

# Pathophysiology of Localized and Generalized Aggressive Periodontitis

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## DESCRIPTION

Aggressive periodontitis is a destructive disease that is distinguished by the following characteristics: the involvement of multiple teeth with a distinct pattern of periodontal tissue loss; a rapid rate of disease progression; onset at a young age; and the absence of systemic diseases. Periodontal tissue loss may begin before puberty in some patients, but it usually begins during or shortly after puberty in the majority of patients. Aside from infection with specific microorganisms, a host predisposition appears to play an important role in the pathogenesis of aggressive periodontitis, as evidenced by the disease's familial aggregation. Individuals under the age of 30 are more likely to develop generalized aggressive periodontitis. The appearance is similar to chronic periodontitis, but the average age of patients is much younger and the disease progresses much faster. A poor serum response to infection agents and a level of periodontal destruction that is disproportionate to the amount of irritant bacteria present in the oral cavity distinguish generalized aggressive periodontitis.

Attachment loss on at least three permanent teeth is caused by generalized aggressive periodontitis; this does not include the first molars or incisors, which are included in the diagnosis of localized aggressive periodontitis. The episodic nature of generalized aggressive periodontitis is another distinguishing feature. Periodontal tissue may become severely inflamed during the destructive phase, appearing irritated, red, and ulcerated. The tissue may also bleed spontaneously or be visibly purulent. There is bone loss and attachment loss during this destructive phase. Gingival tissue is uninflamed and pink during the period of quiescence, appearing healthy and possibly stippled. Despite their healthy appearance, deep pockets may be discovered during periodontal probing.

Bone loss can range from mild to severe in cases of generalized aggressive periodontitis, manifesting as a combination of vertical

and horizontal bone loss. Radiographs, such as x-rays, can help in the diagnosis of aggressive periodontitis by indicating potential alveolar bone loss. A history of generalized aggressive periodontitis in the family can also indicate an inherited proclivity for the disease.

If the disease is not treated, early detection of both types of aggressive periodontitis is critical in preventing extensive periodontal destruction. The ultimate goal of aggressive periodontitis treatment is to establish clinical conditions that allow the majority of teeth to be retained for as long as possible.

## Pathophysiology of aggressive periodontitis

Aggressive periodontitis is a multifactorial disease with a plethora of complex interactions involving host factors, microbiology, and genetics. Multiple factors contribute to host defenses, including saliva, epithelium, inflammatory response, immune response, and chemical mediators. The inflammatory exudate in the gingival tissues and gingival crevicular fluid is primarily composed of polymorph neutrophils, but it also contains B cells and plasma cells. When challenged by certain pathogens, neutrophils may exhibit an intrinsic functional defect and respond abnormally. In response to periodontal pathogens, plasma cells produce specific antibodies, which diffuse into gingival crevicular fluid. The aggressive periodontitis diagnostic criteria present a current case definition and describe the disease's clinical parameters.

At the moment, aggressive periodontitis is diagnosed using a case history, clinical examination, and radiographic evaluation. Furthermore, this diagnostic approach only looks at the past and may not accurately measure current disease activity or predict future tissue loss. Current assessment methods detect established disease more readily and reliably than they detect incipient or initial lesions where tissue loss is minimal and usually below the detection threshold of current examination methods.

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