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The Cutaneous Signs of Eating Disorders

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Anorexia nervosa and bulimia nervosa are common yet occult eating disorders which each affect between 1 and 2% of young adult women in the UK (1). Cutaneous signs may provide valuable clues allowing earlier diagnosis. Eating disorders may both imitate (Table I) and complicate other medical illnesses, resulting in unnecessary and expensive investigations. Organic diseases that may be complicated by eating disorders are Crohn's disease (2), diabetes mellitus (3, 4) and human immune deficiency virus disease (5). The concurrence of an additional eating disorder will destabilise the primary medical condition. In anorexia nervosa the mortality rate has been found to be between 15 and 18% (6, 7). Early diagnosis and treatment are essential to reduce the morbidity and mortality of these concealed conditions. This report describes a patient who exhibited excoriations and scars over the dorsum of her hands, leg ulceration and loss of teeth as cutaneous signs of an eating disorder.

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CASE REPORT

A 44-year-old female nursing sister was admitted with a 4-month history of increasingly severe deafness and weight loss of 9 kg. Her weight was 30 kg on admission, with a body mass index of 12.7 kg/(m)^2 (healthy range 20–25 kg/(m)^2). Over the previous 4 years she had noticed intermittent and slight episodes of deafness and developed tinnitus a week prior to admission. She had developed atypical pyoderma gangrenosum 6 years earlier, with multiple oval ulcers which persistently affected both legs. Histopathology showed non-specific inflammatory changes and no evidence of dermatitis artefacta. Occasionally the patient had episodes of diarrhoea and abdominal pain but assessment for inflammatory bowel disease was repeatedly negative. Audiological tests showed severe bilateral sensory-neural deafness which was later found to be due to drug toxicity from abuse of coproxamol (32.5 mg dextropropoxyphene hydrochloride with 32.5 mg paracetamol-Dista products Ltd) (8).

A family member had witnessed the patient induce vomiting on one occasion several years before. Nursing observation confirmed secret self-induced vomiting and laxative purgation whilst on the ward. She had had most of her teeth removed 20 years earlier because of severe dental enamel erosion, probably a result of self-induced vomiting. Her residual teeth had severe caries and there were scars over the knuckles of her right hand from using her fingers to stimulate the gag reflex and vomit. Twenty years earlier she had perceived herself as overweight, dieted, and subsequently remained thin. The patient agreed to intervention for her anorexia nervosa and gained 10 kg in weight whilst an inpatient in an eating disorder unit. Her skin ulcers rapidly improved and healed during weight gain. Unfortunately, she recently attempted suicide because of depression related to her eating disorder and severe deafness.

DISCUSSION

This patient had chronic undiagnosed anorexia nervosa. She exhibited unusually severe dental disease for a woman of her age. It is likely that her leg ulcers were due to poor nutrition as a result of the eating disorder and were not pyoderma gangrenosum. Her poor outcome is in part attributable to a late age of onset of anorexia and long duration of illness (6).

The cutaneous signs of eating disorders have been classified by Gupta et al. (10) into four groups, the first being those occurring as the result of *disordered diet, malnutrition or starvation.* The mechanism for increased lanugo body hair is not known. Dry scaly skin, brittle hair and nails may occur with or without hypothyroidism. Vitamin deficiency states are not common but pellagra (11, 12) and scurvy (13) have both been described as a result of starvation in anorexia nervosa. Hypercarotinaemia occurs and the mechanism is an increased intake of low calorie vegetables containing carotene, possibly with an acquired defect of carotene metabolism. Petechiae have been described in patients with anorexia nervosa (14, 15) as a result of bone marrow depression from starvation and subsequent thrombocytopenia.

The second group of signs occur as a *consequence of vomiting*. In the original description of bulimia nervosa by Russell, lesions on the dorsum of the hand were reported (9). These result from inserting the fingers deeply into the throat to stimulate the gag reflex in self-induced vomiting. The signs vary from acute abrasions and excoriations to callosities from repeated trauma of the incisors on the skin. The sites affected are the proximal dorsum of the hand, the metacarpophalangeal or proximal interphalangeal joints of usually the first two fingers (16–18). The signs may be bilateral and are not present in all patients with bulimia nervosa as some use implements to vomit, such as a toothbrush, and others are able to induce vomiting at will (9). Another important sign demonstrable in a large number of patients is dental enamel erosion resulting from acidic gastric juices (19). Early age of onset of severe dental caries should prompt consideration of possible eating disorder. Parotitis may occur bilaterally and is painless (20). There may be co-existing

Table I. *A list of medical conditions that eating disorders may mimic because of their similar physical signs*

Condition	Sign shared by eating disorder
Malignancy	Weight loss
Inflammatory bowel disease	Chronic diarrhoea
Sarcoid, Sjogren's syndrome	Parotitis
Thrombocytopenia	Purpura
Connective tissue/ neurological	Myopathy, neuropathy
Hypogonadism	Amenorrhoea, loss of libido, impotence
Hyperaldosteronism	(pseudo)oedema
Hypothyroidism	Dry, scaly skin, brittle hair and nails. Hypercholesterolemia.

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raised serum amylase or its salivary iso-enzyme in bulimic patients (21). Sub-conjunctival haemorrhage or facial purpura from increased intrathoracic pressure while vomiting may occasionally occur (22).

A third group of signs are due to *laxative or diuretic abuse*. Fixed drug eruption may occur as a result of laxative abuse (23) as can finger clubbing (24, 25). Abuse of thiazide diuretics induces photosensitivity. We have recently seen a patient with anorexia nervosa develop urticaria from ingesting large quantities of phenopthalein laxatives.

Psychocutaneous associations are the fourth group of signs. These include self-inflicted trauma to the skin as the patient tries to cope with an eating disorder. Anorexia nervosa may occur in 5% of patients with dermatitis artefacta. Irritant hand dermatitis may be a manifestation of obsessive compulsive symptoms with underlying eating disorder.

Patients with eating disorders are at risk of medical complications from their actions as well as depression and suicide. Serious morbidity is common in the long term, as half the patients have required psychiatric therapy for the eating disorder or other psychiatric conditions (6). Patients can recover with therapy, so it is important to identify the patient with an eating disorder as early as possible.

In summary, the range of cutaneous conditions associated with eating disorders is wide and clinicians should be aware of them. In particular parotitis, premature dental erosions, abrasions or calluses on the dorsum of the hand, and fixed or photosensitivity drug eruptions should prompt consideration of possible eating disorder. Dermatologists are well placed to help in the recognition of these illnesses.

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