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| 2A-3 |
| **Pathology Question:** |
| How does the inflammation process of the periodontal ligament on the tooth differ from the inflammation process around an implant when infected? (Peri-implantitis vs Periodontitis) |
| **Report:** |
| In order to effectively answer this question, it is best to compare peri-implantitis and periodontitis. Peri-implantitis is a peri-implant disease that occurs after the placement of an implant. It involves inflammation of the mucosa and loss of supporting bone. Likewise, the definition of periodontitis is an inflammatory disease that affects the soft and hard structures that support the teeth. According to “Comparative biology of chronic and aggressive periodontitis vs. peri-implantitis”, these two diseases are more similar than they are different. This article set out to compare the etiology, pathogenesis, risk assessment, and therapy of peri-implantitis and periodontitis.  Pathology is often understood best by first understanding health. Microbiota associated with healthy peri-implant tissues include gram-positive facultative cocci and rods. Additionally, gram-negative anaerobic rods are potentially present in small numbers and low proportions. Microbiota associated with peri-implantitis include gram-negative anaerobic bacteria in large numbers and high proportions. In fact, these are the same bacteria that are known to be associated with periodontitis, including members of the red complex. High proportions of B cells and plasma cells, which are often associated with chronic and aggressive periodontitis, have also been found in peri-implantitis lesions.  Recent studies have found that microbiota present in the oral cavity may have an impact on the biofilm formation on newly placed implants. This information could be very useful when investigating the pathology and pathogenesis of implant diseases. In other words, there are many similarities in microbiota in the oral cavity whether they are found around teeth or around implant sites. This holds true for individuals who have periodontitis as well. One study that was mentioned in the article found that the microbiota that were present at periodontally involved sites were also present at sites of implants in the same person after 3 and 6 months. Transmission of bacteria from teeth to implants was confirmed in various studies as well.  While there are many similarities regarding microbiota present at periodontal sites and at implant sites, there is now evidence that there are also some differences. For instance, some studies have identified high levels of S. aureus at deep peri-implant pockets with the presence of bleeding on probing. However, S. aureus is not typically associated with periodontitis. In some cases, it is associated with therapy-resistant cases of periodontitis. Another notable difference between these diseases is related to the rate of their progression. There is evidence that the progression of peri-implantitis is much more accelerated and more pronounced compared to cases of periodontitis.  It is important to keep the main findings of these similarities and differences between peri-implantitis and periodontitis in mind when preparing a patient for implant placement. Due to the transmission of microbiota from tooth to implant, it is best to treat periodontitis prior to the placement of implants. Also, it is best to treat peri-implantitis immediately due to its rapid progression. |
| **References:** |
| Heitz-Mayfield, L. J., & Lang, N. P. (2010). Comparative biology of chronic and aggressive periodontitis vs. peri-implantitis. *Periodontology 2000,* *53*(1), 167-181. doi:10.1111/j.1600-0757.2010.00348.x  Periodontology, A. (n.d.). Periodontal Disease Fact Sheet. Retrieved September 16, 2020, from https://www.perio.org/newsroom/periodontal-disease-fact-sheet |