The impact of eating disorders on oral health

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Approximately 1.25 million people get diagnosed and enter inpatient treatment for eating disorders in the UK. Of those people, 89% are female.

Figures published by the Health and Care Information Centre showed a national rise of 8% in the number of inpatient hospital admissions in the 12 months prior to October 2013. The average treatment cycle lasts six years with an average relapse rate ranging from 9% to 65%.

Eating disorders are one of the leading causes of mental health related deaths (4% to 20%). They carry an overall cost of £15 billion per annum to healthcare services.

The dental team has a vital role in the management of eating disorders. This is due to the strong link with poor oral health, particularly erosive tooth wear. Therefore, it is paramount that dental professionals have an understanding of eating disorders and their manifestations. They should be aware of any abnormal behavioural or psychological changes in their patients designed to avoid food.

Anorexia nervosa

The World Health Organization (WHO) defines anorexia as a disorder characterised by deliberate weight loss, through an aversion to food, induced and sustained by the patient.

An altered body image drives anorexia. You can make a diagnosis when an individual presents with less than 85% of their target weight. There are two clinical subtypes:

- A restrictive type: you associate this with a specific psychopathology. Already thin patients impose a low weight threshold on themselves, resulting in under nutrition of varying severities
- Binge and purge type: when the person regularly engages in binge eating followed by purging aided by laxatives, self-induced vomiting or strenuous exercise.

The average prevalence of anorexia nervosa is 0.3% and incidence of new cases to be eight per 100,000 per year.

The average onset of anorexia nervosa is 16-17 years of age. Diagnosis of females is 10 times more common than males.

Bulimia nervosa

The WHO defines bulimia nervosa as a syndrome characterised by repeated bouts of overeating, followed by vomiting or use of purgatives.

You can make a diagnosis when this occurs more than twice a week for at least three months.

Body weight may be within or greater than normal limits; if this drops then anorexia becomes a part of the condition.

The average prevalence of bulimia nervosa is 1% and incidence of new cases to be 12 per 100,000 per year. The average onset of bulimia nervosa in a WHO mental health survey was 20.6 years.

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	Signs that someone may have anorexia nervosa	Signs that someone may have bulimia nervosa
Behavioral cues	Missing meals, avoiding fatty foods, eating small amounts	Obsessive calorie counting
	Difficulty concentrating	Taking appetite suppressants, laxatives and diuretics
	Leaving the table immediatly after a meal to vomit – brillle nails	Repeatedly weighing themselves or checking their body in a mirror
	Excessive exercise	Physical problems – fatigue, dizziness, hair loss, dehydration, absence of menstruation and constipation
	Osteoporosis	Obsessive attitude towards food/ eating
	Overcritical attitude to their weight and shape	Habitually going to the bathroom after eating where the person appears flushed – may have calluses on their knuckles (from forcing fingers down their throat to bring on vomiting)
	Physical problems – fainting, dehydration, muscle cramps, absence of menstration, abnormal bowel functioning, irregular heart beat	
Psychological cues	Obsessive attitude towards food and eating	Unrealistic opinions about body weight and shape
	Depression	Low self-esteem
	Anxiety	Social isolation

Table 1: Eating disorder behavioural and psychological cues

Oro-dental effects of eating disorders

Erosion

A definition of dental erosion is: 'The irreversible loss of dental hard tissue by a chemical process not involving bacteria.'

Extrinsic acids include fruit juices and carbonated drinks, while intrinsic acids include those from gastro-oesophageal reflux disease and self-vomiting.

Patients with an eating disorder commonly present with dental erosion and those who self-induce vomiting are 5.5 times more likely to experience dental erosion than healthy patients.

The pH of gastric acid is 2.9. This is below the critical pH of 5.5 required to dissolve enamel.

Erosive lesions are predominantly found on palatal surfaces of upper anterior incisors (46%). Following this are occlusal surfaces of the lower molars (36.6%) and buccal surfaces (21.8%).

Patients with an eating disorder consume high quantities of low-pH beverages, such as herbal teas, soft drinks and apple cider vinegar.

Acidic sports drinks are frequently consumed during strenuous periods of exercise and carbonated drinks are consumed to decrease the reflex stimulus for hunger. Diarrhoea is induced with high amounts of fresh fruit.

Tips and advice for patients

- Reduce intake of acidic drinks
- Reduce intake of citrus fruits
- Avoid alcohol
- After self-induced vomiting, chew sugarfree gum or rinse with water, milk or antacid preparation. Avoid brushing teeth
- Check the patient's medication is not contributing xerostomia
- Prescribe artificial saliva for xerostomia (AS Saliva Orthana spray, Ccmed; Salivix pastilles, Galen).

Caries

The extent of the effect of caries affecting individuals with eating disorders remains unclear. Some studies state vomiting may have an effect on the risk of caries both directly and due to having a reduced salivary flow rate.

During periods of bingeing, bulimics will often consume foods they usually deny themselves – such as foods high in carbohydrates and sugar. This nourishes cariogenic microbes, thus initiating the carious activity.

Studies show not all bulimics display a higher number of decayed, missing, and filled teeth (DMFT) than controls suggest.

Although bulimics have a higher level of S mutans, they are unable to metabolise below pH4.2. Vomiting creates a low pH, which creates a lower caries incidence.

Saliva

Saliva plays a fundamental role in the maintenance of oral health through lubricating and neutralising intraoral acids. A reduced salivary rate is usually from vomiting, xerostomia due to taking antidepressants, and dehydration from excessive exercise.

It is important to gain a thorough medical history prior to treating a patient with an eating disorder. Therefore, you can establish reasons behind a diagnosis and incorporate this into the patient's prevention and treatment plan.

Individuals with a salivary flow rate of <1ml/min are five times more likely to develop dental erosions than those with high flow rates.

Salivary flow can elevate pH due to an increased concentration of bicarbonate and improved neuralising effect, thus acting as a diffusion barrier against acid erosion.

Parotid enlargement

Although commonly associated with self-induced vomiting, the precise cause of sialadenosis remains unclear.

The prevalence of a patient with an eating disorder who has an enlarged parotid gland range from 0 to 80% and the onset of swelling usually follows a binge purge episode by two to six days.

It is important to note that vomiting behaviour can still be present even if the salivary glands are not enlarged.

Soft tissue lesion

It is widely accepted that any underlying systemic disease may manifest in oral tissues prior to becoming evident systemically.

Nutritional deficiencies can often result in candidiasis, angular cheilitis, glossitis and oral mucosal ulceration.

Trauma to the mucosa of the pharynx and soft palate arises as a result of inserting foreign objects into the oral cavity to induce vomiting.

Dental management

As healthcare professionals, we should be non-judgmental and empathetic when managing, educating and counselling patients. Many patients may feel embarrassed to admit they have an eating disorder and not ready to admit to self-induced vomiting.

Unexplained weight loss, gynaecological problems, lethargy and fatigue represent signs of a possible eating disorder.

You can monitor tooth wear using study casts and photographs. Pain relief, improved appearance and reduced sensitivity are some of the ways that dentists may motivate the patient to abstain from self-induced vomiting.

Toothbrushing after vomiting is inadvisable as a demineralised surface is susceptible to abrasion from the toothbrush.

Currently, there is no contraindication to restore the patient's eroded dentition while their vomiting is not under control.

Composite restorations are not acid soluble. You should make the patient aware that if purging does continue, dissolution of tooth surfaces around the restoration would occur.

Antidepressants can influence a patient's salivary flow rate, so liaising with the patient's medical practitioners is imperative.

Severe cases of anorexia nervosa and bulimia nervosa involve nutritional provision and psychotherapy inpatient treatment. Less severe cases encompass outpatient psychotherapy and medical monitoring.

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