Heads up: don’t forget the ordinary

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Abstract

A 72-year-old woman presented to the emergency department with shortness of breath, diffuse swelling and a haemoglobin of 4.2 g/dl. Her history was notable for an unusual necrotic occipital neck mass that had begun to enlarge and intermittently bleed over the past year. The patient was initially unable to tolerate a CT scan because of the neck mass, and care was further complicated by extended boarding for more than 24 h in the emergency department. Initial fevers were attributed to blood transfusion, but she subsequently developed septic shock and disseminated intravascular coagulation from Escherichia coli bacteraemia, which led to anuric renal failure requiring haemodialysis. When the CT was performed, it revealed an obstructing ureteric stone which was the source of her infection, not the neck mass as had been assumed. This case underscores the importance of maintaining a broad and impartial differential diagnosis.

INTRODUCTION

We present a case of a woman who had an unusual neck mass and severe anaemia but rapidly and unexpectedly decompen-sated from an altogether unrelated cause. This case offers an opportunity to evaluate our clinical reasoning process and approach to differential diagnosis.

CASE PRESENTATION

A 72-year-old woman with a history of bilateral breast cancers and an unusual occipital neck mass presented to the emergency department from her gynaecologic oncologist’s office after she complained of shortness of breath and was found to have a haemoglobin of 4.2 g/dl. The mass had formed from a cyst that she developed after a minor trauma in 1967. It had started to grow over the past few years and would periodically drain, scab over and drain again. It had also begun to bleed. Five days before presentation, a portion of the mass had fallen out and it bled more profusely than it had before. The patient had also developed severe diffuse swelling in her arms, legs and trunk over the prior ten days.

At presentation, she was afebrile and haemodynamically stable except for being hypertensive to 170/70 mmHg. She had an oxygen saturation of 100% on 4-l nasal cannula. She had clear lung sounds but had severe upper and lower extremity pitting oedema. She had a baseball-sized malodorous occipital mass, soft to touch with thick oozing purulent drainage (Fig. 1).

Initial labs included a white blood cell count of 8.3*10³/μl, haemoglobin of 4.7 g/dl, albumin of 2.9 g/dl and INR of 1.6. She had a B-type natriuretic peptide (BNP) level of 666 pg/ml. A chest X-ray showed mild interstitial oedema.

The immediate concern at this time was the patient’s severe anaemia, which was attributed to recurrent bleeding from the neck mass and was thought to be the cause of her shortness of breath. The primary differential for her anasarca included nephrotic syndrome, cirrhosis and liver metastases from a mass suspicious for malignancy. A CT pan-scan was ordered to evaluate this, however the patient was not able to tolerate it because the mass made it painful to lie on her back.
Due to a bed shortage, the patient remained in the emergency department for more than 24 h. While there, she was transfused three units of packed red blood cells. During the transfusion, she became febrile to 101.2 °F and tachycardic to 110 bpm. The admitting physician was notified during the day and ascribed the fever to a transfusion reaction. At the attending physician’s request, the physician assistant in the ED ordered acetaminophen. Overnight, the patient’s temperature increased to 102 °F, her heart rate increased to 120 bpm, she was tachypnoeic to 30 breaths per minute, and she was hypertensive to 200/60 mmHg. A lactate level, drawn according to sepsis protocol, was 2.7 mEq/l. Repeat labs showed a white blood cell count of 24.3*10³/µl with 6% band forms. Her blood cultures eventually grew E. coli.

She was started on vancomycin and piperacillin–tazobactam. By the morning, her creatinine had doubled from 0.72 mg/dl to 1.46 mg/dl and her INR was now 2.4. Her platelet count fell from 127*10³/µl to 86*10³/µl, her fibrinogen was 224 mg/dl, and her d-dimer level was 4668 ng/ml, all consistent with disseminated intravascular coagulation secondary to severe sepsis. Her breathing became increasingly laboured and she was placed on bilevel non-invasive positive pressure ventilation and transferred to the medical intensive care unit (MICU).

When she arrived in the MICU, she was hypotensive to 80/40 mmHg and vasopressors were initiated. Her urinalysis drawn upon arrival was notable for pyuria with greater than 180 white blood cells per hpf. The patient was intubated and sedated so that a pan-CT scan could be performed. The scan, completed that night, revealed an obstructing left distal ureteric stone measuring up to 1.6 cm with proximal dilation and hydronephrosis (Fig. 2). The patient was taken to the operating room for extraction and stenting.

She returned to the MICU and was weaned from vasopressors but could not be extubated for a day. A chest X-ray showed increasing pulmonary oedema. She became oliguric with a creatinine elevated to 6.4 mg/dl and was urgently dialyzed. The patient was ultimately stabilized and was transferred back to the general medicine service after ten days. She was discharged from the hospital on day 28. She required haemodialysis for several months before her kidney function recovered. The neck mass was eventually excised, and pathology showed a benign haemangioma with infected haematoma and abscess formation.

**DISCUSSION**

This was a case of a woman with an unusual necrotic and haemorrhagic neck mass who developed severe sepsis due to a urinary tract infection caused by an obstructing ureteric stone. Early recognition of sepsis is critical, as delays in diagnosis and treatment greatly increase morbidity and mortality [1].

In this case, early hospital care was hampered by prolonged boarding in the emergency department. Patients who board in the ED have more delayed and missed orders than control patients [2, 3]. In patients admitted to the ICU, long boarding times have been associated with prolonged courses and increased mortality [4]. Other factors including transport in the evening, fever and indirect ICU admission, all of which applied to this patient, have been associated with in-hospital mortality [5].

A review of our clinical reasoning reveals several junctures at which we were led astray as well. When the patient first developed a fever, it was attributed to the blood transfusion, although transfusion reactions are relatively infrequent, in one study occurring about 2% of the time [6]. As she became septic and developed respiratory distress, typical sources of infection were discounted in favour of this impressive necrotic neck mass. However, in an unstable patient presenting with fevers and other signs of infection, the evaluation should be comprehensive and include abdominal imaging as well as a chest X-ray and urinalysis [7]. In this case, had an abdominal source been suspected and evaluated with urgent imaging, we may have achieved prompt source control and prevented her decompensation. This reminds us that the importance of a broad and impartial differential diagnosis cannot be overstated.

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**CONFLICT OF INTEREST STATEMENT**

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AVAILABILITY OF DATA AND MATERIAL
Not applicable.

AUTHORS’ CONTRIBUTIONS
Dr Gottlieb and Dr Nahass contributed to preparation of the manuscript. Dr Basile provided significant guidance and input on the patient history.

LIST OF ABBREVIATIONS
ED emergency department
ICU intensive care unit
MICU medical intensive care unit
CT computed tomography

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