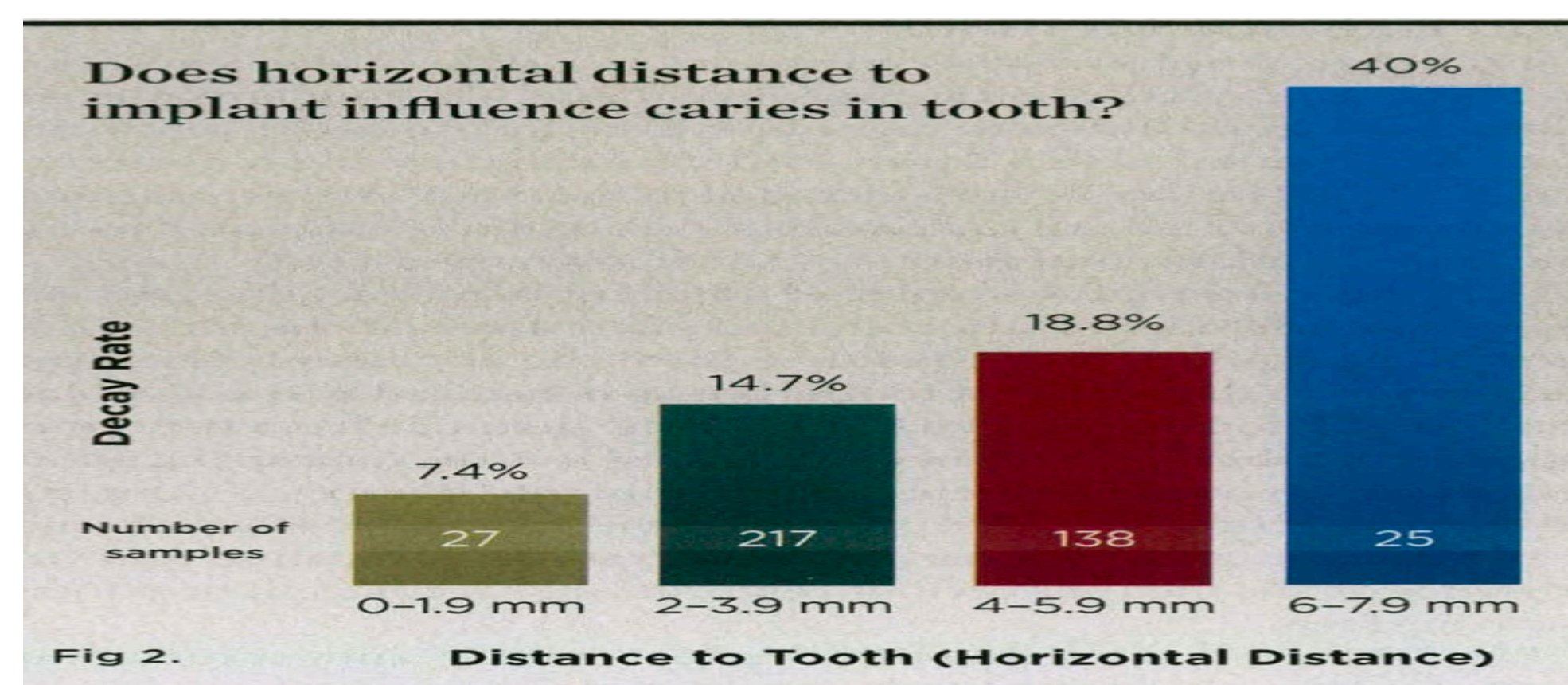




INTRODUCTION

Restoring teeth with implants is a treatment modality that has been offered to patients for the last few decades. Restoring missing teeth with implants also preserves adjacent tooth structure by avoiding removal of healthy enamel and dentin during abutment preparation. However, It has been identified that there is a high incidence caries rate on the cervical and root caries on the teeth adjacent to a posterior implant restoration. The purpose of this literature review is to explore the influence of implant crowns on the adjacent teeth. There is not enough published research that analyze the influence of implants on tooth proximity. There were several relations investigated, among them is the lack of horizontal tooth to implant distance known as ITD. Therefore, I chose to review and summarize the articles that are available and evaluate the strengths of evidence on which the research is based. This information may be useful in the future in treatment planning for a posterior implant placement.

Horizontal Distance to Implants and its Influence on Adjacent Teeth?



(Smith,2020, Influence of Implant-Tooth Proximity on Incidence of Caries in Teeth Adjacent to Implants in molar sites)

MATERIALS AND METHODS

We conducted a google search with the query of caries on natural teeth after implant restorations in time. Several retrospective articles were evaluated, in those articles the incidence of caries in teeth adjacent to implants was explored, a review of retrospective radiographs was investigated regarding posterior teeth restorations. We located only two articles that addressed the long term impact of implant restorations to adjacent teeth, one article is over 10yrs and another is 11yrs retrospectively (Smith,2020 & Misch,2008).

Graph Interpretation

The data in the graph suggests that the further the implant distance to the natural restoration in the adjacent tooth, the higher the incidence of decay increases. According to the graph above (Fig 2- Smith,2020), there was a 7.4% increase in the incidence of caries when the ITD distance was from 0-1.9mm and there was a 40% increase in the incidence of caries when the ITD increased to 6-7.9mm.

Radiographic Images

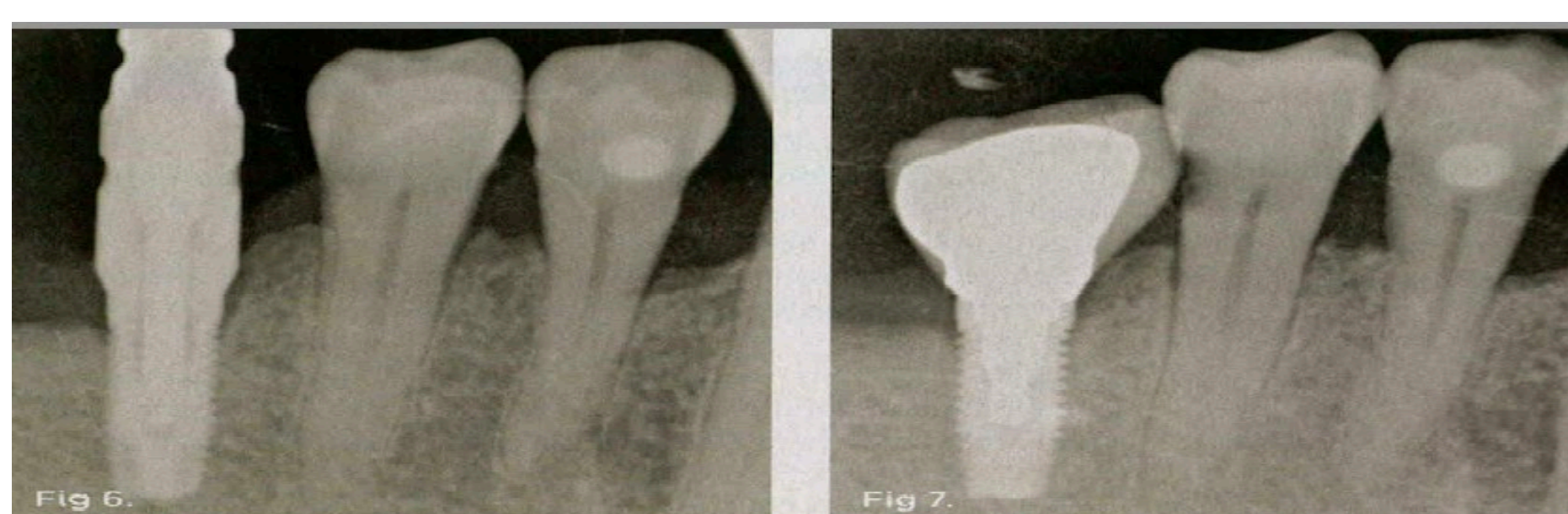


Fig 6- demonstrates implant placed in #30 site with no caries on adjacent teeth in time of final impression visit.
Fig 7- reflects a two year follow up radiographic image with evidence of interproximal caries adjacent to the implant, Reference to Smith 2020, Influence of Implant-Tooth Proximity on Incidence of Caries in Teeth Adjacent to Implants in molar sites.

Conclusion

A high incidence of interproximal caries has been identified on the teeth adjacent to implant crown restorations where the ITD increase beyond the critical ITD of 4 mm. The results of the articles will define the future treatment planning and might change the protocols to different alternatives that can counter effect the incidence of interproximal caries due to ITD related effects.

Results

The results in both articles (Smith,2020 & Misch,2008) showed that no adjacent teeth were lost. However, in all instances recorded, interproximal decay was developed in areas where the implant to tooth surface distance was limited or lacking (lack of LTD space). The cases documented primarily teeth in the premolar and molar areas. In addition, the studies presented, the Incidence of interproximal caries was shown to be higher in the presence of an existing restoration on an adjacent tooth(Smith, 2020).

According to one large study, there is a high incidence of interproximal caries on the teeth adjacent to implant crown restorations where the implant to tooth distance (ITD) increase beyond the critical ITD of 4 mm(Smith,2020). Another study indicates that adjacent natural teeth complications are minimal for as long as ten years after insertion(Misch,2008).

While the results of the articles presented are instructive, the research in this area is limited. More research is needed to confirm the findings and to define future treatment planning that will decrease the incidence of caries on teeth adjacent to implants.

In one study it was shown that the presence of an existing restoration on the adjacent tooth to a posterior implant crown increased the incidence of decay to a statistically significant degree with an odds ratio of 2.25 at a 95% confidence level(Smith 2020). In another article interproximal decay developed in 129 teeth out of 2,589 adjacent teeth to a posterior implant crown(Misch,2008).

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