The level of gingival inflammation is broken down into several stages. However, these stages are somewhat arbitrary and gingivitis proceeds through them in a fluid fashion, with no clear demarcations. This newsletter will discuss the clinical signs associated with initial to advanced gingivitis.

The initial events in gingivitis are actually changes in the gingival vasculature, specifically increased blood flow through dilated capillaries. These capillary changes occur within 7 days (but can start as soon as 48 hours) after plaque has been allowed to accumulate. This low level of inflammation is NOT clinically evident, and therefore is known as subclinical gingivitis. This first clinical stage occurs approximately one week following the initiation of plaque accumulation. Classically, the first clinical sign of gingivitis was believed to be a color change caused by erythema of the gingival margin, termed “marginal gingivitis” (Figure 1). This is caused by the proliferation of capillaries as well as formation of capillary loops. This stage of gingivitis may be present with or without demonstrable plaque and calculus. This initial level of gingivitis is classified as gingival index (GI) 1.

Figure 1: Marginal gingivitis (blue arrows)
While color change is a reliable sign of disease, it is now known that increased gingival bleeding on probing (Figure 2) occurs prior to a color change. Although it is difficult to perform this on awake patients and therefore is not commonly used as a screening test in practice, clients may notice bleeding during brushing or after chewing hard/rough toys. If this is discovered, a diagnosis of early gingivitis can be made despite a lack of demonstrable color change. In fact, this is a more objective measure of inflammation than identifying a subtle color change! Practitioners should consider carefully probing or brushing tractable patient’s teeth on conscious exam to demonstrate the level of inflammation to hesitant owners.

![Figure 2: The first sign if gingivitis is bleeding on probing. This patient has clean teeth with no redness or inflammation to the gingiva. However, when probed, there is significant gingival hemorrhage. This pet has significant gingivitis despite no inflammation or tartar.](image)

In addition to being an early marker for gingivitis, bleeding on probing can also be used subjectively as a measure of the severity of inflammation. It has been shown that the degree of bleeding corresponds to the level of inflammation. If left untreated, the established lesion eventually develops. In humans this generally occurs after about 2-3 weeks without homecare. The vascular changes and congestion intensify the color changes to the gingiva, which can be seen as deeper shades of red. With increasing chronicity and levels of inflammation, more of the gingiva becomes affected, and eventually may involve the entire attached gingiva. In some cases of severe inflammation, a bluish tinge may become superimposed on the reddened gingiva (anoxemia). In addition to color changes, as the inflammatory progresses gingival edema will occur. (Figure 3) In advanced cases, gingival bleeding may be spontaneous. Finally, although halitosis is more commonly associated with periodontal disease, it can also be noted as a sequela of significant gingivitis.
Gingivitis scoring index: The AVDC currently does not have an approved/standardized gingivitis index. At this point it is included in the periodontal disease classification as PD1. However, gingival indices are utilized by human dentists and may be valuable to veterinarians as well as we advance in our dental knowledge since there is a significant difference between gingivitis grades. Therefore, a prudent practitioner will record the degree of gingivitis and utilize the severity to communicate more accurately the level of disease. This modified version which is presented does not rely on probing and therefore should be the preferred method for veterinary patients as it can be completed on most conscious patients.

GI 0 = Absence of inflammation (Figure 4)
GI 1 = Mild inflammation. Slight change in color.
   Little change in texture of any portion, but not the entire marginal gingiva.
GI 2 = Mild inflammation as above but involving entire marginal gingiva
GI 3 = Moderate inflammation. Glazing, redness, edema and or hypertrophy.
GI 4 = Severe inflammation. Marked redness, edema, and/or hypertrophy of the marginal gingiva, spontaneous bleeding, congestion, ulceration

Figure 3: Gingival edema.

Figure 4: Normal gingiva.