Case Report DOI: 10.22114/ajem.v0i0.98

Facial hyperpigmentation: Any link to cancer?

Tina Deihim, Nasim Khajavi Rad, Mahsa Abbaszadeh, Sahar Karimpour Reyhan*

Internal Medicine Department, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran.

***Corresponding author:** Sahar Karimpour Reyhan; Email: skarimpour@sina.tums.ac.ir

Published online: 2018-08-26

Abstract

Introduction: Ectopic adrenocorticotropic hormone (ACTH) syndrome is recognized by edema, proximal muscle weakness, hypertension, diabetes and skin hyperpigmentation. This syndrome is mainly associated with malignancies.

Case presentation: A 43-year-old woman came to our hospital with a history of new-onset diabetes, hypertension, edema and facial hyperpigmentation from four months before. Upon admission, she had alkalosis, hypokalemia, mild hypertension and low-grade fever. Due to abdominal pain, an abdominal ultrasound was performed, which revealed common bile duct (CBD) and pancreatic duct dilation. The abdominopelvic computed tomography (CT) scan showed a poorly-enhancing mass in the periampullary region.

Conclusion: The patient's facial hyperpigmentation and hypokalemia appear to have been due to ACTH ectopic syndrome as a result of periampullary cancer.

Key words: Case reports; Cushing Syndrome; Hyperpigmentation; Paraneoplastic endocrine syndromes

Cite this article as: Deihim T, Khajavi Rad N, Abbaszadeh M, Karimpour Reyhan S. Facial hyperpigmentation: Any link to cancer? Adv J Emerg Med. 2019;3(1): e9.

INTRODUCTION

Ectopic adrenocorticotropic hormone (ACTH) syndrome is recognized by edema, proximal muscle weakness, hypertension, diabetes and skin hyperpigmentation. This syndrome is mainly associated with small-cell lung cancer or oat cell carcinoma, and less commonly with thyroid, pancreas, colon, gallbladder and breast cancers as well as carcinoid tumors, pheochromocytoma and hematologic malignancies (1). This study presents an interesting case of ectopic ACTH syndrome.

CASE PRESENTATION

A 43-year-old woman with recently-diagnosed diabetes presented to the emergency department (ED) with edema, facial and upper chest hyperpigmentation and abdominal pain from four months before. She reported fever and weakness in the past few days and about 5-kilogram weight loss over the past month. In the physical exam, she showed a cushingoid face with pale sclera, facial edema and hyperpigmentation extended to her upper trunk as dark papules, although there was no buffalo hump (Fig. 1). In her abdominal exam, she had a fatty abdomen with mild tenderness in the epigastric region and white steria in the lower half of the abdomen with a 1.5-cm diameter and a 4-cm length. On the extremities, she had pedal and foot edema without any size difference. Over the past month, she had had several admissions for hyperpigmentation and abdominal pain.

At her first assessment carried out in the ED, she had hypokalemia (2.3 meq/l), alkalosis, mild hypertension and low-grade fever. Her peripheral blood smear (PBS) revealed 4000-5000/L of white blood cells, mostly neutrophils, and her platelet count was about 50000-60000 cells/µl. She had

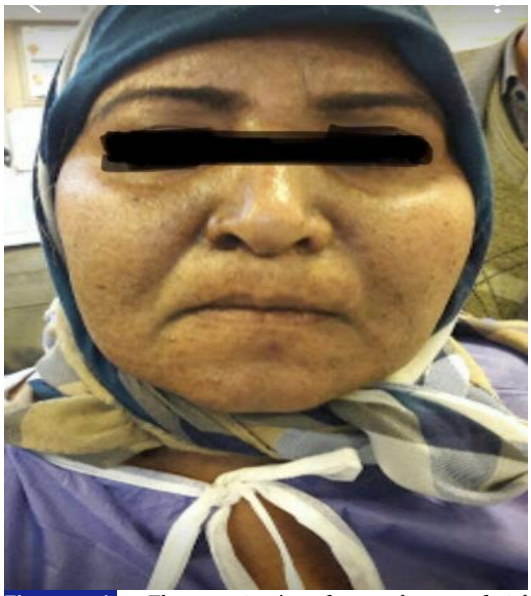

Figure 1: The patient's face shows facial hyperpigmentation

anisopoikilocytosis with hypochromicity and no schistocytes.

In the abdominopelvic ultrasound, she had a 13-cm spleen and a dilated common bile duct (CBD). Due to the dilated CBD and abdominal pain, we conducted an intravenously and orally-enhanced abdominopelvic computed tomography (CT) scan that showed a poorly-enhancing mass in the periampullary region with a 32*22 mm diameter causing CBD dilation (19 mm) and main pancreatic duct (MPD) dilation (4.5 mm). No invasion was observed to the adjacent organs. Some pathologic lymph nodes with the maximum short axis diameter (SAD) of 25 mm were present in the pancreaticoduodenal region. Bilaterally-increasing adrenal limb thickness (adrenal hyperplasia) was noted (9.5 mm). There were three liver hemangioma ranging from 9-20 mm in the liver (Fig. 2).

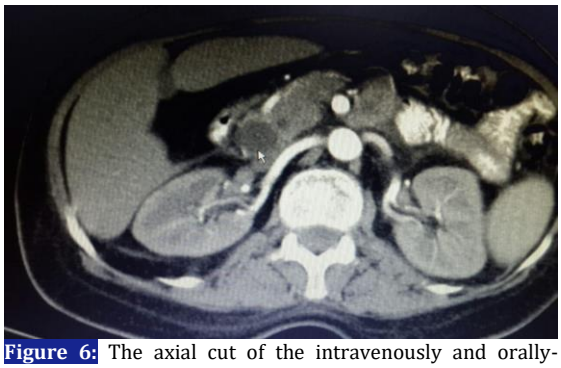

Figure 6: The axial cut of the intravenously and orally-enhanced abdominopelvic CT scan of the patient

Because of the mass shown in the CT scan, an upper endoscopy was performed, which reported a grade-A esophagitis. The patient had a grade-A hiatal hernia. In D2, she had a mass that was biopsied and Endo-ultrasonography (EUS) was recommended. The biopsy was not malignant, and due to the high susceptibility of a pancreatic mass, EUS and biopsy were planned.

Later in the admission process, the patient showed a positive blood culture with Acinetobacter and extended antibiotic therapy was then started. The sepsis progressed and she got resistant hypotension and finally passed away

Discussion

Cushing syndrome is caused by the hypersecretion of ACTH with a pituitary or ectopic origin, adrenal steroid hypersecretion and more commonly the exogenous use of steroids. It presents with fatigue, edema, fat pad on the back of the neck, broad purple stretch marks, proximal myopathy, glucose intolerance, hypertension, hypokalemia, increased susceptibility to infections and irritability (2). The case presented in this report was a woman with moon face, edema, new-onset diabetes, hypokalemia, alkalosis and hypertension, which are consistent with Cushing's syndrome. In view of the patient's history and in comparison with her previous images, her symptoms had rapidly progressed within a few months of her presentation to the ED, which is compatible with the ectopic source of ACTH (3). A total of 10% of patients presented with Cushing's disease have ectopic ACTH production (3). Many tumors can produce ectopic ACTH, but the hormone is more common in pheochromocytoma, medullary thyroid cancers, pancreatic tumors and bronchial or small-cell lung cancers (3). Considering these facts, our approach was to find the ectopic source of ACTH. We ordered urine metanephrine for assessing pheochromocytoma. Thyroid ultrasound was performed for assessing the thyroid and its nodules to detect any potential need for FNA, and a chest and abdominal CT scan was carried out to check for lung and pancreatic cancer. In her abdominal CT scan, the patient had a periampullary mass that was biopsied, but was unfortunately not diagnostic.

Our case had a unique facial hyperpigmentation, which is most commonly observed in ectopic ACTH Cushing's syndrome. Acanthosis nigricans is a more common skin presentation of Cushing's disease that is presented with axillary and neck hyperpigmented plaques (4).

Because of the pancreatic tumor and skin presentation, an important differential diagnosis considered in this case was Multiple Endocrine Neoplasia type 1 (MEN-1 syndrome) or Wermer's syndrome (5). This syndrome is associated with pituitary, pancreatic and parathyroid cancers. The main skin presentation of this syndrome is angiofibroma, which consists of tan dome-shaped papules and connective tissue nevi distributed in the neck and trunk (6, 7).

The patient's facial hyperpigmentation and hypokalemia was due to ACTH ectopic syndrome as a result of periampullary cancer. Unfortunately, the patient died as a result of septic shock before receiving any treatment for her cancer.

Conclusions

The patient's facial hyperpigmentation and hypokalemia appear to have been due to ACTH ectopic syndrome as a result of periampullary cancer. It is important to consider the possibility of the paraneoplastic adrenal syndrome in similar patients.

ACKNOWLEDGMENTS
We acknowledge all hospital staff who served the patients.

AUTHORS' CONTRIBUTION
All the authors met the standards of authorship based on the recommendations of the International Committee of Medical Journal Editors.

CONFLICTS OF INTEREST
None to be declared.

FUNDING
None to be declared.

REFERENCES
1. Leventhal JS, Braverman IM, editors. Skin manifestations of endocrine and neuroendocrine tumors. Seminars in oncology; 2016: Elsevier.
2. Kasper D, Fauci A, Hauser S, Longo D, Jameson J, Loscalzo J, et al. Disorders of adrenal cortex. Harrison's principles of internal medicine. Mc graw hill; 2015. p. 2309-29.
3. Alexandraki KI, Grossman AB. The ectopic ACTH syndrome. Rev Endocr Metab Disord. 2010;11(2):117-26.
4. Jabbour SA. Skin manifestations of hormone-secreting tumors. Dermatol Ther. 2010;23(6):643-50.
5. Thiers BH, Sahn RE, Callen JP. Cutaneous manifestations of internal malignancy. CA Cancer J Clin. 2009;59(2):73-98.
6. Asgharian B, Turner ML, Gibril F, Entsuah LK, Serrano J, Jensen RT. Cutaneous tumors in patients with multiple endocrine neoplasm type 1 (MEN1) and gastrinomas: prospective study of frequency and development of criteria with high sensitivity and specificity for MEN1. J Clin Endocrinol Metab. 2004;89(11):5328-36.
7. Saggini A, Brandi M. Skin lesions in hereditary endocrine tumor syndromes. Endocr Pract. 2011;17(Supplement 3):47-57.