Juvenile periodontitis

Case history

In May 2004, a 14-year-old boy visited a dentist for the first time. During this meeting the dentist executed a periodontal diagnosis and she found periodontal defects locally. The boy was born in a socially deprived environment. The father had a criminal record and was in prison for a couple of years.

Medical history

The patient was a healthy boy with no medical problems. The ASA score is I.

Clinical situation

In September 2004, a periodontal chart was made. The following characteristics were found:

- advanced loss of epithelial attachment;
- increased gingival crevicular fluid;
- increased periodontal pocket depth;
- loss of alveolar bone and connective tissue attachment;
- gingival bleeding: 100%.

Radiographic image

Due to the presence of the periodontal defects, the dentist decided to take radiographs to support the diagnosis.

The distance between the enamel junction and the marginal bone level was more than 4 mm in many locations. There are angular bony defects and furcation defects. Class III furcation defects are present in the 36 and 46 (Figs 1 and 2).

Microbiological findings

A microbial diagnosis was done to complete the diagnostic phase

The microbial sample showed:

Actinobacillus actinomycetemcomitans	17.2%
Porphyromonas gingivalis	0%
Prevotella intermedia	0%
Tannerella forsythensis	0%
Fusobacterium nucleatum	0%
Campylobacter rectus	10.3%
Total	100%

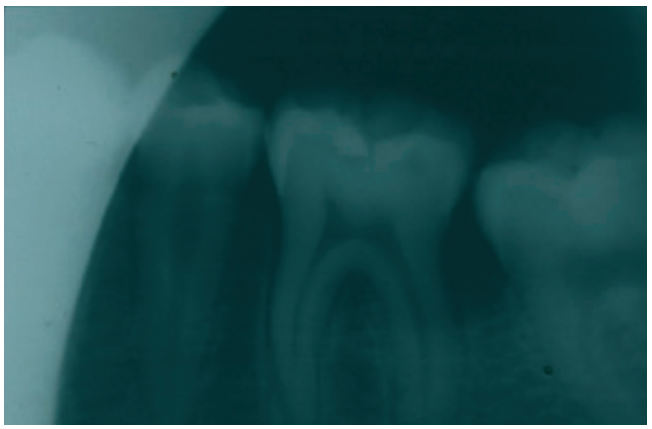

Fig. 1. Class III furcation defect 36

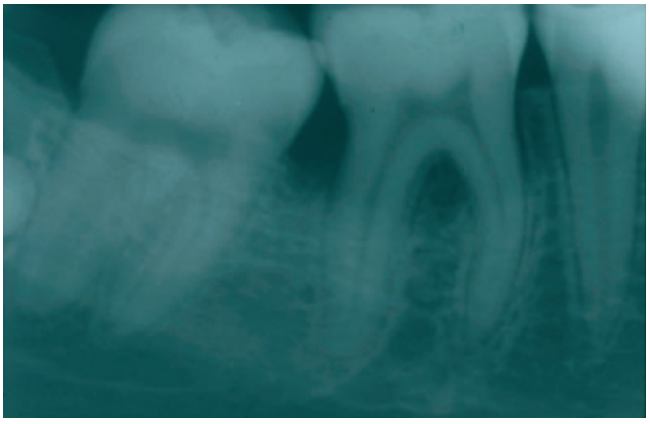

Fig. 2. Class III furcation defect 46

Questions

1. What could the diagnosis be? What are the disease categories?

2. What are the pathogenic micro-organism of aetiological importance?

3. Which specific characteristics has the bacteria mentioned above?

4. What are the specific characteristics of juvenile periodontitis?

5. What is a typical diagnostic feature in juvenile periodontitis?

6. When interpreting periodontal bone loss of a juvenile periodontitis patient, sometimes a conspicuous aspect is visible. Name this aspect?

7. What is the prevalence of juvenile periodontitis (JP)?
8. What is the possible aetiology of juvenile periodontitis?
9. What does the treatment generally involve?
10. Which antibiotic has the best result?
11. What is the treatment of choice for juvenile periodontitis?

Answers

1: The diagnosis is most likely juvenile periodontitis. The two disease categories are localized (LJP) and generalized (GJP).

	Permanent dentition (no. of teeth)	Temporary dentition (no. of teeth)
Incidental (I)	1	1
Local (L)	2–7	2–4
Semigeneralized (SG)	8–13	5–9
Generalized (G)	>14	>10 (1, 2, 3).

2: *A. actinomycetemcomitans* is the most important pathogenic micro-organism (4).
3: *A. actinomycetemcomitans* is a powerful micro-organism that can invade tissue and destroy white blood cells (4).
4: JP starts between the 11th and 13th year.

- Higher prevalence in women than men (3:1).
- There is a hereditary component. There is no relation between local aetiological factors and the presence of deep pockets.
- Angular defects in the first molar and in one or more incisors in the local form or severe horizontal bone defects in nearly all teeth in the generalized form.
- Rapid progression of the defect.
- No symptom of defect in the temporary dentition (5).

5: A typical feature is the angular bone defect in the first molars and/or incisors. This feature is mostly found mesial of the first molars (5).
6: Sometimes a 'bowl shape' can be seen in the osseous defect: the most apical point of the approximal bone defect is not near the tooth but more in the middle.

It is possible that an invasion of micro-organisms cause this bowl shape (5).

7: Most researchers say that the prevalence of severe JP is low, generally lower than 1% of the population. The prevalence of incidental or local JP, however, is higher. The prevalence of generalized JP is not known (5, 6).
8: It is a combination of a specific bacterial infection and a deficient host response. Polymorfonuclear leukocyts (PMNs) in the epithelial and the connective tissue form the first barrier against the bacterium. The reported deviation of the chemotaxis of the PMNs in these patients form the basis for the hypothesis that an insufficient immune system in young people with severe periodontal diseases is attacked (6).
9: The treatment of children and adolescents with JP is oral hygiene instruction, reinforced with professional supra- and sub-gingival debridement.

The use of systemic antibiotics as a supplement must only be used after sub- and supra-gingival debridement and good oral hygiene care (1, 6).

10: It is still not clear which antibiotic therapy gives the best result. According to Petit *et al.* (6) one can choose between metronidazole only or amoxicillin in combination with metronidazole. Van Winkelhoff prefers amoxicillin in combination with metronidazole (8). The bodyweight of the child is important when deciding the dose of the antibiotic (6).

Systematic antibiotic therapy should be used when nothing else works to avoid the emergence of antibiotic-resistant bacteria (7).

The antibiotic therapy can be supported with a chlorhexidine (0.12%) without alcohol.

11: The treatment of choice for JP is:
- an excellent executed initial periodontal treatment;
- a total removal of the dental plaque every 24 hours by the patient;
- if the patient can remove the plaque completely the initial periodontal treatment can be supported by antibiotics;
- periodontal surgery where necessary, in pockets deeper than 5 mm.
- a 3-month recall (5).

References

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