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| **Name:** |
| Ardita Ajvazi |
| **Group:** |
| 5B-4 |
| **Pathology Question:** |
| What is emergence profile and how does it affect gingival health and esthetics? |
| **Report:** |
| Simply put, the emergence profile is the contour of the tooth or restoration as it “emerges” from the gingival tissue. In other words, the emergence profile supports gingival esthetics in order to create a natural, lifelike restoration. It is pertinent to establish a proper emergence profile when desiring natural esthetics and optimal gingival health. Yet, it is a bit more complex and difficult to achieve when dealing with implants restorations. Implant crowns lack the natural foundation of roots and crown preparations that are available with natural tooth restorations. Therefore, if it is not adequately established, the emergence profile can lead to poor gingival health, in the form of peri-implantitis, and an unnatural esthetic appearance.  Emergence profile isn’t necessarily as simple as mimicking the extracted or contralateral tooth, especially when dealing with implant crowns. This is due to the differing peri-implant interface as compared to soft tissue around natural teeth. In order to avoid complications, peri-implant soft tissue attachment needs to be properly established and preserved. When comparing the sulcular and junctional epithelium, peri-implant and natural tooth soft tissue interfaces are almost identical. Although the supracrestal tissue attachment in both implant and natural teeth have those epithelial similarities, it is the connective tissue fiber interfaces that is considerably different. In the situation of natural teeth, perpendicular Sharpey’s fibers exist in order to attach tissue to the cementum of the tooth. These fibers create a tight seal between tooth and soft tissue in order to keep microbes and foreign bodies out of this space. Instead of perpendicular fibers, peri-implant collagen fibers only exist in a transgingival, circumferential orientation that still creates a seal but not as sound as those involved in natural teeth. In other words, peri-implant soft tissue lacks Sharpey’s fibers, which results in a weaker seal between the tissue and implant. Along with connective tissue fiber orientation, probing depth differs between implant and natural teeth as well. With implants, due to the weak interface, the probe can pass through the junctional epithelium and nearly reach the alveolar bone, resulting in “deeper” pockets. In a situation with natural teeth, deeper pockets would be indicative of unhealthy periodontium, while (if no other inflammatory mediators exist) implants with these same levels would be considered healthy, normal tissue. Therefore, supracrestal tissue attachment and fiber orientation leads to a complicated design when preparing an implant crown’s emergence profile.  In a situation of improper emergence profile with an implant crown, the two aspects of the restoration that will be compromised are the gingival health and esthetics. These two components go hand-in-hand when dealing with implant crowns. For instance, if improper esthetics (i.e. poor contour or size) is present, the crown would not sit appropriately flush against the gingiva. This could potentially deprive the implant of the protective barrier from bacteria that could result in peri-implant disease. The ideal gingival profile for implant crowns includes keratinized gingival tissue of 1-2mm thickness around the implant. If the implant crown is found to be too narrow medio-distally in relation to the adjacent teeth this could result in proximal spaces that could potentially trap food and be hard to properly clean. This gingival integrity plays such an important role in maintaining periodontal health, that if it is not adequate, it could lead to bone loss within a year after implant placement. This inflammatory complication that could lead to bone deterioration is called peri-implantitis. Due to the increase in the number of implants placed, there is an increase in prevalence of peri-implant disease. Other risk factors of peri-implantitis include history of periodontal disease, smoking, diabetes, and poor oral hygiene. It is thought that an average of nineteen bacterial species are involved with the formation of peri-implantitis. Those species most abundantly found in the study were T. forsythia, P. gingivalis, T. socranskii, S. aureus, S. anaerobius, S. intermedius, and S. mitis. This is a serious condition that could negatively affect implant longevity.  Emergence profile focuses on the contour of the restoration in order to make it appear unnoticeably natural and noticeably healthy. The difference in supracrestal tissue attachment between implants and natural teeth makes contours and function just that important when establishing emergence profiles of implant restorations. The inability to maintain sound tissue structure around the implant could lead to complications that would be detrimental to the implant restoration. So, although the emergence profile of a restoration is a simple concept, it plays a huge role in implant health, esthetic and longevity. |
| **References:** |
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