

## Case Studies on Diabetes and Gum Disease are Inter-linked

Asma Shahid\*

Department of Periodontology and Oral Implantology, University of Kufa, Pakistan

### Abstract

The link between diabetes and periodontal disease is discussed in this article, along with several gum diseases that are typical of diabetics. A person's chance of getting gum disease can rise when their blood sugar levels are high. In consequence, gum infections can raise blood sugar levels, which can make managing diabetes more challenging.

The term "periodontal disease," also referred to as "gum disease," describes illnesses that affect the gums, which are the soft tissues that support the teeth in the mouth. The likelihood of developing periodontal disease is higher in people with diabetes. An individual with diabetes can, however, avoid gum disease by controlling their blood sugar levels and keeping good dental health.

**Keywords:** Diabetics; Periodontal disease; Gums; Dental health

### Introduction

#### Gum disease

A bacterial infection in the soft tissues of the mouth causes gum disease, also known as periodontitis and periodontal disease [1].

An association between gum disease and Alzheimer's disease has now been discovered by a Tufts University research team using mice studies and the bacteria *Fusobacterium nucleatum* (*F. nucleatum*). Researchers think these discoveries could slow the growth of both periodontal disease and this particular type of dementia.

### Case studies

#### Diabetes and periodontal disease

Bacteria and food particles are continually present in the mouth. Plaque is a sticky substance that forms on the teeth when people do not routinely clean and floss their teeth and it sticks to the teeth. If plaque isn't removed, it can irritate the gums and lead to gingivitis, an early stage of gum disease. Tartar forms when plaque is left on the teeth and gums for an extended period of time. Typically, only a dentist can remove tartar using dental tools during a thorough dental cleaning because tartar is so difficult to remove. Too much tartar on the teeth can cause periodontitis, the second stage of gum disease. A worsening of the gum and tooth infection is brought on by periodontal disease. Periodontitis can cause tooth loss if ignored [2].

Diabetes and periodontal disease are correlated in both directions, according to the American Dental Association (ADA). As a result, while gum disease raises the risk of high blood sugar, gum disease also makes it difficult to control blood sugar levels, thereby raising an individual's A1C levels. As a result, research has found a connection between periodontal disease and an increased risk of problems from diabetes [3].

Diabetes alters saliva, which can harm oral health. By lubricating the mouth, removing waste, inhibiting bacterial growth, protecting tissues, and battling bacterial acids and tooth decay, this fluid serves a crucial function. However, unmanaged diabetes may result in the salivary glands producing less saliva. There may be more glucose in this saliva [4].

A dry mouth as a result of these changes in saliva fosters the growth of bacteria, which then combines with food to produce plaque. Plaque can accumulate on teeth close to the gum line and harden into tartar if

it is not removed. A dental health practitioner must remove this hard substance using therapy. Periodontal disease can develop if tartar is not removed [5].

A severe inflammatory reaction to the bacterium is more likely to occur in diabetics. Additionally, high blood sugar impairs the healing of wounds and raises the possibility of gum damage, which raises the risk of infections and gum disease. Therefore, oral symptoms are more likely to occur in persons who are unable to maintain adequate blood sugar levels. One of these is: (1) Tooth loss, (2) Discomfort, (3) Foul breath, (4) Trouble chewing.

The most prevalent dental problem affecting people with diabetes is periodontal disease. According to some sources, it affects around 22% of people with diabetes [6]. According to additional studies, compared to 16% of those without diabetes, over one-quarter of Americans over 50 who have diabetes would experience serious tooth loss. Evidence suggests that people with type 2 diabetes are around three times as likely to experience dental issues as people without the disease. Additionally, those who have type 1 diabetes are at higher risk.

#### Diabetes patients frequently experience oral issues

The most prevalent and dangerous oral side effects of diabetes are gum disease. Gum disease has a higher chance of becoming serious if blood sugar levels are not under control [7]. A person could encounter the following ailments:

**Gingivitis:** Gum disease frequently begins with gingivitis, which is gum inflammation. When plaque and tartar build up on the teeth close to the gum line, this disease occurs. The gums become irritated and inflamed as a result, which can be uncomfortable and make the gums bleed easily [8].

**Periodontitis:** The term "periodontitis" refers to a gum and bone

\*Corresponding author: Asma Shahid, Department of Periodontology and Oral Implantology, University of Kufa, Pakistan, E-mail: shahid.a.65@gmail.com

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supporting the tooth infection. Usually, it results from gingivitis that is left untreated. Small pockets may form when gums are pulled away from teeth. Bacteria can enter these pockets, cause a gum abscess, and start degrading the bone and gums. This issue may lead to tooth loss if left untreated [9].

Diabetes and additional oral issues could result in: Dental cavities, oral thrush, dry mouth (also known as xerostomia), xerostomia, burning mouth syndrome, and cavities in the mouth.

**Uphold a healthy mouth:** The ADA emphasises the value of maintaining good oral hygiene at home, scheduling routine dental visits, and making lifestyle choices that can improve oral health [10].

The following are general suggestions for keeping good dental health:

- Cleaning between teeth every day using dental floss, interdental brushes, oral irrigators, or wood sticks;
- Brushing teeth twice a day for about two minutes with fluoride toothpaste;
- Eating a variety of foods and avoiding sugar-sweetened beverages and snacks;
- Visiting the dentist on a regular basis to prevent and cure oral disease.

Lifestyle factors could include: (1) Avoiding smoking, (2) Consuming fluoridated water, (3) Getting oral piercings like tongue piercings. The ADA also stresses the significance of controlling blood sugar levels for excellent oral health. This is due to the fact that dry mouth and oral infections can be avoided with adequate blood sugar management [11]. Taking drugs, eating a wholesome, well-balanced diet, and exercising frequently are all suggestions for regulating blood glucose levels.

## Results

### Consult a dentist

People with diabetes should go to the dentist frequently. The American Diabetes Association advises people to schedule two dentist visits a year. A person should let the dentist know if they have diabetes. Details on any diabetes-related issues, drugs used, and duration of diabetes should also be shared with the dentist [12, 13]. One should see a dentist right away if they experience any oral symptoms, such as red, swollen, or readily rupturing gums, as these could be signs of gum disease.

## Conclusion

Gum disease is more common in those with diabetes. Consistently elevated blood sugar levels can harm dental health and raise the danger of infections that could cause gum disease. Gum disease can also make it more difficult to regulate blood sugar levels. By maintaining good blood sugar levels, brushing and flossing twice daily, and scheduling routine dental visits, a person can lessen their risk of developing periodontal disease.

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## Conflict of Interest

None

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