**Aggressive periodontitis**  
By Kseniia Dymchenko  
Oral Pathology 2023  
Section: 3E

**Overview**

Periodontal diseases form a rather serious problem in modern dentistry. Aggressive Periodontitis occurs in between 5 and 20% of adults. Demographically, Aggressive Periodontitis “Occurs in 2% of African-American adolescents but only 0.15% of white adolescents.” (Campanile, n/p). This is quite a serious problem that leads to tooth loss and deterioration of patients' quality of life. Aggressive Periodontitis disease needs to be noticed in time, so dental professionals can help to slow the progression at the initial stage of the disease. This is an inflammatory process, characterized by rapid loss of clinical attachment and alveolar bone (Kübra, n/p). Localized in periodontal tissues, in which periodontal ligamentous elements and the alveolar part of the bone are destroyed. Aggressive Periodontitis may take a generalized form, in which all teeth are affected, or a localized form, commonly involving first molars and incisors by rapid onset and progression.

**Etiology**

The cause of periodontal disease can be different, both exogenous and endogenous of origin (Belibasakis, n/p). Generalized Aggressive Periodontitis, starting as localized, tends to affect more teeth over time. Speculation on why it targets first molars and incisors in teens suggests hormonal changes and unique microbial conditions during tooth eruption (Campanile, n/p). There are damaging factors: mechanical damage, chemical and biological (toxins, microbes). In most cases, inflammation is provoked by Aggregatibacter actinomycetemcomitans. Special attention should be paid to the predisposition to Aggressive Periodontal disease in patients. If there are representatives with such a disease in the family, then other family members are also likely to get that disease. If a person has chronic diseases they are also at risk of Periodontal Disease (Daniel H, n/p).

**Clinical Presentation**

Aggressive Periodontitis starts with inflammation and bleeding of the gums, if untreated, then quickly spreads to affect the entire dentition. In children, Aggressive Periodontitis has a localized character, in which first molars and incisors are affected (Campanile, n/p). In adolescents, where permanent teeth have already been formed, the alveolar bone is actively developing. The gum does not appear inflamed, but there are pronounced pockets in the gum. In this case, the disease begins imperceptibly from the patient. Patients complain of pain during chewing, halitosis, and pus discharge from gums. Patients who smoke and/or have poor oral hygiene experience more severe symptoms (Rizwan M, n/p).

**Demographic**

Aggressive periodontal disease is not limited to a specific demographic. According to Researchers at Damascus University: “Prevalence varies widely in different racial groups, but the disease is more common in individuals from parts of Africa as compared to other ethnicities”. Many factors influence the appearance and progression of the disease such as nutrition, social status, and age. Children and young people under the age of twenty are mainly affected, although the disease can occur at any age.

**Biopsy / Histology / Radiographs**

Usually, a biopsy for aggressive periodontitis is not taken. Still, if such indications are available, then you can see in the analysis a lot of plasma cells in the inflammatory infiltrate. It may be recommended to take a biochemical blood test (Daniel H, n/c). To determine the severity of periodontitis, images of the complete upper and lower jaw are taken. Computed tomography gives an assessment of bone tissue, and accurately determines bone loss (Kübra, n/c).

**Differential Diagnosis**

If the patient has gum problems, it is important to consider the various possibilities that may be similar to aggressive periodontal disease. Different Necrotizing Periodontal Diseases might be confused due to similarities in symptoms such as gum tissue necrosis, bleeding, and pain. Endodontic Lesions, infections from the tooth pulp can show symptoms corresponding to periodontal disease, including localized pain, swelling, and tooth mobility. Additionally, Erosive Lichen Planus, the autoimmune condition affecting oral tissues, can mimic aggressive periodontitis, causing inflammation, tissue loss, and gingival recession (Rizwan M, n/p). To make an accurate diagnosis, it is essential to undergo a thorough evaluation, including clinical examination, imaging, and possibly microbiological testing. This helps dental professionals differentiate between these conditions and provide personalized treatment plans.

**Treatment**

Treatment of periodontal disease should be comprehensive including Scaling and Root Planning, which removes plaque and calculus from below the gumline, smoothing the tooth roots to discourage bacterial growth. Antibiotics or antimicrobial mouthwashes may be prescribed to control bacterial infection. This can be systemic, like oral antibiotics, or local, applied directly to the affected areas. If therapy does not bring the desired result, surgical methods like flap surgery or pocket reduction may be necessary to access and clean deep pockets of infection and to repair or regenerate damaged bone. Regular follow-up appointments are critical. Patients with Aggressive Periodontitis need more frequent cleanings to manage the condition effectively. A diligent oral hygiene routine, including proper brushing, flossing, and using antimicrobial mouthwashes, is essential to control bacterial growth (Srushti, n/c).

**Prognosis**

It is very important to properly examine, make the correct diagnosis, and start treatment in time. To prevent relapses, it is necessary to regularly visit a periodontist, apply supportive therapy throughout life, careful oral hygiene, and smoke cessation. If Aggressive Periodontitis starts, tooth loss can be up to 60%. The loss of teeth at a young age can lead to psychological trauma and a change in human behavior.

**Professional Relevance**

The best way to combat Aggressive Periodontitis is to prevent it. The important role Dental hygienist play is educating patients about oral hygiene practices and motivating lifestyle changes. By emphasizing the importance of smoking cessation, maintaining a healthy diet, and adopting effective oral care routines, dental hygienists contribute significantly to preventing and managing periodontal diseases (Campanile, n/p). Regular collaboration between dental professionals, including hygienists and periodontists, ensures a comprehensive approach to periodontal health. This proactive strategy both addresses the condition and empowers patients to take an active role in maintaining their own oral health and preventing future problems, by improving their quality of life.

**Citations**

1. Aral, Kübra, et al. “Six‐month Clinical Outcomes of Non‐surgical Periodontal Treatment with Antibiotics on Apoptosis Markers in Aggressive Periodontitis.” *Oral Diseases*, vol. 25, no. 3, 2019, pp. 839–47, <https://doi.org/10.1111/odi.13032>.
2. Belibasakis, Georgios N., et al. “Periodontal Microbiology and Microbial Etiology of Periodontal Diseases: Historical Concepts and Contemporary Perspectives.” *Periodontology 2000*, 2023, <https://doi.org/10.1111/prd.12473>.
3. D’Ambrosio, Francesco, et al. “Chronic Stress and Depression in Periodontitis and Peri-Implantitis: A Narrative Review on Neurobiological, Neurobehavioral and Immune-Microbiome Interplays and Clinical Management Implications.” *Dentistry Journal*, vol. 10, no. 3, 2022, pp. 49-, <https://doi.org/10.3390/dj10030049>.
4. Dhande, Srushti, et al. “Soft and Hard Tissue Changes after Photodynamic Therapy in Aggressive Periodontitis: A Systematic Review and Meta-Analysis.” *Journal of Indian Academy of Oral Medicine and Radiology*, vol. 35, no. 3, 2023, pp. 427–32, <https://doi.org/10.4103/jiaomr.jiaomr_81_23>.
5. Fine, Daniel H., et al. “Aggregatibacter, A Low Abundance Pathobiont That Influences Biogeography, Microbial Dysbiosis, and Host Defense Capabilities in Periodontitis: The History of A Bug, And Localization of Disease.” *Pathogens (Basel)*, vol. 9, no. 3, 2020, pp. 179-, <https://doi.org/10.3390/pathogens9030179>.
6. Fine, Daniel H., et al. “Unique Etiologic, Demographic, and Pathologic Characteristics of Localized Aggressive Periodontitis Support Classification as a Distinct Subcategory of Periodontitis.” *The Journal of the American Dental Association (1939)*, vol. 150, no. 11, 2019, pp. 922–31, <https://doi.org/10.1016/j.adaj.2019.07.024>.
7. Müller Campanile, Véronique, et al. “Risk Factors for Recurrence of Periodontal Disease in Patients in Maintenance Care in a Private Practice.” *Journal of Clinical Periodontology*, vol. 46, no. 9, 2019, pp. 918–26, <https://doi.org/10.1111/jcpe.13165>.
8. “Periodontal Diseases and Conditions - Aggressive Periodontitis; Data on Aggressive Periodontitis Published by Researchers at Damascus University (Evaluating the Effects of Non-Surgical Periodontal Treatment on Masticatory Function in Patients with Aggressive Periodontitis: A Preliminary Study).” *Medical Devices & Surgical Technology Week*, NewsRx, 2020, pp. 208-.
9. Sanadi, Rizwan M, et al. “Association of Periodontal Disease with Oral Lichen Planus: A Systematic Review and Meta Analysis.” *Journal of Oral and Maxillofacial Pathology : JOMFP*, U.S. National Library of Medicine, 2023, [www.ncbi.nlm.nih.gov/pmc/articles/PMC10207185/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC10207185/).
10. Slots, Jørgen, and Thomas E. Rams. “Herpesvirus-Bacteria Pathogenic Interaction in Juvenile (Aggressive) Periodontitis. A Novel Etiologic Concept of the Disease.” *Periodontology 2000*, 2023, <https://doi.org/10.1111/prd.12501>.
11. “Aggressive Periodontitis.” *Aggressive Periodontitis - an Overview | ScienceDirect Topics*, [www.sciencedirect.com/topics/medicine-and-dentistry/aggressive-periodontitis#:~:text=The%20cause%20of%20aggressive%20periodontitis,genetic%20factors%20have%20been%20implicated](http://www.sciencedirect.com/topics/medicine-and-dentistry/aggressive-periodontitis#:~:text=The%20cause%20of%20aggressive%20periodontitis,genetic%20factors%20have%20been%20implicated). Accessed 21 Nov. 2023.