Orofacial manifestations of gastrointestinal disorders

Gastrointestinal disorders are common and occasionally extraintestinal manifestations can involve both the oral and facial tissues. This article describes the orofacial manifestations of selected gastrointestinal diseases and outlines their management.

Patients with oral problems present in both the primary and secondary medical care environment. It is important to appreciate that oral symptoms and signs might be associated with disease in the alimentary tract as this could affect the management of the oral condition. Physicians involved in management of gastrointestinal disorders should take a thorough history and examine the oral cavity as oral disease may have a significant impact on eating, talking, appearance and overall quality of life. Some oral manifestations have characteristic appearances and are strongly associated with a particular gastrointestinal disease, for example Crohn's disease, but other oral lesions including oral ulceration and angular cheilitis can be caused by malabsorption or systemic therapy.

Recognizing oral manifestations may help select appropriate investigations to diagnose gastrointestinal disease. The occurrence of oral lesions in known patients with inflammatory bowel disease may not be associated with flares of the intestinal disease (Hussey et al, 2011). The correct diagnosis of orofacial lesions is important to target management. Oral medicine physicians play an important role in managing the oral manifestations of these disorders which often require close collaboration with the gastroenterology team and in some centres joint clinics have been established.

Inflammatory bowel disease

Between 25 and 40% of patients with inflammatory bowel disease develop extraintestinal manifestations (Levine and Burakoff, 2011). Although the most common extraintestinal manifestations of inflammatory bowel disease are described as musculoskeletal (up to 50%), dermatological (2–34%), hepatopancreatobiliary and ocular (up to 5%) disorders, the prevalence of oral lesions was found to be 48% in patients with Crohn's disease (Pittock et al, 2001) and 20% in those with ulcerative colitis (Elahi et al, 2012). Oral manifestations are more common in Crohn's disease than in ulcerative colitis and more prevalent in children than in adults (Lankarani et al, 2013). Similar to other extraintestinal manifestations oral lesions respond to therapy and may resolve (Hussey et al, 2011).

Crohn's disease

Orofacial manifestations of Crohn's disease are often clinically and histologically indistinguishable from orofacial granulomatosis, a rare chronic inflammatory disease of unknown aetiology. Sanderson et al (2005) found that up to 60% of patients with orofacial granulomatosis without gut symptoms had intestinal granulomatous inflammation found on colonoscopy, with the majority of these patients remaining asymptomatic after many years of follow up (Campbell et al, 2011). It remains unclear whether orofacial granulomatosis is a separate disease or a subgroup of Crohn's disease with asymptomatic gut involvement.

Orofacial manifestations of Crohn's disease (*Table 1*) may precede intestinal disease. A retrospective study of 40 patients with oral Crohn's disease found that 42% had orofacial lesions 1–39 years before they were diagnosed as having Crohn's disease, and 50% developed oral manifestations 1–45 years after the gut disease (Campbell et al, 2011).

Crohn's disease can have different oral manifestations and not all of them need to be present to make the diagnosis. However, usually patients have more than one lesion.

One of the most obvious and common presentation of oral Crohn's disease is extraoral swelling. It may affect 67–83% of patients with oral Crohn's disease (Campbell et al, 2011; Gale et al, 2014). Most commonly it involves the lips (*Figure 1*), but may extend periorally and involve other parts of face. The lip swelling can be diffuse and symmetrical or localized. It may vary from mild to very severe causing obvious facial disfigurement, which can affect both confidence and quality of life. More commonly it involves only one lip (58%), but often affects both lips (42%) (Campbell et al, 2011). The prevalence of upper and lower lip involvement is similar (Campbell et al, 2011). A Swedish cohort showed a high prevalence of facial swelling (92%) (Gale et al, 2014). Although UK

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data of facial swelling associated with Crohn's disease are lacking, noticeable facial swelling other than lip swelling is not commonly seen. Extraoral swelling can be recurrent or persistent and it may fluctuate in size. Discomfort of the swollen tissue and stretched skin is often reported. It may be associated with angular chelitis (*Figure 2*) (67%), which can be uni- or bilateral, and fissured lips (*Figure 1*) (33%) (Howell et al, 2012), which further affects facial aesthetics and can be painful.

Oral ulceration (*Figure 3*) is the other most common clinical feature of oral Crohn's disease affecting up to 87% of individuals (Howell et al, 2012). Size, shape, average number and duration of oral ulcers can vary significantly. Often the ulcers are painful (Howell et al, 2012) and can affect eating, talking and daily oral hygiene. Clinicians should appreciate that oral ulceration, although often not easily noticeable without oral examination, can have a significant adverse effect on the patient's quality of life and may lead to missed school days in children and sickness absence in adults.

Granulomatous swelling in the oral cavity sometimes may be similar to swelling of the colon and cause a 'cobblestone' appearance of the buccal mucosa (*Figure 4*). It usually is symmetrical, but not always. Mucosal tags (*Figure 5*) are not uncommon (Howell et al, 2012; Gale

Table 1. Orofacial lesions associated with Crohn's disease

Orofacial lesion	Features	Comments
Lip or facial swelling	Common Diffuse or localized Upper lip, lower lip or both Mild to severe	Most commonly affected site in orofacial granulomatosis (91%)*. Lip swelling present in 67–83% of patients with oral Crohn's disease†‡. 52% one lip involved, 42% both lips involved*. Incidence of upper and lower lip involvement is similar*
Oral ulceration	Common Aphthous-like ulcers Linear ulcers Various size	Most common feature of oral Crohn's disease (87%)†. Usually painful
Mucosal tags	Pink, localized mucosal swellings, usually painless	Seen in 53–75% of cases of oral Crohn's disease ‡‡
Cobblestoning	Common On buccal mucosa Usually bilateral Ill-defined, sessile swellings ('basket of eggs' appearance)	Seen in 42–80% of cases of oral Crohn's disease ‡‡
Gingivitis	Diffuse segmental erythematous swelling of gingiva, can be painless	Seen in 53–64% of cases of oral Crohn's disease†*
Angular cheilitis	Unilateral or bilateral inflammation, erythema, fissuration of corners of mouth	Seen in 67% of cases of oral Crohn's disease †
'Staghorn' appearance	On the floor of the mouth, firm swelling surrounding the submandibular duct opening	Seen in 10% of cases of oral Crohn's disease*

* Campbell et al (2011) †Howell et al (2012) ‡ Gale et al (2014)

Figure 1. Lip swelling in oral Crohn's disease with vertical lip fissures seen in upper lip.

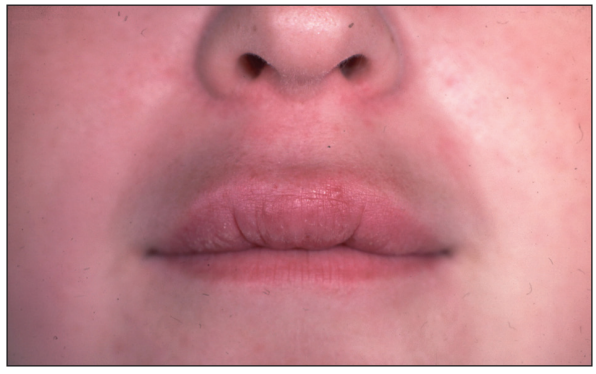


Figure 2. Bilateral angular cheilitis in oral Crohn's disease.

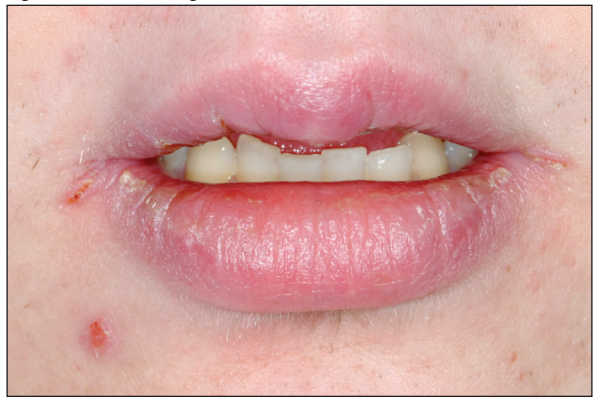


Figure 3. Oral ulcers in oral Crohn's disease.

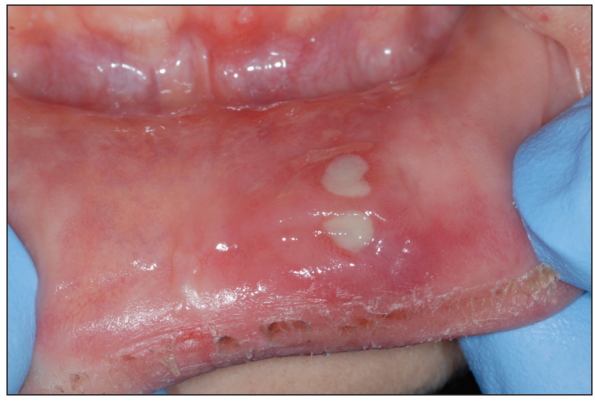
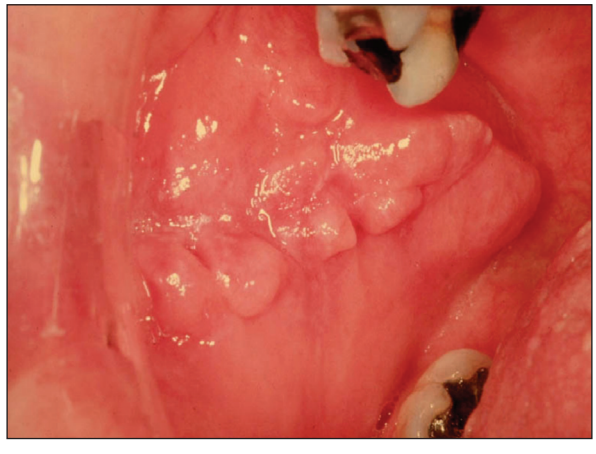


Figure 4. Cobblestoning buccal mucosa.



et al, 2014) and can be found in various sites. They look like small, pink, localized swellings and often are asymptomatic. Occasionally a firm swelling on the anterior part of the floor of the mouth can be observed (*Figure 6*) around the sublingual and submandibular gland duct openings, which gives a 'staghorn' appearance (Campbell et al, 2011). The gingiva can become erythematous and swollen (53–64%) (Campbell et al, 2011; Howell et al, 2012). This can affect the whole gingiva (*Figure 7*) or only a part of it.

Sometimes oral lesions are biopsied for diagnostic purposes and the classical histopathological finding is the presence of non-caseating granulomas. Interestingly, in patients with oral Crohn's disease granulomas are more often found in oral specimens than those taken from gastrointestinal tissues (Pittock et al, 2001).

Ulcerative colitis

Although the oral manifestations of ulcerative colitis are not uncommon, there are no oral lesions specific to ulcerative colitis. Patients with ulcerative colitis can suffer from recurrent oral ulceration, glossitis, angular cheilitis, and they may report more dryness, halitosis and possibly dysgeusia when compared to healthy controls (Katz et al, 2003; Elahi et al, 2012). These lesions and symptoms could be secondary to haematinic deficiency or medications. Pyostomatitis vegetans is a very rare chronic mucocutaneous disorder that can be found in both Crohn's disease and ulcerative colitis, but it is more common in the latter.

Pyostomatitis vegetans lesions consist of multiple small whitish or yellowish pustules on an oedematous and erythematous background (*Figure 8*). The pustules can rupture and form superficial irregular ulcers. In the oral cavity these are most frequently seen on the vestibular gingivae, labial and buccal mucosa. However, they can involve any part of the oral cavity (Lankarani et al, 2013). Pyostomatitis vegetans is seen more frequently in males than in females and more commonly affects young to middle-aged adults (Ruiz-Roca et al, 2005). Patients may experience severe oral discomfort and cervical lymphadenopathy, but pyostomatitis vegetans can also be almost painless (Femiano et al, 2009).

Oral ulceration seen in ulcerative colitis can resemble aphthous stomatitis. Ulcers are commonly round or an ovoid shape and their size may vary from less than a millimetre to a few millimetres in diameter. They often look white as a result of the fibrinous surface and are surrounded by erythema. These ulcers can be very painful and cause significant discomfort. Ulceration usually heals within a couple of weeks, but new ulcers can appear and the patient may have prolonged periods of ulceration as a result of recurrent crops.

Coeliac disease

Although coeliac disease or gluten-sensitive enteropathy is one of the most common chronic gastrointestinal disorders in the world, it is often unrecognized and thus under-diagnosed (National Institute for Health and Care

Figure 5. Mucosal tags in buccal sulcus.

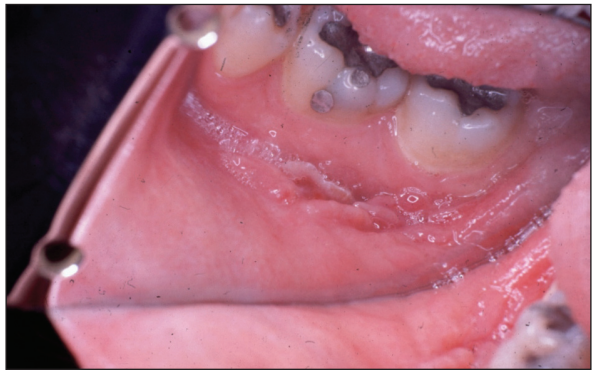


Figure 6. 'Staghorn' appearance of sublingual folds.

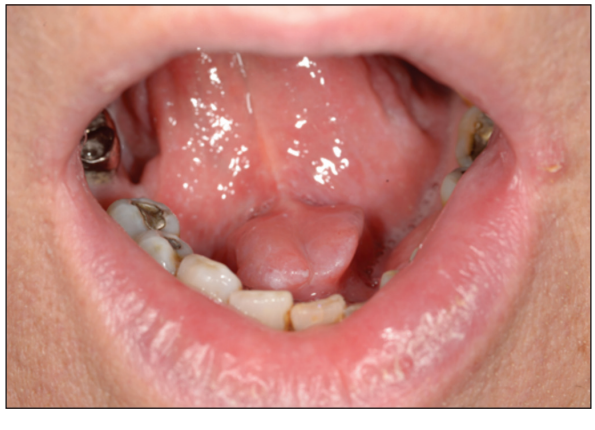


Figure 7. Gingival involvement in oral Crohn's disease.

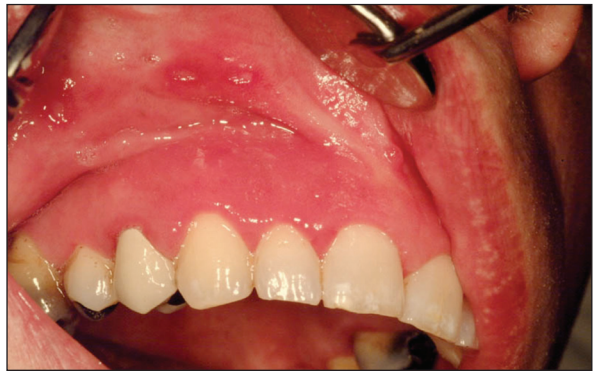
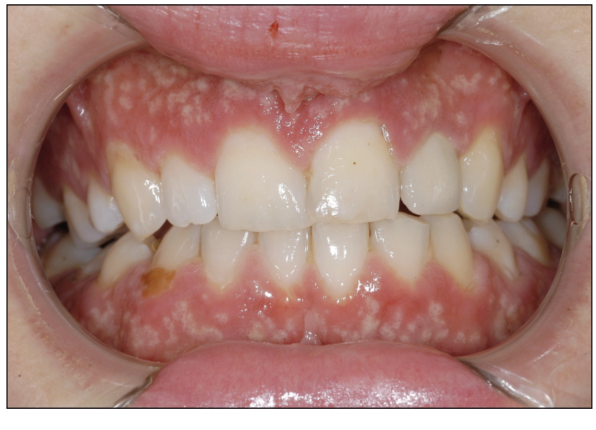


Figure 8. Pyostomatitis vegetans affecting anterior labial gingivae.



Excellence, 2009). Oral manifestations of coeliac disease can be seen affecting both the teeth and oral mucosa (Cheng et al, 2010). Dental lesions are not specific to coeliac disease, but are caused by the effect on the developing dentition.

Malabsorption can cause hypocalcaemia and may affect enamel formation of developing yet unerupted teeth causing enamel hypoplasia. Enamel hypoplasia may vary clinically from discoloured spots on the tooth surface that cannot be polished off to an uneven tooth surface with pits and grooves. In most severe cases the enamel can be completely lost. This is usually seen in the permanent teeth as the crowns of the permanent teeth develop between the early months of life and the seventh year. The crowns of deciduous or milk teeth develop mainly in utero (Rashid et al, 2011). Enamel defects are permanent and cannot resolve even when the intestinal disorder improves with a gluten-free diet.

The most common soft tissue lesions reported in coeliac disease are recurrent oral ulcers and angular cheilitis. Recurrent oral ulcers were reported by 16% of children and 26% of adults with histologically-proven coeliac disease in a large survey in Canada (Cranney et al, 2007). Ulcers are aphthous-like and might be related to haematinic deficiency secondary to malabsorption (Rashid et al, 2011).

Dermatitis herpetiformis is a chronic autoimmune vesiculobullous skin disease strongly associated with underlying coeliac disease. Up to 70% of patients with cutaneous dermatitis herpetiformis can also have oral lesions presenting as ulceration (Lahteenoja et al, 1998).

Management of oral ulceration in patients with gastrointestinal disease before referral to an oral medicine clinic

Oral ulcers can cause severe oral discomfort. The aim of medications is to improve the symptoms, and reduce the size, number and healing time of the ulcers as it is not always possible to achieve complete ulcer resolution. Benzydamine hydrochloride 0.15% mouth rinse or spray can be used for symptomatic relief secondary to anti-inflammatory and analgesic properties. Although there is no statistically significant effect upon the size, number and pain of oral ulcers, many patients find it provides effective but short acting pain relief (Elad et al, 2011). Chlorhexidine digluconate 0.2% mouth rinse can be used for its antimicrobial properties, but it can cause extrinsic dental staining with prolonged use. This can be polished off later by a dental hygienist. Topical corticosteroids are frequently used. There are no potent topical corticosteroid preparations presently licensed for oral mucosal disease management. Betamethasone 0.5 mg tablets can be dissolved in 15 ml of water and used as a mouth rinse (*Table 2*).

If these simple measures do not improve oral disease the patient should be referred to an oral medicine clinic.

Conclusions

Extraintestinal manifestations of gastrointestinal disease can affect the orofacial region. Some oral lesions are specific to the underlying bowel disorder, e.g. cobblestoning and mucosal tags in Crohn's disease, but others, such as oral ulceration and angular cheilitis, can be caused by underlying anaemia or drug therapy.

Physicians should examine carefully for oral lesions as they can cause severe discomfort and affect the patient's quality of life. If orofacial lesions do not resolve rapidly with simple measures, a referral to a local oral medicine unit should be considered. Oral medicine physicians play an important role in managing the oral manifestations of these disorders, liaising with gastroenterologists to ensure high quality patient care. BJHM

Conflict of interest: none.

Table 2. Management of orofacial lesions

Angular cheilitis	Miconazole oral gel 24 mg/ml – apply sparingly on the affected area four times a day for up to 2 weeks	Miconazole oral gel Combined topical corticosteroid and antimicrobial Fucidin
Lip fissure	Miconazole oral gel 24 mg/ml – apply on the affected area four times a day for 1–2 weeks Regular moisturiser Combined topical corticosteroid and antimicrobial preparation	Miconazole oral gel Combined topical corticosteroid and antimicrobial Fucidin ointment 2% apply sparingly to lesion four times daily
Oral ulceration	Chlorhexidine alcohol-free mouth wash – 10 ml once daily Benzydamine hydrochloride 0.15% mouth wash or spray – as required for pain relief Betamethasone 0.5 mg tablets dissolved as a mouth rinse up to four times a day (one 0.5 mg soluble tablet to be dissolved in 10 ml of water and to hold in the mouth for 3–5 minutes before fully expectorating. Patient should avoid rinsing mouth, eating or drinking for 30 minutes afterwards.)	Betamethasone mouth rinse Fluticasone propionate mouth rinse or spray Fluticasone propionate or clobetasol propionate ointment Systemic corticosteroids Systemic immunosuppression: azathioprine, mycophenolate mofetil Thalidomide
Lip swelling	Moisturiser Advise about benzoate- and cinnamon-free diet	Intralesional corticosteroids Systemic immunosuppression: azathioprine Thalidomide

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KEY POINTS

- Extraintestinal manifestations of gastrointestinal disease can involve both the face and oral cavity.
- Orofacial lesions can cause severe discomfort, affect aesthetics and have an effect on quality of life.
- Some lesions such as oral ulcers, angular cheilitis and glossitis are commonly seen in patients with gut disorders, but are not disease specific.
- Oral lesions characteristic for oral Crohn's disease are cobblestoning, mucosal tags and lip swelling.
- Dental defects in coeliac disease are permanent and do not resolve with a gluten-free diet.
- If oral lesions do not improve with simple measures, the patient should be referred for oral medicine input.