prévention
pratique médicale

DIRECTION
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PUBLIQUE

Garder notre monde en santé

Periodontal disease

- **About half of 35- to 44-year-old Quebecers show obvious signs of periodontal disease. The prevalence and severity of periodontal diseases tend to increase with age throughout the world.**
- **About 1 out of 4 adults in Québec will suffer from periodontitis that might be severe enough to cause tooth loss.**
- **Periodontal diseases are one of the major causes of tooth loss among Quebecers; partial or total edentulism can also lead to other health problems: difficulty chewing, poor digestion, temporomandibular joint pain, etc.**
- **Approximately one third of Quebecers aged 35 to 44 did not consult a dentist during the last year. This rate increases with age, to about two-thirds of the population aged 65 and over.**

Periodontal diseases are preventable; but when they develop, we can still control their progression.

Physicians are often in a good position to either screen for periodontal diseases or recommend a dental check-up.

What are periodontal disease ?

There are two main groups of periodontal diseases: **gingivitis** and **periodontitis**. **Gingivitis** is recognised by gums that show classic signs of inflammation, redness and swelling, but without involvement of the periodontium. The periodontium includes the gingiva, cementum, periodontal ligaments, connective tissue, and the alveolar bone. **Periodontitis** occurs when inflammation spreads to the periodontium, causing one of the following conditions: (1) the gingiva detaches from the affected tooth along its root, creating a **periodontal pocket**; or (2) **gingival recession**, where the gingiva recedes along its root line, affecting the whole thickness of the gum. In both cases, alveolar bone loss hidden by ginvival inflammation is what matters most. When bone loss is extensive, the teeth can become loose and eventually fall out. Periodontal destruction is induced by the deleterious effects of inflammatory mediators occurring because of bacterial plaque build-up around the tooth. Periodontal diseases can be subdivided into 2 sub-groups: **juvenile** and **adult**. Periodontal diseases observed in young people are usually associated with neutrophil dysfunction; in adults, they are caused mostly by an accumulation of bacterial plaque around the teeth and their roots. Certain lifestyles, health conditions or states of health, and systemic diseases are also factors that can increase the severity of periodontitis.

Why should physicians be concerned with periodontal diseases?

1. An accumulation of bacterial plaque around the teeth is the main aetiology involved in periodontal diseases; however, different lifestyles, systemic diseases, health statuses, as well as certain genetic factors can either enhance the risk of periodontal diseases or modify their prognosis.
2. Some periodontal diseases are caused by bacterial (linear gingival erythema), viral (primary herpetic gingivostomatitis) or fungal (histoplasmosis) infections, presenting an additional risk for the pathogen to be transmitted through direct contact with the mouth and saliva.

3. In some cases, periodontal diseases may negatively affect a patient's overall health.
4. The major risk factors associated with periodontal diseases (smoking, diabetes, oral hygiene, stress, etc.) are also associated with other conditions or systemic disease.
5. Some medications can affect the health of the periodontium.
6. Women are more susceptible to periodontal diseases because of the hormonal changes they experience during different stages of life: at puberty, during the menstrual cycle or pregnancy, when taking oral contraceptives, or during menopause. For example, during pregnancy, the immune response is weaker and concentrations of progesterone and oestrogen are at least ten-fold higher; consequently any accumulation of bacterial plaque, no matter how small, can induce a disproportionate inflammatory response in the periodontium. Therefore, it is important to encourage pregnant women and women who plan on becoming pregnant to maintain good dental hygiene.

Two risk factors of greater concern for periodontal diseases

Smoking

Smokers are afflicted more often with periodontitis than non-smokers and often experience a higher rate of bone loss. Conversely, smokers' gums tend to bleed less when they brush due to the vasoconstrictive effect of tobacco, which masks the presence of periodontal disease. Moreover, smokers are exposed to a particularly destructive and painful type of periodontal disease, acute necrotizing ulcerative gingivitis (ANUG). Smoking may constitute a contraindication to gingival grafts and dental implants; in addition, prognosis of periodontal treatment in smokers is often less favourable.

Diabetes

Diabetes (types 1 and 2) increases the risk of periodontal diseases because the biochemical processes linked to diabetes reduce blood flow to the gums and blunt the immune response. Therefore, poorly controlled diabetes can enhance periodontal destruction in people with periodontitis.

The risk of smokers developing a periodontal disease is fivetimes higher than among non-smokers; the risk for a diabetic smoker is 20 times higher.

Diabetic patients who show signs of microcomplications associated with diabetes (e.g. retinopathy) are more susceptible to periodontal diseases.

Two systemic complications: hypotheses

Cardiovascular diseases

Some studies suggest that having a periodontal disease can increase the risk of atherosclerosis, coronary disease, and myocardial infarction. At this time, four main mechanisms are suspected:

1. The direct effects of the infectious agents involved in periodontal diseases on atheroma formation;
2. The indirect effect of the immune response induced by a periodontal infection;
3. Common genetic predispositions between periodontal diseases and atherosclerosis;
4. Common risk factors linked to lifestyle. The production of protein such as C-reactive protein and fibrinogen seems to be particularly significant. Several pathogenic agents involved in periodontal diseases can also affect the heart, if bacteraemia occur; the classic example is infective endocarditis.

Preterm low-weight babies:

Some studies seem to indicate that periodontitis in a pregnant woman can affect the foetus's health, especially if her periodontal condition worsens during her pregnancy.

Examples of predisposing factors for periodontal diseases and possible systemic complications

Predisposing factors

Lifestyle

Poor dental hygiene
Smoking
Dietary deficiencies
Not consulting a dentist regularly
At-risk sexual behaviours

Conditions, state of health, and systemic diseases

Hormonal changes in women
Stress
Hereditary diseases (trisomy 21)
Certain medications (phenytoin, nifedipine, cyclosporin, etc.)
Cancer
Organ transplants
Breathing through the mouth
Dryness of the mouth
Diabetes
Neutropaenia, leukaemia, and certain syndromes involving mainly neutrophils
HIV, AIDS
Inflammatory bowel diseases
Scleroderma
Papillon-Lefèvre syndrome
Hypophosphatasia (Rathburn's syndrome)
Hyperthyroidism
Addison's diseases
Osteoporosis
Osteopaenia

Local factors linked to dentition

Malocclusion
State of the gums, teeth, and periodontium
Poor fillings and ill-fitting dental prostheses
Tendency for tartar formation

Periodontal diseases (inflammatory reaction and infection)

Possible **complications for**

The patient's state of health

Diabetes (difficulty controlling glycaemia)
Cardiovascular diseases
Aspiration pneumonia
Stroke

The patient's family's state of health

Preterm low-weight baby
Contamination of other family members, in the presence of an infectious periodontal disease

When should you check?

- When lifestyles, health conditions, and systemic diseases predispose a patient to periodontal diseases or when the reason for medical consultation involves a bucco-dental problem.
- When a patient has not seen a dentist for about 12 months and there are signs that he or she may have a periodontal disease, or when a newly diagnosed condition increases the patient's risk of developing periodontal diseases. In the latter case, it is also important to inform the patient of the additional risks of periodontal diseases.

How to detect a periodontal disease

All cases of periodontitis evolve from gingivitis; however, gingivitis does not necessarily develop into periodontitis. Clinical signs of gingivitis are inflammation of the gums and gums that bleed easily. Gingival recession, periodontal pockets, the destruction of interdental gingival papilla, and increasingly loose teeth are all clinical signs of periodontitis. Tartar detection is of prime importance since it is directly involved in the pathogenesis of periodontal diseases.

What should you look for ?

	Questionnaire	Objective examination	Level of clinical significance
1. Bleeding gums while brushing or flossing	X		Sign of gingivitis
2. Appearance of the gums (swelling, redness)		X	Sign of gingivitis
3. Gingival recession		X	Sign of periodontitis
4. Pus around a tooth		X	Sign of periodontitis
5. Destruction of interdental papilla		X	Sign of advanced periodontitis
6. Increased or excessive tooth mobility	X	X	Sign of advanced periodontitis
7. Tartar		X	Involved in the aetiology of periodontal diseases
8. Halitosis	X	X	Suggestive of periodontitis
9. Poor dental hygiene		X	Suggestive of periodontitis
10. Sensitive gums	X		Suggestive of periodontitis
11. Teeth sensitive to hot and cold	X		Suggestive of periodontitis
12. Partial edentulousness	X		Suggestive of periodontitis
13. Family history of edentulousness	X		Suggestive of periodontitis (hereditary disease ?)
14. Tendency to suffer from mouth ulcers	X		Suggestive of periodontitis (systemic disease ?)
15. Age[1]		X	Suggestive of periodontitis

[1] Clinical signs associated with periodontitis tend to increase with age and become more common after age 30.

When periodontal disease seems to involve many teeth despite reasonably good oral hygiene, a medical condition or associated systemic disease should be ruled out.

What can you do?

A number of health conditions and systemic diseases may increase the risk of periodontal diseases; in addition, the presence of periodontitis may lead to systemic complications. Therefore, it is important to ask a patient if he or she has consulted a dentist in the last 12 months and to write down this information in the patient's medical record. If the patient has not seen a dentist, he or she should be encouraged to do so, especially if the patient has predisposing factors.

Any new diagnosis that increases the risk of periodontal disease is a good reason for a physician to recommend that the patient be followed regularly by a dentist. If a patient is not inclined to consult a dentist or is not motivated by his or her oral health, the physician may decide to screen the patient for periodontal disease and inform the patient of any clinical signs suggesting such a disease.

Two additional arguments can help convince a patient of the urgency to consult a dentist:

- Periodontal diseases require special oral hygiene products and techniques, and a dentist can teach the patient how to use them;
- The presence of periodontal disease automatically raises the level of risk of root caries, which can quickly lead to tooth sensitivity.

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