

Making sense of mouth ulceration: part four

Crispian Scully¹

Bacterial infections

The clinical appearance of an oral ulcer on its own is rarely diagnostic. Any ulceration, particularly if single and/or persistent or with other orofacial or extraoral lesions, may be suspect.

In the light of multiple causes, some systematic way of dealing with ulceration is needed, such as my system of splitting causes into:

- Systemic
- Malignancy
- Local
- Aphthae
- Drugs.

This article discusses the second of the systemic causes – infections.

The main bacterial infections that may present with mouth ulceration include acute necrotising gingivitis, syphilis and tuberculosis.

Acute necrotising gingivitis

Acute necrotising (ulcerative) gingivitis (ANUG) is an uncommon, non-contagious anaerobic gingival infection associated with overwhelming proliferation of *Borrelia vincentii* and fusiform bacteria.

Typically, it affects adolescents and young adults, especially in institutions, the armed forces, etc, or people with HIV/AIDS.

Predisposing factors include:

- Smoking
- Viral respiratory infections
- Malnutrition
- Immune defects, such as in HIV/AIDS.

Characteristic features include:

- Severe gingival ulceration primarily of the interdental papillae (Figure 1), and soreness

- Profuse bleeding
- Halitosis
- Bad taste.

Cancrum oris (noma) is a rare complication, usually seen in debilitated children in resource-poor areas.

Diagnosis is clinical from features. Differentiate from acute leukaemia or herpetic stomatitis. Think HIV.

Management is by oral debridement, metronidazole (penicillin, if pregnant) and oral hygiene.

Professor Crispian Scully
CBE FMedSci DSc FDS MD
Professor emeritus at UCL,
London, King James IV
professorship at the
Royal College of Surgeons,
Edinburgh, Harley Street
Diagnostic Centre,
16 Devonshire Street and
19 Wimpole Street, London.



Figure 1: Acute necrotising ulcerative gingivitis (ANUG).



Figure 2: Syphilis.

Syphilis

Syphilis is a chronic bacterial infection caused by *Treponema pallidum*, which is spread sexually.

Primary syphilis may present as a single ulcer – typically in a sexually active adult in the anogenital region but sometimes on the lip, palate or tongue (Figure 2).

Secondary syphilis may present with multiple sore oral ulcers (Figure 3), a rash on the palms and soles, and lymphadenopathy.

The threshold for suspicion should be high as there is currently an explosion of the infection, especially in men who have sex with men.

Diagnosis is confirmed by serology, and managed with antibiotics, including those for sexually shared infections (SSIs), prescribed by specialists.

Tuberculosis

Tuberculosis (TB) is a chronic bacterial infection caused by *Mycobacterium tuberculosis*, and is contagious – usually airborne – causing pulmonary TB.

TB is a major health issue; one third of the world's population is currently infected with TB. In the UK, it is seen mainly in London.

TB is increasing:

- Each year by 10%
- With HIV/AIDS
- With immunosuppressive therapy
- In some migrant populations.

Immune defects that predispose to TB include:

- HIV/AIDS
- Biological agents (eg, anti-tumour necrosis factor alpha agents)
- Idiopathic CD4 T-lymphocytopenia (ICL)
- Interferon (IFN) defects:
 - Interferon-gamma mutations
 - Interferon-gamma receptor (IFNGR)/IL-12 deficiency
 - Neutralising anti-interferon- γ autoantibodies in Asian adults with multiple opportunistic infections and associated immunodeficiency.

TB manifests with fever and night sweats, a persistent cough, weight loss and blood in sputum (haemoptysis).

Orofacial lesions may be:

- Ulceration
- Swelling
- Lymphadenopathy
- Others.

TB and MOTT (mycobacteria other than TB) may cause cervical lymph node involvement, and may lead to scrofula (cold abscesses).

Diagnosis of TB is by imaging, microbial studies and biopsy.

TB can also be latent (individual has been exposed to TB and may develop infection later in life) and not seen on imaging, and thus other testing may need to include the Mantoux test or interferon-gamma release assay (IGRA).



Figure 3: Syphilis

Mantoux test

With the Mantoux test:

- Purified protein derivative (PPD) tuberculin is injected into the forearm skin
- In latent TB infection, a hard, red bump will develop at the site, usually within 48 to 72 hours
- If no latent infection, the skin will not react. However, the patient may need to be screened again within a year
- If vaccinated against *Bacillus Calmette-Guérin* (BCG), there may be mild skin reaction.

Interferon-gamma release assay

With interferon-gamma release assay (IGRA):

- Patients primed T-cells release IFN when exposed to TB antigen
- Detects active and latent TB but cannot differentiate
- Negative after BCG
- IGRA may be used to help diagnose latent TB in:
 - A positive Mantoux test
 - TB screening
 - Preparation for immunosuppressive treatment
 - Healthcare workers.

'One third of the world's population is currently infected with tuberculosis (TB)'

TB is treated using a six-month course of antibiotics. Usual first line antibiotic treatment is with:

- Two antibiotics – isoniazid and rifampicin – every day for six months
- Two additional antibiotics – pyrazinamide and ethambutol – every day for the first two months.

The patient must have three consecutive negative sputum cultures in order to be considered cured.

Resistance is said to occur when the patient fails to respond to one of the four main antibiotics usually used. TB is increasingly multi-drug-resistant and there are now:

- Drug-resistant strains (DR-TB)
- Multi-drug-resistant strains (MDR-TB)
- Extensively drug-resistant strains (XDR-TB). This is MDR plus resistance to two other antibiotic groups: to one or more fluoroquinolone (eg, moxifloxacin), and to one or more of the injectable second-line anti-TB drugs (eg, amikacin, capreomycin or kanamycin).

In some areas, such as much of sub-Saharan Africa, HIV/AIDS is rife and frequently accompanied by MDR-TB.

Bedaquiline – a new anti-tubercular agent – became available in 2012.

References

- Gandolfo S, Scully C, Carrozzo M (2006) Oral medicine. Elsevier Churchill Livingstone (Edinburgh and London). ISBN 13: 29780443100376
- Scully C, Almeida ODP, Bagan J, Diz PD, Mosqueda A (2010) Oral medicine and pathology at a glance. Wiley-Blackwell (Oxford) ISBN 978-1-4051-9985-8
- Scully C, Flint S, Bagan JV, Porter SR, Moos K (2010) Oral and maxillofacial diseases. Informa Healthcare (London and New York). ISBN-13: 9780415414944
- Scully C, Bagan JV, Carrozzo M, Flaitz C, Gandolfo S (2012) Pocketbook of oral disease. Elsevier, London. ISBN 978-0-702-04649-0
- Scully C (2013) Oral and maxillofacial medicine. 3rd edition. Churchill Livingstone (Edinburgh). ISBN 9780702049484
- Scully C (2012) Aide memoires in oral diagnosis: mnemonics and acronyms (the Scully system). Journal of Investigative and Clinical Dentistry 3(4): 262-3
- Scully C (2013) RULE for cancer diagnosis. British Dental Journal 215: 265-6

Disclosure

This series offers a brief synopsis of the diagnosis and management of mouth ulceration – a complex topic that includes common disorders, and less common but life-threatening conditions. It does not purport to be comprehensive, and the series may include some illustrations from books written or co-

authored by the author and colleagues from UK and overseas, published by Elsevier-Churchill Livingstone, Wiley-Blackwell, or Informa/Taylor & Francis – all of whose cooperation is acknowledged and appreciated.

Reprinted with permission by Private Dentistry April 2014