I-Implant, B-Bone, AL- Attachment level, PD-Probing depth)

Lang et al in 1994[7],based on the results of their study demonstrated that probing depth increased with the severity of inflammation. They found that mean histologic probing depth in peri-implantitis should be more than or equal to 3.8mm. This also determines the amount of tissue destruction and severity of disease.

Mobility is not considered to be a good indicator for determining the severity of peri-implant disease and its progression. The mobility of an implant retained crown can be detected by applying rotational movement between handles of two metallic instruments or with one metallic instrument and thumb as opposed to bucco-palatal direction. Mobile implant depicts absence of osseo-integration and implant has to be detached. [4,8]

2. Radiographic evaluation

Radiographic techniques such as intraoral radiography by using long cone paralleling techniques and panoramic tomography[9] have been used to determine the amount of bone support. Base line radiographs following implant and prosthesis placement have been obtained to make comparisons with future radiograph and to assess the stability of bone support.Radiographically, peri-implantitis lesions illustrate funnel shaped radiolucency that is almost equal mesially and distally. The main drawbacks of conventional radiography are low sensitivity, image resolution, distortion and are problematic in diagnosing the three-dimensional pathologic process. To overcome the limitations of conventional radiography, advanced diagnostic aids such as digital substraction radiography and cone beam computed tomography have been used for diagnosing a peri-implant disease. This can detect small changes in bone density adjacent to implant and also determine the three-dimensional peri-implant bone defects.[5,8-10]

3. Microbiological sampling

This is used as an adjuvant to other diagnostic techniques because it determines the microbiota associated with the peri-implant disease. Samples are collected from supra- and subgingival biofilm formation on implant site and analysis done for the detection of microorganisms by using real time PCR, checkerboard DNA-DNA and DNA-RNA hybridization., Luterbacher et al in 2000 [11]and Shibli et al in 2008 [12]demonstrated in their study that higher counts of Porphyromonas-gingivalis, Treponema denticola and Tannerella forsythia were associated with peri-implant disease.

4. Peri-implant crevicular fluid analysis:

Analysis of Peri-implant cervical fluid is done to determine biochemical markers like cytokines, enzymes and proteases. The crevicular fluid analysis is used as an adjuvant and not considered to be an important diagnostic tool. A study was done byPlagnat et al in 2002 [13] to determine the level of elastase, α2- macroglobulin and alkaline phosphatase in crevicular fluid collected from implant sites with or without clinical, radiographic and microbiological signs of peri-implantitis. They found that elastase and alkaline phosphatase are the markers of bone loss around dental implant.

5. Histopathological diagnosis:

Microscopic examination of biopsy material reveals numerous mixed inflammatory cells (predominantly plasma cells and lymphocytes) infiltrate lateral to pocket epithelium and this can extend to the bone crest area.[3]

Conclusion

Peri-implant disease may develop after several years of implant placement. Risk factors associated with peri-implant disease should be identified. For obtaining better diagnosis and survival rate, baseline clinical measurement and radiographical analysis should be done immediately after implant and prosthesis placement. This will helpin comparison of bone support latter.

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