Life and Medical Sciences

Severe Hypocalcemia in a Young Female During Postpartum Period: A Challenging Diagnosis of Primary Hypoparathyroidism

Doğum Sonrası Dönemde Genç Bir Kadında Şiddetli Hipokalsemi: Primer Hipoparatiroidizm Tanısında Güçlük

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Abstract

Hypocalcemia is a clinical symptom of hypoparathyroidism, which is usually accompanied by distinctive signs and symptoms that vary depending on how severe and chronic the disease becomes. The aim of this study is to report on a case of severe hypocalcemia secondary to hypoparathyroidism in a postpartum woman. We present a case of a young woman with complaints of cramping legs and feet, tingling or burning in fingertips, toes, and lips, fatigue and weakness, twitching and spasms in muscles, particularly around the mouth, but also in hands and arms, painful menstrual periods, and depression, after the first delivery. She is successfully treated with calcium, calcitriol, magnesium, and levothyroxine. The idiopathic primary hypoparathyroidism, which is a rare condition, could be included in evaluating the differential diagnosis of hypocalcemia and depression in postpartum period.

Keywords: Hypocalcemia, Hypoparathyroidism, Somalia, Endocrinology.

Özet

Hipoparatiroidizmin klinik bir semptomu olan hipokalsemi genellikle hastalığın ne kadar şiddetli ve kronik hale geldiğine bağlı olarak değişen karakteristik belirti ve semptomlarla birlikte görülür. Bu çalışmanın amacı, postpartum bir kadında hipoparatiroidizme sekonder gelişen şiddetli hipokalsemi olgusunu sunmaktır. İlk doğumdan sonra bacak ve ayaklarda kramp, parmak uçları, ayak parmakları ve dudaklarda karıncalanma veya yanma, yorgunluk ve güçsüzlük, özellikle ağız çevresinde ve ayrıca eller ve kollarda kas seğirmesi ve spazm, ağrılı adet dönemleri ve depresyon şikayetleri olan genç bir kadın olguyu sunuyoruz. Hasta kalsiyum, kalsitriol, magnezyum ve levotiroksin ile başarılı bir şekilde tedavi edildi. Nadir bir durum olan idiyopatik primer hipoparatiroidizm, postpartum dönemde hipokalsemi ve depresyon ayırıcı tanısında değerlendirmeye dahil edilebilir.

Anahtar Kelimeler: Hipokalsemi, Hipoparatiroidizm, Somali, Endokrinoloji.

Introduction

Hypoparathyroidism is a disorder with deficiency of parathyroid hormone with two major causes. The parathyroid glands can be destroyed by the immune system as a separate endocrine deficiency disorder or in combination with the dysfunction of other endocrine glands. Hypoparathyroidism can also occur following neck surgery in which all parathyroid tissue is removed, either as part of surgery for primary hyperparathyroidism or as part of major neck surgery for thyroid pathologies [1]. Chronic hypocalcemia is commonly due to inadequate levels of parathyroid hormone or vitamin D, or due to resistance to these hormones [2]. Chvostek's and Trousseau's signs, which can be elicited in symptomatic hypoparathyroidism patients, are important physical indicators of hypocalcemia [3]. The Trousseau's sign is a more reliable sign that can be found in 94% of hypocalcemic people but only 1% to 4% of healthy people. In hypocalcemic patients, it is the occurrence of carpopedal spasm after three minutes of application of an inflated blood pressure cuff over systolic pressure [2].

Idiopathic hypoparathyroidism is a systemic disorder with a prevalence of 0.55 to 0.88/100,000 (mean, 0.73/100,000) in China, which is similar to Japan [4]. Relevant epidemiology of primary hypoparathyroidism from the region was not available in the literature.

There are many obstacles in Somalia, a country recovering from civil war, in providing healthcare service. Absence of healthcare services in rural areas, difficulties to access hospitals, and insufficient laboratory investigations are among a few to mention. Diagnosing such a rare condition in low-resources regions with lack of enough expertise is a challenging and requires a high index of suspicion. In this report, we present a rare case of idiopathic primary hypoparathyroidism who had severe hypocalcemia during the postpartum period.

Case Report

Twenty-four years old women presented to the internal medicine outpatient department with the complaints of cramping in the legs and feet, tingling or burning in fingertips, toes, and lips, fatigue and weakness, twitching and spasms in muscles, particularly around the mouth, but also in hands, arms, painful menstrual periods, and depression 4 weeks after the delivery of her first baby. There were any complications, such as eclampsia associated with her pregnancy. Lactation was good and she breastfed her baby. She described several episodes of carpal spasms; she had no past systemic illness, neck surgery, radiation exposure, or infiltrative disease. Family history of skeletal abnormality was negative, as was for any similar conditions. She gives a previous history of fracture due to minor trauma on the little finger of the foot (Figure 1). The examination revealed a normal stature, no facial anomalies, no dental problems, and no complaints or defects of the mucous membranes. Eye examination was normal, and both Chvostek's and Trousseau's signs were positive. Her baseline laboratory evaluation was revealed as in Table 1.

Ultrasound of the thyroid gland showed 2.4×2.7×3.4 mm hypoechoic nodule in the right lobe, 3.3×4.3×4.8 mm hypoechoic nodule in the left lobe, bilateral heterogeneous parenchyma, diffuse patchy hypoechoic areas, and thin-thick fibrous bands are present. Multinodular goiter due to chronic thyroiditis is considered.

We immediately started intravenous calcium gluconate 5 g in 500 ml normal saline as infusion, and rapidly her symptoms resolved. Then we planned to switch to oral calcium gluconate 800 mg twice a day, calcitriol 0.5 mcg once daily, antiphosphate tablet 500 mg 2 tablets twice a day, magnesium tablet 250 mg once a day and levothyroxine 50 mcg once daily.

Discussion

Patients who present with clinical conditions suggestive of hypocalcemia should undergo laboratory evaluation of endocrine disorders. The diagnosis of hypocalcemia can be confirmed by testing serum calcium level while taking serum albumin into consideration. Serum albumin is greater than 4 g/100 mL in our patient, while serum calcium and serum magnesium remain low. Serum phosphorus levels are measured, and if they are higher than normal in the presence of an inappropriately normal serum parathyroid hormone level, hypoparathyroidism is considered, as in this case.

Table 1. Laboratory results of the patient (*twenty-four years old women*).

Test	Values	Normal range
Calcium	5.2	8.5-10.5 mg/dl
Phosphorus	6.4	2.5-5.5 g/dl
Magnesium	1.62	1.87-2.5 mg/dL
Albumin	4.8	3.5-5.5 mg/dl
Parathyroid hormone (PTH)	31	15-68.3 pg/ml
Thyroid stimulating hormone (TSH)	12.2	0.35-4.94 mIU/L
T3	3.35	1.88-3.18 pg/mL
T4	0.46	0.5-1.48 ng/dl
Creatinine	0.61	0.3-1.35 mg/dL
Urea	15	10-45 mg/dL
Vitamin D	25.5	6.2-53.2 ng/ml
Serum sodium	140	35-150 mEq/L
Serum potassium	4.8	3.5-5.5 g/dl
White blood cells (WBC)	5.84	4-10×1,000/mm3
Hemoglobin	14.1	12-16 g/dL
Platelets	283	100-430×1,000/mm3
Insulin like growth factor-1 (IGF-1)	151	55-166 ng/mL
Growth hormone (GH)	3.5	0.06-5 ng/mL
Anti-thyroglobulin (anti-TG)	1.4	0-4 IU/ml
Anti-thyroperoxidase (anti-TPO)	49	0-9 IU/mL
Thyroglobulin	29.4	1.50-38.5 ng/ml
Calcitonin	<2	0-18.2 pg/mL

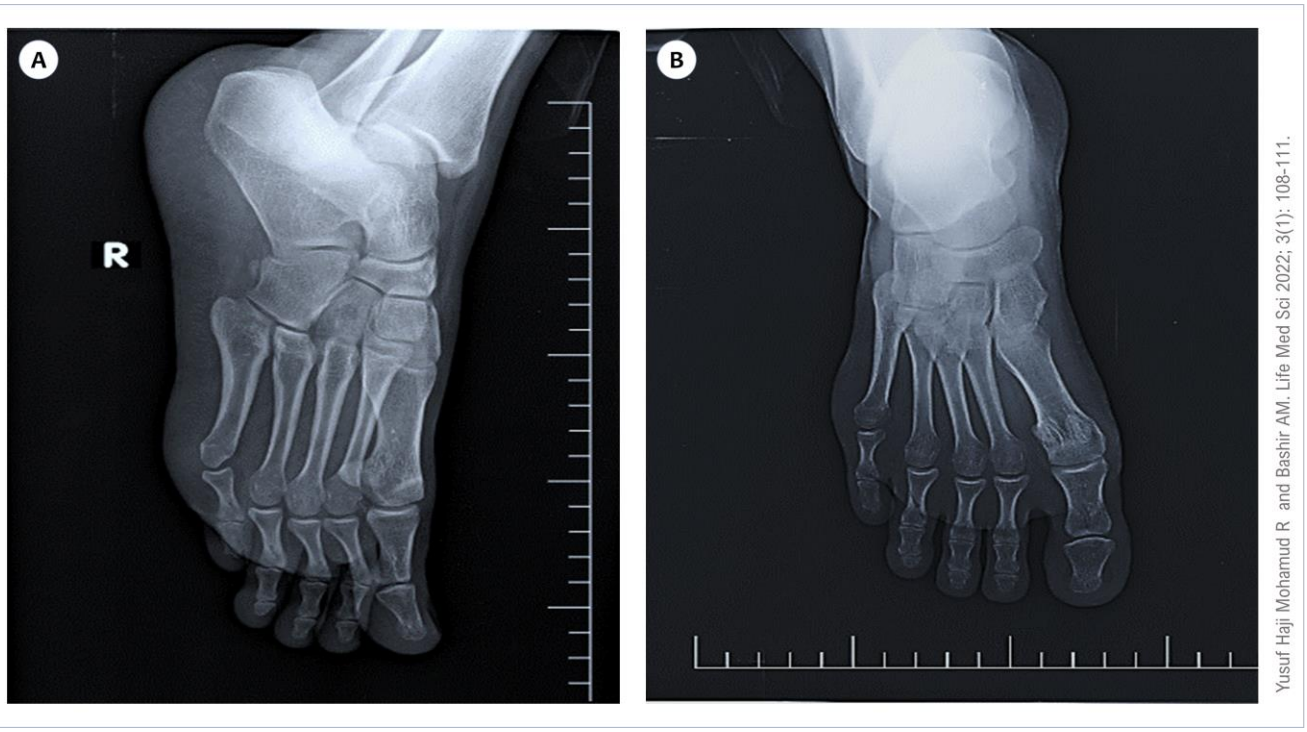

Figure 1. (**A**) Right foot oblique graph shows that 5th metatarsal proximal and distal phalanges are slightly medial deformed. In addition, 4th metatarsal proximal phalanx suspicious lucent line with peripheral sclerosis that could be an old fracture is noted. (**B**) Right foot frontal graphs show that 5th metatarsal proximal and distal phalanges as well 4th metatarsal proximal phalanx suspicious lucent line with sclerosis corresponding old fracture are noted.

When common genes involved in thyroid and parathyroid embryonic development are affected, or when congenital destructive mechanisms, such as autoimmunity or haemochromatosis, develop in adulthood, clinical hypothyroidism may occur [5]. Autoimmune hypoparathyroidism is present in 80 to 85% of patients with autoimmune polyendocrine syndrome type 1 (APS1) and up to 5% of patients with autoimmune polyendocrine syndrome type 2 (APS2). In APS1 patients, hypoparathyroidism occurs in association with candidiasis, autoimmune Addison's disease, and hypogonadism; the disorder has been referred to as either polyendocrinopathy-candidiasis-ectodermal dystrophy (APECED) syndrome [6].

Based on our case's results of hypocalcemia, hypomagnesemia, hyperphosphatemia, and the inappropriately normal parathyroid hormone (PTH), idiopathic hypoparathyroidism was on the top of the differential diagnosis in this patient. In the current scenario, Pseudohypoparathyroidism can be excluded with the normal PTH. Primary hypoparathyroidism should be considered in the differential diagnosis of patients with mental disorders, including depression, anxiety, or psychosis, especially if the clinical presentation is atypical and associated with calcium metabolism disorders [7]. As in our case, the patient reported postpartum depression after delivery of her first baby.

In a country like Somalia, with a limited number of experts, required further investigations, and a predominance of communicable diseases, diagnosis could be easily missed in these rare conditions. There were some limitations regarding the workup, which could not be done due lack of availability in our setting.

To summarize, we present a case of severe hypocalcemia due to an unrecognized primary hypoparathyroidism in a patient with hypothyroidism during the postpartum period. Physicians in Somalia or in other low resources countries with communicable disease predominance should be aware of these rare endocrinological diseases.

Conflict of interest: The authors declare that there is no conflict of interest. The authors alone are responsible for the content and writing of the paper. **Financial disclosure:** There is no financial support for this study.

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