harming themselves, either at their first attempt or until they receive a permanent medical injury. Patients with factitious hypoglycemia may experience complications of acute hypoglycemia, including cardiac arrhythmias, seizures, strokes, coma and eventually death, if they experience delays in accessing healthcare and blood glucose is not corrected immediately [15].

Managing a factitious hypoglycemia patient can be difficult. Therefore, it is important to provide a multidisciplinary approach and have a team that includes doctors, nurses, psychiatrists, and

even pharmacists, as many patients may be lost during follow-up after diagnosis [4,8].

Most patients cannot control their self-injurious behavior. It is important to know the timing of a psychiatric consultation in order to have a non-judgmental approach to communication and carry out appropriate, supportive treatment and discharge planning. Being a healthcare worker, having a complex medical history, history of adolescent illness and childhood stresses, comorbidities, substance abuse, mood or personality disorders, history of a parent's factitious disorder, are various risk factors associated with factitious disorder [4,6,16].

Studies have shown that antidepressants and antipsychotics are not helpful in treating factitious disorders. The most effective of treatment for such patients, is long-term psychotherapy with a psychiatrist. However, even if they accept their diagnosis many patients will not accept to be seen by a psychiatrist [1].

Suspicion of factitious hypoglycemia in this patient arose from the patient's history of multiple admission to various hospitals with pre- and post-prandial hypoglycemic attacks during the last month, from the relationship with his insulin-dependent diabetic father, and from laboratory parameters (PG, C-peptide, insulin) supporting this diagnosis. Prolonged dextrose infusion and monitoring of serum glucose levels every 1-2 hours were required to stabilize hypoglycemia.

C-peptide is formed by the cleavage of endogenous pro-insulin to form insulin. Therefore, exogenous insulin administration will suppress pro-insulin production and result in a low c-peptide. The insulin / c-peptide ratio will be greater than 1.0 (normally this ratio is <1). In our patient, insulin / c-peptide ratio was > 1, with high insulin and low c-peptide levels. In addition, there was no pancreatic mass suggestive of insulinoma on abdominal computed tomography (CT) scan.

While the Munchausen Syndrome is more common among women, it is also noteworthy that our patient is a male.

It is important that Munchausen Syndrome is considered in the differential diagnosis of patients presenting with hypoglycemia. Recognition of relevant psychiatric disorders is essential to stabilize these patients and to avoid unnecessary testing. We deemed it appropriate to present this unusual case in order to draw attention to the fact that it is possible to observe this disease among adult males and to emphasize that it is possible to reach a correct diagnosis with a multidisciplinary approach.

## Conflict of interests

*The authors declare that they have no competing interests.*

**Financial Disclosure**

*All authors declare no financial support.*

**Patient Informed Consent**

*Consent form was obtained from the patients before the article.*

**References**

1. Grunberger G, Weiner JL, Silverman R, et al. Factitious hypoglycemia due to surreptitious administration of insulin. Diagnosis, treatment, and long-term follow-up. *Ann Intern Med.* 1988 108:252-7.
2. Bhatnagar D. Diagnosis of factitious hypoglycaemia. *Br J Hosp Med.* 1988 40:140-2.
3. Murray BJ. Hypoglycemia secondary to factitious hyperinsulinism. *Postgrad Med.* 1981 69:237,240-1.
4. Bass C, Halligan P. Factitious disorders and malingering: challenges for clinical assessment and management. *Lancet.* 2014;383:1422–32.
5. Kenedi CA, Shirey KG, Hoffa M, et al. Laboratory diagnosis of factitious disorder: a systematic review of tools useful in the diagnosis of Munchausen's syndrome. *N Z Med J.* 2011;124:66–81.
6. Kinns H, Housley DFD. Munchausen syndrome and factitious disorder: the role of the laboratory in its detection and diagnosis. *Ann Clin Biochem.* 2013;50:194–203.
7. Fliege H, Grimm A, Eckhardt-Henn A, et al. Frequency of ICD-10 factitious disorder: survey of senior hospital consultants and physicians in private practice. *Psychosomatics.* 2007;48:60–4.
8. Yates GP, Feldman MD. Factitious disorder: a systematic review of 455 cases in the professional literature. *Gen Hosp Psychiatry.* 2016;41:20–8.
9. Beach MC, Gary TL, Price EG, et al. Improving health care quality for racial/ethnic minorities: a systematic review of the best evidence regarding provider and organization interventions. *BMC Public Health.* 2006;6:1–11.
10. Tattersall R, Gregory R, Selby C, Kerr D, Heller S. Course of brittle diabetes: 12 year follow up. *BMJ.* 1991 25;302:1240-3.
11. Schade DS, Drumm DA, Eaton RP, et al. Factitious brittle diabetes mellitus. *Am J Med.* 1985 78:777-84.
12. Schade DS, Burge MR. Brittle diabetes: etiology and treatment. *Adv Endocrinol Metab.* 1995;6:289-319.
13. *Diagnostic and Statistical Manual of Mental Disorders.* 4<sup>th</sup> ed. Washington, DC; 1994.
14. Asher R. Munchausen's Syndrome. *Lancet.* 1951;257:339–41.
15. Goto A, Arah OA, Goto M, et al. Severe hypoglycaemia and cardiovascular disease: systematic review and meta-analysis with bias analysis. *BMJ.* 2013 29;347:f4533.
16. Fischer CA, Beckson MDP. Factitious disorder in a patient claiming to be a sexually sadistic serial killer. *J Forensic Sci.* 2017;62:822–6.