Case Report

Massive oedema in a Cape Verde sailor

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Introduction

Hypoalbuminaemia, fluid retention and interstitial oedema may seem a straightforward combination in a patient with longstanding poorly regulated diabetes suspected to have diabetic nephropathy, but can constitute a complex diagnostic problem with an unusual therapeutic approach and an unexpected outcome. Here we present a patient with longstanding type II diabetes, mild albuminuria, a biopsy-proven diabetic glomerulopathy and low serum albumin levels, who developed massive fluid retention and oedema during a systemic infection complicated by a sudden skin manifestation of non-human immunodeficiency virus (HIV)-related Kaposi sarcoma. His oedema and hypoalbuminaemia only resolved after treatment of his Kaposi sarcoma.

Case

A 56-year-old man, born on Cape Verde, was admitted in November 2003 with monarthritis of the left knee, fever, chills and dysuria of 1 month’s duration. He was treated by his general practitioner with nitrofurantoine, but without effect. Diabetes mellitus was diagnosed > 20 years ago, treated with glimepiride. Diabetic control was poor, with development of diabetic retinopathy and neuropathy. He used to be a sailor with multiple heterosexual contacts.

Physical examination showed a swollen, warm, red left knee, slight oedema of his ankles and no skin lesions except some scattered small nodular pigmented spots. His blood pressure was 150/60 mmHg and body temperature 38.3°C. Plasma glucose was 36 mmol/l, plasma creatinine 104 mmol/l and albumin 14 g/l. The white blood cell (WBC) count was 22×10⁹/l with 82% neutrophils and a normocytic anaemia (haemoglobin 8.1 g/dl). Aspiration of the knee revealed pus. The urinestick did not show ketones, and only a trace proteinuria was present (Albustix ±0.5 g/24 h). The sediment showed many bacteria and WBCs. Staphylococcus aureus was grown from blood, urine and knee aspirate. The patient was treated with flucloxacillin and insulin.

Three days after admission, he developed a hypotensive shock with anuria and splinter haemorrhages. At this time, microscopy of the urine was unremarkable, except mild leukocyturia and a fractional sodium excretion index of 11.6%. Heart auscultation showed no murmurs, and no valvular vegetations were found on transoesophageal echocardiography. Nevertheless, he was treated as having infective endocarditis. The hypotensive shock recovered on a short intravenous fluid challenge, but his plasma creatinine remained ~210 mmol/l. Gradually his condition deteriorated and he developed progressive oedema and massive ascites, unresponsive to high dosages of furosemide in combination with a number of albumin infusions. A renal biopsy showed full-blown diabetic nephropathy. There was mild interstitial oedema and, focally, mononuclear resorption infiltrates were observed. Tubular damage was conspicuous, with dilatation of lumina, flattening and vacuolization of epithelial cells and occasionally casts with cellular remnants and debris, compatible with ischaemic tubular cell injury. There were no signs of infection. At the same time, the patient developed progressive raised purple-brown lesions all over the skin (Figure 1) and in the oral cavity. Histology showed human herpesvirus-8 (HHV-8)-positive Kaposi sarcoma. Despite his past history, HIV testing was repeatedly negative. Immediately after starting with liposomal doxorubicin as treatment for the Kaposi sarcoma, the patient lost >10 kg in 1 week (Figure 2). Furthermore, his plasma creatinine declined to 85 mmol/l and his albumin rose to 34 g/l, while proteinuria remained mild at 1–1.5 g/24 h. HHV-8 load dropped from 1600 copies/ml before the start of therapy to undetectable levels.

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Firstly, diabetic nephropathy is generally defined as the presence of a positive Albustix, especially when other features of diabetic microangiopathy such as retinopathy are present. This patient illustrates that proteinuria can be minimal despite extensive diabetic glomerular lesions. It is well known that diabetic nephropathy is often associated with extensive water and salt retention [1]. Nevertheless, treatment with high dose furosemide intravenously in combination with albumin supplementation only had a limited effect.

Secondly, Kaposi sarcoma is known to involve lymph nodes, mucosa and visceral organs sometimes even in the absence of skin lesions. Increased vascular endothelial permeability caused by Kaposi sarcoma can cause albumin loss in the gastrointestinal tract and subsequent oedema. Presumably, as seen in many other clinical cases, the severe intercurrent systemic \textit{S. aureus} infection accelerated both the dermal and visceral Kaposi sarcoma. The intensive chemotherapy had a dramatic effect, both on the skin lesions and on the oedematous state. Although an ascites puncture was not performed, we consider it likely that peritoneal localizations of the Kaposi sarcoma will have contributed to the ascites formation. Likewise, we suspect that the deterioration and improvement of the kidney function might have been intra-renal oedema which subsided with liposomal doxorubicin treatment as well [2].

Thirdly, Kaposi sarcoma in Western Europe is mainly associated with HIV. However, Kaposi sarcoma encompasses four (some of them less known) clinical variants with identical histological features. These develop in specific populations with different sites of involvement and rates of progression. ‘Classic Kaposi sarcoma’ is an indolent type of this condition which occurs in elderly men in eastern Europe and Mediterranean countries, and typically appears on the hands and feet and slowly progresses up the arms and legs. Also, Kaposi sarcoma is one of the most common cutaneous neoplasms in HIV-positive and -negative patients in Africa. Our patient born on Cape Verde was classified with this HIV-negative endemic or ‘African Kaposi sarcoma’. This is a more aggressive variant affecting younger adults and children, progressing over months to years. Both of these two variants (Classic and African Kaposi sarcoma) are not associated with immunosuppression. The other two variants of Kaposi sarcoma, including immunosuppressed (post-transplant and iatrogenic) and those associated with acquired human immunodeficiency virus (AIDS), are more widely known [3].

In conclusion, Kaposi sarcoma encompasses four clinical variants not all associated with an immune deficiency. In these patients, massive oedema due to capillary leakage with gastrointestinal protein loss can react immediately to cytotoxic therapy. Furthermore, overt pathological evidence for diabetic nephropathy is not always accompanied by macroalbuminuria.

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References


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