Not Just Hyponatremia: A Case Report from a Hypodynamic and Emaciated Elderly Man

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Abstract

Background

The causes of fatigue can be diverse. Within the scope of general practice medicine, starting from subtle manifestations and through a precise diagnostic process, physicians can often ultimately identify the fundamental cause of the disease symptoms.

Case presentation

We present a patient, a 68-year-old Chinese male with fatigue and weight loss in a community. Laboratory tests indicated a decrease in blood sodium. Chest X-ray showed left hilar mass-like lesion. Symptomatic treatment was given to the patient, and he was promptly referred to a tertiary hospital. The last diagnosis was Small cell lung cancer with antidiuretic hormone secretion syndrome. The prognosis of the patient is well. The continuous follow-up and management provided by the general practice are of great significance to patients.

Conclusions

The causes of fatigue are often diverse. For emaciated elderly people, we need to be vigilant about the possibility of malignant diseases. The advantages of general practice are relatively prominent.

1. Introduction

The causes of fatigue are various. Diseases of all systems in the body can lead to fatigue [1]. Including endocrine system diseases, cardiovascular diseases and so on.

In clinical practice, weight loss is also a common symptom. Emaciation refers to a state where the BMI is lower than the normal range due to multiple factors [2]. It definitely requires early attention.

The modern medical model is the biopsychosocial medical model. Throughout the whole clinical medical process, the advantages of general practice should not be overlooked [3]. Within the scope of general practice medicine, being patient-centered, starting from subtle manifestations and through a precise diagnostic process, physicians can often ultimately identify the fundamental cause of the disease symptoms.

2. Case presentation

Mr. Liu, a Chinese male, 68 years old, was admitted to the general practice outpatient department of a certain community in Beijing on February 9, 2025. Chief complaint: fatigue for 2 weeks.

2.1. History and consultation

- Present Illness History: Two weeks ago, the patient experienced fatigue without obvious cause, accompanied by intermittent dizziness, occasional muscle tremors, and occasional dry cough. There was no expectoration or hemoptysis, no fever or chills, no low fever or night sweats, no nausea or vomiting, no palpitations or shortness of breath, no headache, no abdominal pain or diarrhea, no unsteady gait, no limb edema or numbness. No treatment was given. His mental state and sleep appetite were still well, along with the urination and defecation normal. In the past month, the patient had lost 5 kg in weight.
- Past Medical History: The patient denied the history of infectious diseases such as hepatitis and tuberculosis, ae well as the drug allergies. While he had a history of hypertension for over 30 years, with the highest blood pressure reaching 170/100 mmHg. Currently taking lisinopril 20 mg once daily and aspirin 100 mg once daily, and blood pressure was controlled at 120-130/80 mmHg. He had a history of hyperlipidemia for over 30 years. Currently taking atorvastatin 20 mg once nightly, and lipid levels were well controlled. And denied a history of coronary heart disease, cerebrovascular disease, asthma, chronic obstructive pulmonary disease, peptic ulcer, chronic renal insufficiency, mental disorders, etc.
- Personal History: His career was a retired computer engineer. He had a 30-year smoking history, 10 cigarettes per day (smoking index was 300), and had not quit smoking. Had a drinking history of over 30 years, occasionally drinks white liquor without quitting drinking. He prefered salty, oily and sweet food. He enjoyed sports such as golf, and exercised for 20-30 minutes daily, 5-7 days a week. Psychological condition and emotions was relatively stable. Family and social relationships and economic condition was good.
- Marital and Reproductive History: Married at age 28. Spouse had the disease of hypertension and uterine fibroids. He had two sons and one daughter. All of them were in good health.
- Family History: Denied a history of familial genetic diseases. In general practice, the patient was asked under the RICE consultation mode. We were fully aware of patients' thoughts. [4] How about his RICE result?
- > R(Reason): Unexplained fatigue and weight loss.
- ► I(Ideas): If he got a serious illness (such as cancer)?
- > C(Concerns): Worried that his condition getting worse.
- **E(Expectations):** Hoped to clarify current situation.

2.2. Progression and diagnosis

Physical examination: Temperature was 36.5°C, pulse was 82 beats per minute, respiration was 14 breaths per minute, and blood pressure was 128/76 mmHg. Height 178 cm, weight 57 kg, BMI (Body Mass Index) was 17.99 kg/m² (reference range 18.50-25.00 kg/m²).

Signs: Walked into the consultation room, no unsteady gait, mild malnutrition, no acute facial expression. The mucous membranes of the lips were pink, no petechiae or ecchymoses on the skin and mucous membranes, clubbing of fingers was present, no enlarged lymph nodes were palpable throughout the body. No cervical swelling, no jugular vein distension, regular heart rhythm at 82 beats per minute, no additional heart sounds or murmurs were heard, no pericardial friction rub, negative peripheral vascular signs. No deformity of the thorax, no barrel chest, clear breath sounds in both lungs, no obvious dry or wet rales, soft abdomen, no tenderness or rebound tenderness, liver and spleen not palpable. No edema in both lower extremities, normal range of motion in all limbs, normal dorsalis pedis artery pulsation, negative bilateral Babinski sign.

Laboratory tests and examination results: The blood routine, myocardial enzymes, urine routine, and thyroid function tests showed no obvious abnormalities.

Twelve-lead electrocardiogram: Sinus rhythm, basically normal electrocardiogram.

Biochemical electrolyte examination: Serum sodium 122 mmol/L(reference range 135-145mmol/L), blood glucose, blood lipids and other indicators were normal.

Chest X-ray: Left hilar mass-like lesion. Enlarged pulmonary markings. See (Figure 1).

Initial diagnosis: Fatigue to be investigated, Central lung cancer? Hyponatremia, Hypertension grade 2 - very high risk, Hyperlipidemia.

How about the differential diagnosis?

As physicians, we need to consider diseases of multiple systems throughout the body. For example:

- Endocrine system diseases, including hypothyroidism, emerging type 2 diabetes or adrenal insufficiency, and hypoglycemia etc.
- Neurological diseases, including myasthenia gravis, Guillain-Barre syndrome, cerebrovascular diseases, neurological and muscular disorders, etc.
- Electrolyte disorders, including hyponatremia, hypokalemia and hypercalcemia.
- Blood system diseases, anemia of any cause can present as fatigue. Leukemia and lymphoma, etc. also need to be further differentiated.
- Cancers, such as lung cancer, thyroid cancer, etc.

2.3. Treatment and management

Complete the examinations to make a confirmed diagnosis, such as lung CT, bronchoscopy. Improve the tests of osmotic pressure and tumor markers, etc.

Actually, for the patient, referring him to a higher-level hospital as soon as possible is necessary. Temporarily medication was taken at the community outpatient clinic. Treat the patient with 150ml of 3% sodium chloride by slow intravenous drip for more than 20 minutes. The patient was in good condition overall. Then We promptly referred him to a certain tertiary hospital.

About further non-pharmaceutical treatment: Adjust lifestyles, including to quit smoking and drinking, and follow a low-salt and low-fat diet. Enhance nutrition and exercise reasonably. Provide health education on related diseases and manifestations.

Provide psychological counseling services.

And about drug treatment education, anti-hypertensive and lipid-regulating drugs should be used continuously and regularly. Pay attention to liver and kidney functions, and have a follow-up visit to the hospital or the community per month.

2.4. Follow-up

S (Subjective data): The fatigue has improved compared to before, and there has been no significant change in weight.

O (**Objective data**): Physical examination is almost the same as before. Blood osmotic pressure: 260 mmol/kg (reference range 275-295 mmol/kg), Urine osmotic pressure: 600 mosm/kg (reference range 300-900 mosm/kg), Urine sodium: 65 mmol/l (reference range 40-150 mmol/L). CT scan and bronchoscopy examination suggest: Small cell lung cancer.

A(Assessment): Diagnosis: Small cell lung cancer with antidiuretic hormone secretion syndrome, Hypertension grade 2, very high risk, Hyperlipidemia.

P(Plans): Specialized treatment: Provides treatment for lung cancer, chemotherapy, targeted therapy, etc. Symptomatic treatment, such as restricting water intake and sodium supplementation treatment are particularly important.

General management: Collaborates with specialized treatment, regularly monitors changes in blood routine, chest X-rays, electrolytes, etc. To control the blood pressure and lipid. Monitor blood pressure, blood sugar, lipid levels, liver and kidney functions, etc. Improve self-lifestyles. Provide health education and possible psychological interventions. Provide regular physical examinations for the elderly and timely referral. Guide comprehensive family care.

2.5 Prognosis

The patient was monitored and followed up for a long time. He regularly reexamined in the oncology department and respiratory department, and his prognosis was relatively good. The patient's general condition is always good, and both diet and sleep are

relatively regular. It is vital for him to enhance nutrition and closely monitor changes in indicators such as blood pressure, heart rate, electrolytes and weight.

3. Discussion

3.1. Disease diagnosis advantages and limitations

In reality, the diagnostic capabilities of grassroots communities are limited, which makes it difficult to confirm rare diseases. While in this case, through related examination and close follow-up of the patient, the cause of the disease has been identified. Through patient-centered continuous medical care, the advantages of the general practice department can also be demonstrated.

The Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH) refers to a group of syndromes characterized by abnormal increase or enhanced action of endogenous antidiuretic hormone (ADH, or arginine vasopressin, AVP), resulting in water retention, increased urine sodium excretion, and dilutional hyponatremia and other clinical manifestations [5]. It is usually caused by malignant tumors, lung diseases, central nervous system disorders or drugs, etc. Among which, small cell lung cancer (or oat cell cancer) is one of the most common reasons [6], is also a disease that should be given top priority for consideration. Besides, especially for the thin and emaciated elderly, the consideration of cancer cannot be ignored [7].

In short, the significance of such a single case is considerable.

3.2. The advantages of general practice are evident

General practitioners focus on the patient-centered approach. Through the open and closed questioning process, comprehensive physical examination and targeted examination results, they can determine the cause of the disease. Although the community has certain limitations, the long-term follow-up of patients also demonstrates the advantageous role of general practitioners [8].

During the process of diagnosing diseases, auxiliary examinations have played a very effective role [9]. Clinically, it is necessary to make proper use of this auxiliary examination item to better serve the diagnosis and treatment of diseases.

We advocate for the early detection, early diagnosis and early treatment of clinical issues [10]. Earlier disease management often predicts a better prognosis. And the role of the primary institutions becomes even more irreplaceable.

3.3. Patient's perspective

I previously thought that the community was merely an institution for taking medications during follow-up visits. However, this experience has broadened my understanding of the community. The practitioners here are very kind and gave me a lot of comfort. Even though I was receiving treatment at a tertiary hospital, the physicians' care also strengthened my confidence and courage to overcome the illness. And apart from caring about myself, the guidance to my family was also very good.

4. Conclusion

The presence of hyponatremia may indicate a serious illness. For elderly individuals experiencing weight loss, it is necessary to be vigilant about their risk of developing cancer.

The community has certain limitations, but the advantages of general practice medicine and general practitioners are extremely distinct.

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