Biological failure of dental implants is divided into early (failure to establish osseointegration) and late (failure to maintain established osseointegration). Most of the time, early implant failure is diagnosed as a failure of osseointegration, which is the same as saying idiopathic implant failure. A deeper analysis of early failures should consider early apical periimplantitis, also known as an implant periapical lesion, which is an infectious-inflammatory process of the tissue surrounding the implant apex.

During the early stages of this process, the coronal bone architecture may be preserved, though progression will lead to an osseointegration failure. Early apical periimplantitis constitutes early failure, since the osseointegration process is interrupted (at least around part of the implant) and is diagnosed between 7 days and 3 months after implant placement.

Various etiological factors have been suggested, based on the potential source of contamination: implant surface contamination, overheating during drilling, pre-existing disease, immediate post-extraction placement, endodontic disease associated with the extracted tooth or adjacent teeth, pre-existing bone disease, and the presence of root remains or foreign bodies. The body of evidence is very limited, however. At present, early periimplantitis is considered to have a multifactorial origin, involving exposure to 1 or more triggering factors.

Apical periimplantitis is rarely diagnosed, so it is difficult to have a significant number of cases with previously recorded information of the state of the adjacent teeth and of the tooth being replaced, as well as information on the surgical procedure, to identify risk factors for early apical periimplantitis. There are failed osseointegration processes that have similar signs and symptoms to those of periapical implant lesions, which are a consequence of incorrect 3-D implant placement (such as flapless implant placement and fenestration of the buccal plate) or infections of biomaterials.

It is difficult to know the true dimension of this clinical condition and its total impact regarding early implant failures because there are few studies in the literature addressing it. Further knowledge of this condition will lead to its prevention and early treatment, and will reduce the number of early implant failures.

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