

FOR OTHER HEALTH PROFESSIONALS

# Periodontal diseases: relationship with systemic diseases, assessment and referral for management

## Objectives

The aim of this fact sheet is to provide non-dental professionals with an understanding of periodontal (gum) diseases, to include:

- their background;
- the gingiva (the gums), in health and disease;
- the relationship between periodontal diseases and systemic diseases;
- the assessment and identification of periodontal diseases for appropriate referral or management.

## Background

Periodontal disease is one of two serious oral diseases that represent a global health burden, as considered by the World Health Organization (WHO), the other being dental caries.<sup>1</sup> The reported global prevalence of periodontal diseases is greater than 50% of the population, with gingivitis being extremely prevalent (the majority of the population), and the most severe forms of periodontitis (resulting in early tooth loss) affecting around 19% of the adult population globally, accounting for more than one billion cases worldwide.<sup>1</sup>

Periodontal diseases are a group of inflammatory conditions of the gingiva, alveolar bone (the ridge of bone that supports the tooth sockets in the upper and lower jaws, cementum (the outer layer on the root surface of the tooth) and the periodontal ligament<sup>2</sup> (the collagen fibres which connect the teeth to the alveolar bone), collectively known as the periodontal apparatus [Figure 1].

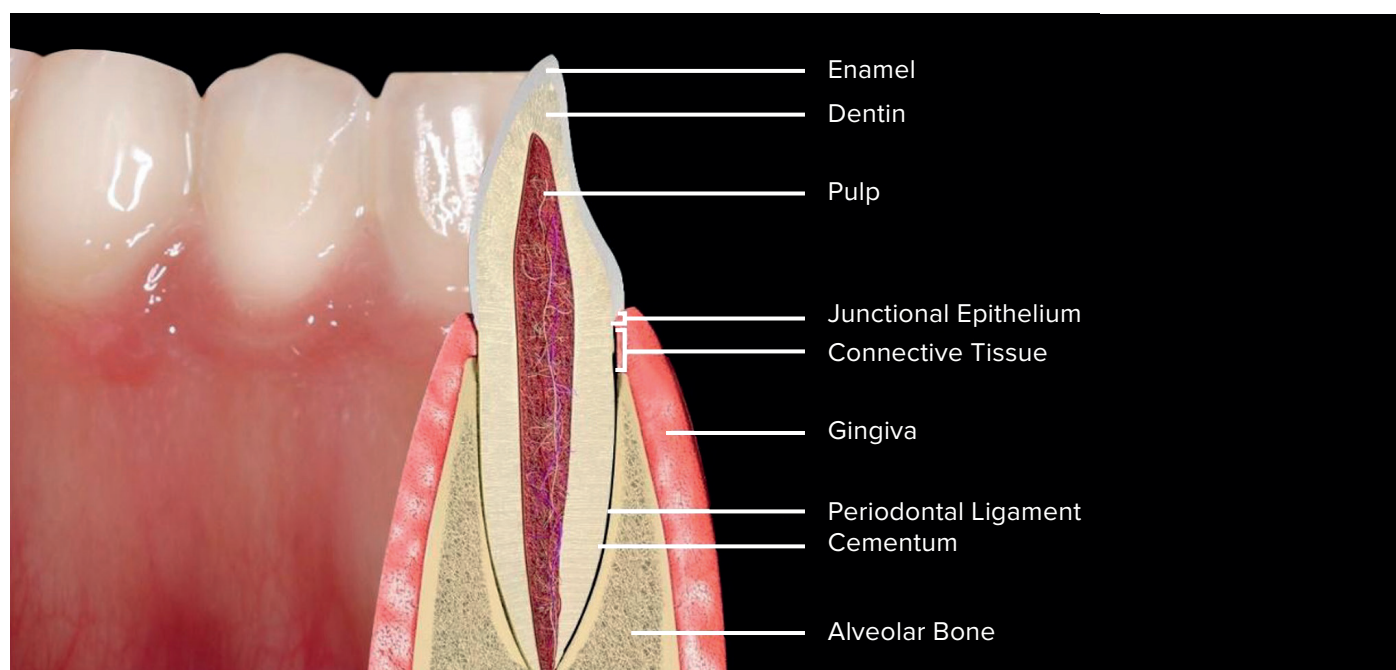


FIGURE 1. THE PERIODONTAL APPARATUS. 2022 © by Dr Ali Sadiq

## Gingivitis

Gingivitis is the bacterially induced chronic inflammation of the gingiva.<sup>4,5</sup> It is completely reversible, with improved oral hygiene resolving the inflammation.

The clinical features of gingivitis [Figure 2], listed in descending order of frequency, include:

- bleeding gums;
- swollen gums;
- build-up of plaque or calculus (tartar) on teeth;
- bad breath;
- pain.

If left untreated, gingivitis progresses to periodontitis [Figure 3].



**FIGURE 2. CLINICAL FEATURES OF GINGIVITIS. 2022**  
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**FIGURE 3. CLINICAL FEATURES OF PERIODONTITIS 2021**  
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## Periodontitis

Periodontitis is a chronic irreversible condition that leads to destruction of the supporting periodontal tissues, such as the periodontal ligament (PDL) and supporting jaw bone.<sup>4</sup>

The clinical features of periodontitis [Figure 3] encompass those of gingivitis, with a variety of additional symptoms that include:

- bleeding and suppurating gums;
- receding gums;
- gaps between teeth;
- mobile teeth;
- bad taste in the mouth;
- pain when chewing;
- tooth loss.

## Gingiva in health and in disease

To help identify the diseased gingival clinical presentation at a glance,<sup>6</sup> we are providing a gingival profile comparative chart [Table 1] and the comparative clinical features are observed in Figure 4.

Feature	Healthy	Diseased
Colour	Varying shades of pink to brown (variable according to ethnicity and pigmentation)	Varying shades of erythema, reddish blue
Contour	Well adapted gingiva to the tooth	Rounded, inflamed
Size	Tooth surfaces fully visible	Enlarged and/or inflamed
Bleeding on provocation	Absent	Present

**TABLE 1. CLINICAL FEATURES OF GINGIVA IN HEALTH AND IN DISEASE**



FIGURE 4. CLINICAL FEATURES OF GINGIVA IN DISEASE. 2022 © by Dr Ayesha Hanif

Left – immediately after professional mechanical prophylaxis and in health

Right – one week after professional intervention

## Periodontal pathogenesis

Periodontitis is not necessarily the result of poor oral hygiene. It is important to understand that periodontal diseases are multifactorial. Susceptibility varies and the disease can be caused by one or more of the following factors<sup>4,8</sup>:

- microbial dysbiosis;
- pathogenic biofilm (plaque);
- host immune inflammatory response;
- genetic and epigenetic influences;
- risk factors – smoking, diabetes, stress, age, diet;
- systemic conditions – diabetes, hormonal imbalance, hereditary syndrome.

### Association between periodontal diseases and systemic diseases

A large body of evidence suggests a potential association between periodontal diseases and a number of systemic conditions including, but not limited to, neurodegenerative diseases, chronic lung diseases, atherogenic cardiovascular disease, metabolic syndromes, chronic kidney diseases, rheumatoid arthritis, inflammatory bowel syndrome and adverse pregnancy outcomes<sup>7,8</sup>. (See whole body health project by FDI).

Diabetes, a major risk indicator for periodontitis, exhibits a bi-directional relationship with periodontal disease progression and levels of HbA1c.<sup>9</sup> Therefore, the presence of periodontitis could indicate underlying, undiagnosed diabetes. With a number of systemic diseases having an association with periodontal diseases, it is important for other healthcare professionals to gain basic insight into this widely encountered oral health issue.

## Oral healthcare delivery framework

### Ask

- Patient's chief complaint;
- Detailed medical, dental, family and social history;
- Common risk factors such as smoking status and any known systemic diseases, especially diabetes. (See whole body health project by FDI);
- Frequency of dental visits, brushing habits and protocols;
- For further assessment<sup>10</sup>.

### Look

- For the signs of gingival inflammation [Figure 2];
- For the signs of periodontal disease progression [Figure 3].

## Decide

- If the patient requires urgent dental referral (e.g.: in case of pain, suppuration, necrotic gums);
- The need to manage the patient in collaboration with a dental care professional.

## Act

- Encourage the patients with periodontal diseases to visit and follow-up with a dental care professional.
- Collaborate and facilitate appropriate referrals and encourage comprehensive periodontal examination by a periodontist/ dental hygienist.
- Account for periodontal diseases as the manifestation of systemic diseases and refer to the appropriate specialist for treatment of systemic disease.
- Educate and motivate the patients on oral hygiene measures".
- Encourage smoking cessation, dietary modifications and lifestyle changes.

## Document

- Oral presenting symptoms: document the signs and symptoms of gingivitis and periodontitis such as bleeding, swelling, colour change, etc as listed above.
- Dental history: previous dental complains such as cavities, mobile teeth, bleeding gums. Previous dental treatment such as fillings, extractions, scaling or orthodontic treatment.
- Patient's oral hygiene protocol: such as brushing, flossing, mouthwash usage, duration and frequency
- Medical history: document any known medical disease and systemic condition such as pregnancy. Document the known risk factors of periodontal diseases such as diabetes. Additionally, document any medicine that the patient is taking for their systemic condition including medicine such as antibiotics and painkillers
- Social history: Document about tobacco and alcohol intake including smoking and smokeless tobacco.
- Referrals: document any referrals to a dentist or any other healthcare provider along with the reason and date of visit(s).
- Investigations: document all the findings of the investigative aids (laboratory reports, x-rays, histopathological findings) that you conducted.
- Follow-up: Document the follow-up protocol including the reason and date of the follow-up.

This information will assist the dentist in providing appropriate care for the patient and will also help to ensure multidisciplinary management and communication between medical and dental teams. Additionally, it is important to keep in mind that periodontal diseases have a bi-directional effect on systemic conditions, and therefore proper documentation will guide appropriate dental management protocol.

## This factsheet is supported by:



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## Other Resources

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### Disclaimer:

This fact sheet offers general information and may require adaptation to suit the scope of work and regulations governing other healthcare professionals in each country.

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