Diagnosis and treatment of vitamin C deficiency

Johnny Loughnane highlights a case of scurvy in an elderly man who presented with skin lesions and swelling of the ankles

AN ELDERLY man presented with swelling of his ankles, when a family member became concerned. He lived alone and survived on a diet composed almost exclusively of bread and tea.

One year previously he had been referred to surgical outpatients for investigation of anaemia. He had a low serum iron but no cause of blood loss was found. His B12 and folate levels were at the lower end of the normal range.

When his legs were examined a purpuric rash was noted. Indurated, rather ill-defined swelling was detected around both ankles. The hairs on his lower legs were noted to be very curly and twisted. Any ideas on the diagnosis?

The pictures illustrate purpuric spots around the hair follicles. There is one area of more extensive spread of purpura. The hairs are twisted and seem to form spiral shapes (see especially the lower half of close up picture). The impression of a sock can be seen at the ankle, where the oedema had a firm, woody feeling when pressed.

These are typical signs of scurvy (vitamin C deficiency). Humans share with guinea pigs the distinction of being unable to synthesise ascorbic acid. We depend on dietary supply. Plentiful amounts of this vitamin can be obtained in fruit and vegetables. Elderly men living alone who rarely eat fruit and vegetables are therefore at high risk of developing deficiency of ascorbic acid.

In the elderly initial symptoms are non-specific, with generalised aches and weakness. Anaemia may be due to iron deficiency (increased blood loss, reduced absorption, poor diet) or folate deficiency (vegetables are high in folate).

Ascorbic acid is needed for collagen production. Deficiency is especially evident in the walls of small blood vessels where weakness leads to bleeding and purpura. Keratosis around hair follicles may be an early manifestation.

Presentation of vitamin C deficiency

- Perifollicular keratosis and haemorrhage
- Corkscrew hairs
- Gingivitis with bleeding gums and loose teeth
- Easy bruising
- Anaemia and poor wound healing

Purpura is evident around the hair follicles as illustrated in this case. With worsening disease, bleeding from the gums and the skin may develop. Teeth may also loosen. Hairs become flattened and kinked, giving the characteristic finding illustrated – so called corkscrew hairs. Closer examination of hairs shows that the deformity is brought about by many kinks along their length. The firm, woody oedema around the ankles reflects chronic disease.

The skin manifestations first appear on the lower limbs due to dependency, spreading to upper limb and trunk is also common. Treatment is 1g of ascorbic acid per day and response is usually dramatic. Six weeks of treatment should replenish depleted vitamin stores. A diet including regular fruit and vegetables is all that is needed for maintenance.

Scurvy is widely felt to be an under-recognised condition. One needs a high level of suspicion, especially in elderly males living alone. GPs, practice nurses and public health nurses need to keep in mind the features that readily suggest the diagnosis of this common and easily treated condition.

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