



Persistent anaemia due to scurvy

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We present a case of a 45-year-old man from Papua New Guinea who presented with anaemia. A bleeding duodenal ulcer was thought initially to be the sole cause of his anaemia but when his anaemia did not resolve despite haemostasis and blood transfusion another explanation had to be entertained.

Physical examination noted florid features of scurvy and a poor dietary history was elicited. Scurvy is a rare clinical condition in modern times and a high index of suspicion together with a good history and physical examination is required to make a prompt diagnosis.

Case report

A 45-year-old man from Papua New Guinea presented to the Cairns Base Hospital's Emergency Department after being referred for investigation and management of anaemia. He had complained of a painful swollen right knee with limp and lethargy for the past 6 months. His local medical officer had prescribed him diclofenac 50 mg three times daily for the past 2 weeks for analgesia. In the last few days prior to admission to hospital he described epigastric pain and melaena. His past medical history was significant only for depression. He denied frequent alcohol consumption.

Laboratory investigations noted normochromic normocytic anaemia with a haemoglobin of 59 g/L. His white cell count, platelet count, and coagulation profile were all normal. Iron studies revealed low serum iron levels with high ferritin levels. Vitamin B-12 and folate levels were in the normal range.

His anaemia was attributed to an upper gastrointestinal bleed on the background of non-steroidal anti-inflammatory use. He was transfused 4 units of packed cells, commenced on intravenous proton-pump inhibitor therapy, and admitted for urgent endoscopy.

At endoscopy, a large duodenal ulcer was visualised and the bleeding vessels at the base were clipped, providing haemostasis. His epigastric pain and melaena resolved. In spite of this, over the next 3 days his haemoglobin progressively dropped to 63 g/L. A repeat endoscopy did not show any signs of repeat bleeding from the ulcer. Another cause for his anaemia was sought.

Physical examination revealed that he had marked gingival swelling and bleeding (Figure 1). His skin follicles were noted to have increased pigmentation and this was later confirmed to be perifollicular hyperkeratosis (Figure 2). His right leg was as hard as wood and he had prominent ecchymosis of his thigh with a large right haemarthrosis.

Further enquiry regarding his diet revealed that he had a very poor oral intake for many months and virtually took no vegetables or fruit.

Scurvy was suspected as the clinical diagnosis.

His plasma ascorbic acid level recorded as 5 micromol/L (normal range 20–120 micromol/L) thus confirming vitamin C deficiency.

Figure 1. Gingival swelling and bleeding in our patient with scurvy



Figure 2. Prominent classical perifollicular hyperkeratosis seen in scurvy



He was commenced on vitamin C 250 mg three times daily and his dentition, ecchymosis, and haemarthrosis improved rapidly. His full blood count quickly normalised. He was discharged on an oral proton-pump inhibitor, given advice regarding a healthy diet, and follow-up with a dietician was arranged.

Discussion

Scurvy is traditionally found in impoverished populations, people on 'fad' diets, alcoholics, and those with psychiatric disturbances.¹ Centuries ago it was common in sailors on extended voyages due to the lack of fresh fruit and vegetables on board. Initial presenting symptoms are generally non-specific and include weakness, anorexia, depression, and lassitude.²

The diagnosis of scurvy is based on the finding of specific clinical features supported by a consistent dietary history. A plasma vitamin C level of below 11 micromol/L supports the diagnosis of scurvy, as it corresponds to a total body store of less than 300 mg.^{2,3}

As a result of defective collagen biosynthesis due to ascorbic acid deficiency, blood vessel fragility manifests as petechiae, purpura, and large ecchymoses.⁴ Haemarthroses of the knee have been described.^{5,6}

Bleeding gums and gingivitis are prominent in individuals with pre-existing periodontal disease. Dermatological features include broken and coiled hairs (due to abnormal collagen formation), and perifollicular haemorrhages and hyperkeratosis.⁷ Anaemia is seen in 75% of cases of scurvy, with iron and folate deficiencies as contributing factors.⁸

The institution of treatment for scurvy is simple. Oral vitamin C supplementation leads to dramatic and rapid improvement in symptoms, with clinical manifestations disappearing within weeks.

Our case illustrates that even if a case of anaemia appears obvious, for example a classic picture of a gastrointestinal bleed, it is imperative to search for other causes if the anaemia still persists despite correction.

Scurvy is a rare clinical condition which can account for persistent anaemia if untreated, and a high index of suspicion with a good history and examination is required to make a prompt diagnosis in order to not delay treatment.

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