

Diabetes and Periodontal Disease: The Need For Interprofessional Patient Care

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ABSTRACT

Objective: The objective of this clinical case presentation is to emphasize the importance of an interprofessional approach to health care. Specifically, this case will emphasize the importance of managing diabetes in a periodontal patient. **Background:** A 69 year old patient presented with the chief complaint of, "I want my teeth cleaned." The medical history revealed several medications and conditions that could potentially impact the oral cavity. The patient presented with type II diabetes mellitus, which became uncontrolled during the treatment; was taking a calcium channel blocker to control his high blood pressure, and was using a bipap machine for his sleep apnea. The patient also was obese and gave a history of bariatric surgery, GERD, and recent back pain. Assessment: The initial clinical examination of this patient revealed generalized mild bone loss as evidenced by 3-4mm from the CEJ radiographically, generalized moderate plaque induced gingivitis with dark pink spongy tissue with bulbous papilla that did not adhere tightly to the tooth with bleeding, and generalized mild chronic periodontitis as evidenced by 4-5mm CAL and 6mm CAL associated with swollen gingiva. Localized severe periodontitis of 8mm CAL on tooth number 19 was present. Dental Hygiene Treatment Plan: Scaling and root was planing was performed for selective areas along with a periodontal tissue re-evaluation. **Treatment:** The treatment was performed throughout three separate appointments. At the beginning of treatment the patient's A1C was 8.5% and his blood glucose was 195 mg/dl. Results: The re-evaluation appointment revealed slight improvement in the health of the gingiva, but minimal to no improvement in probing depths. Conclusion: This case highlights the need for an interprofessional approach to patient care. Problems with diabetes management, as well as other contributing factors, have been known to impact periodontal therapy outcomes.

INTRODUCTION

Many models for the future of healthcare include an interprofessional approach in which many different professions come together to collectively treat the patient. In 2010 the World Health Organization (WHO) issued a report discussing the framework for action on interprofessional education and collaborative practice. WHO defined collaborative practice as, "when multiple health workers from different professional backgrounds work together with patients, families, carers and communities to deliver the highest quality of care."

This case presentation outlines the need for interprofessional care in disease management. Given the medical history of this patient, it seems that a collaborative approach could be beneficial in managing the patient's diabetes, and potentially their periodontal disease. It has long been known that diabetes impacts the body's response to infections. As stated by Darby², "People with uncontrolled or poorly controlled DM are more susceptible to infections, including periodontal diseases."

ASSESSMENT

The initial clinical examination of this patient revealed generalized mild bone loss as evidenced by 3-4mm from the CEJ radiographically, generalized moderate plaque induced gingivitis with dark pink spongy tissue with bulbous papilla that did not adhere tightly to the tooth with bleeding, and generalized mild chronic periodontitis as evidenced by 4-5mm CAL and 6mm CAL associated with swollen gingiva. Localized severe periodontitis of 8mm CAL on tooth number 19 was present.

The patient also demonstrated several areas that displayed mild gingival hyperplasia, which was most likely a side effect of the calcium channel blockers the patient was taking. The patient also reported that they often had a dry mouth. The medication the patient was taking for his GERD, as well as the BiPAP machine used for sleep apnea, caused xerostomia.

BACKGROUND

Approximately three years prior to the start of treatment the patient reported having bariatric surgery. However, the patient was not able to keep the weight off and presented as obese. The patient attributed much of the weight gain to recent back pain.

The patient first reported that their type II diabetes mellitus was controlled with Metformin. The patient reported with an unknown A1C value and a blood glucose value of 120 mg/dL. During the course of the treatment, the patient reported their recent blood work results indicated uncontrolled diabetes with an A1C of 8.5% and a blood glucose level of 197mg/dl.

Over the course of 5 different appointments, several times the patient failed to eat breakfast or take their diabetes medication(s). When the patient did eat breakfast, they chose fast-food items.



Clinical photograph prior to scaling and root planing

Periodontal charting results before (aqua) and after (blue) scaling and root planing

TREATMENT

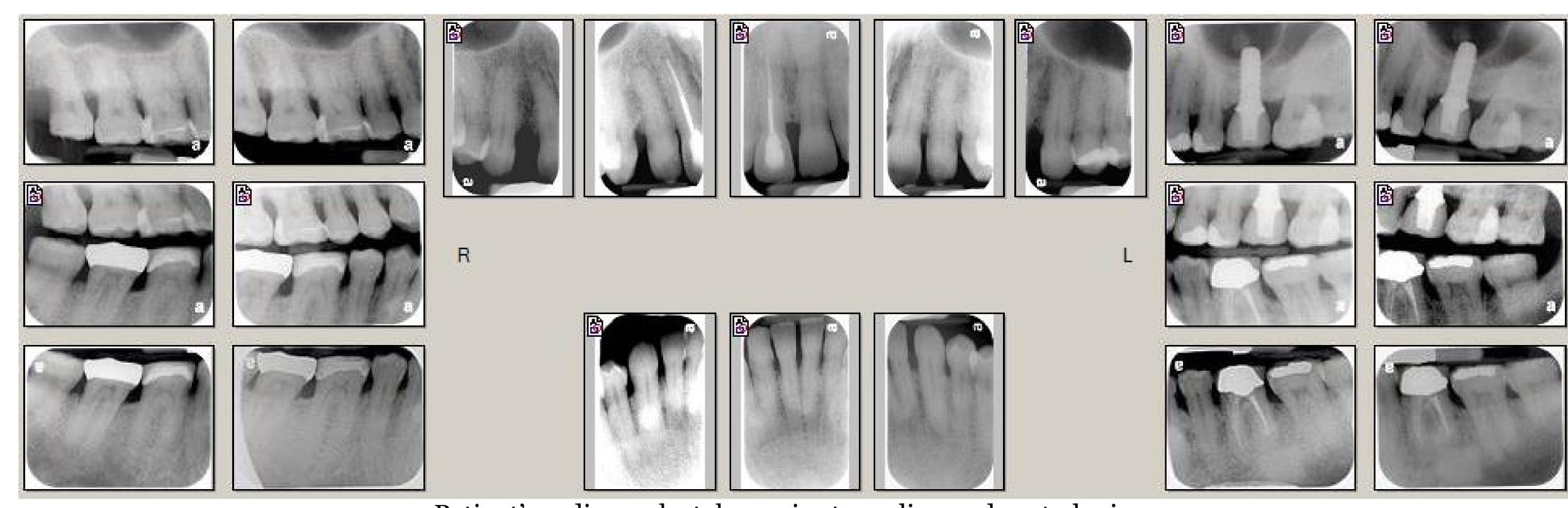
Scaling and root planing was performed on tooth numbers: 3, 4, 18, 20, 30 and 31. A four-week tissue re-evaluation was also performed to check the health of the periodontium after the non-surgical periodontal therapy had been completed.

EVALUATION

At the four week tissue re-evaluation, the patient showed some slight improvement in the health of the gingiva, but minimal to no improvement in probing depths. Overall, he showed a slight shift in his probing depth levels worsening by 1-2mm.

CONCLUSION

This case highlights the need for an interprofessional approach to patient care. Improvement of the patient's health can be achieved through collaborative care of all health care specialist involved. Problems with diabetes management, as well as other contributing factors, have been known to impact periodontal therapy outcomes.



Patient's radiographs taken prior to scaling and root planing

DISCUSSION

This clinical case highlights the need for interprofessional patient care. An interprofessional approach to this patient's care could include a report from one medical professional to the next summarizing the patient's health status. An open forum for discussion on patient management could result in better patient care.

The patient had many systemic health problems that were likely affecting one another. The patient had bariatric surgery only three years back, however they presented as obese. The patient complained of recent back pain, and attributed much of their recent weight gain to their back pain. At the first appointment the patient said their diabetes was controlled, however it was uncontrolled at the start of treatment, as shown by recent blood work. One can't make the assumption that one health issue caused the next, however one cannot deny the fact that many of the patient's health issues are interrelated. Excess weight has long been identified as a risk factor for developing diabetes³, and diet and exercise are often the first approach in managing the disease. The patient's obesity served as a risk factor for their diabetes, and their eating habits along with their lack of exercise likely served as a contributing factor for their obesity.

If the patient's bariatric surgeon, nutritionist, primary care physician, and dentist worked more collaboratively, the patient would likely receive more thorough care. The patient's bariatric surgeon and nutritionist need to work with the patient on weight management and healthy food choices. When the patient remembered to eat their breakfast before appointments, they would stop for fast-food. Since diabetes and periodontal disease have been shown to affect one another, a team effort between the hygienist and the patient's physician could have resulted in better management of the diabetes. Uncontrolled diabetes has long been known to serve as a risk factor for developing infections, including periodontal infections.² Therefore, better management of the patient's diabetes had the potential to impact the patient's periodontal status. As discussed in an article from the Australian Dental Journal of Evidence-Based Dental Practice⁵, non-surgical periodontal therapy could help improve glycemic control in diabetic patients. The patient was contacted about two months post treatment and they reported that their A1C was down to around 7%. Considering the patient's A1C was 8.5% at the start of therapy, the 7% was a considerable decrease.

REFERENCES

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