

# Treatment Measures in the Face of Viruses and Infectious Diseases and their Impact on Causing Oral and Dental and Cardiac Diseases and Its Challenges

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## Abstract

Due to the characteristics of the dental environment, the risk of transmission of infection can be high among patients and dentists. Strict and effective infection control protocols are urgently needed for dental offices and hospitals in areas affected by Covid-19. The World Health Organization announced that the outbreak of the Corona virus has created an urgent public health concern at the international level. As of February 26, 2020, Covid-19 is known in 34 countries, with a total of 239,80 laboratory-confirmed cases and 2,700 deaths. Current observations suggest that people of all ages are generally susceptible to this new infectious disease. However, those in close contact with symptomatic and asymptomatic patients with COVID-19, including medical staff and other hospitalized patients, are at higher risk for CoV-SARS-2 infection. This article, based on the experiences of China and other leading countries, as well as relevant guidelines and conducted research, presents treatment measures in the face of viruses and infectious diseases and their impact on causing oral and dental diseases and its challenges. Provides recommended management protocols for dentists and students in affected areas.

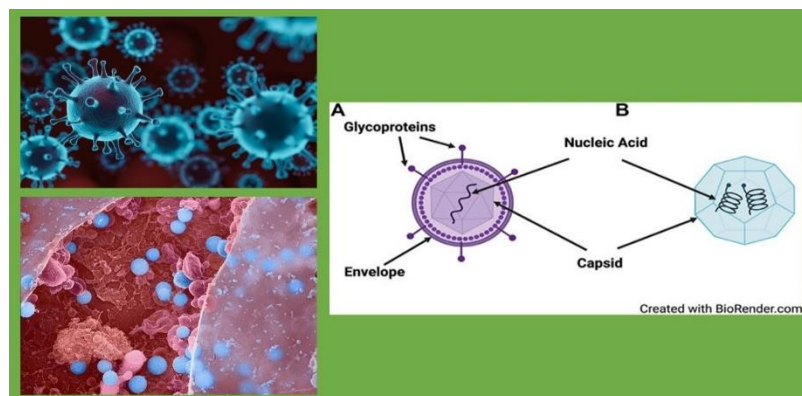
**Key Words:** Viruses, Infectious Diseases, Oral and Dental Diseases, COVID-19

## Introduction

The 2019 Corona virus disease epidemic (Covid-19), which originated in the city of Wuhan, China, has gradually become a major and important public health challenge that has involved not only China but also other countries in the world [1-3]. Early in the epidemic, in an analysis of 138 hospitalized patients with Covid-19 in Wuhan, 57 (41%) were thought to have been infected in the hospital, including 40 (29%) medical staff and 17 (12 %) who were hospitalized for other reasons. From February 14, 2020, a total of 1,716 medical personnel in China were infected with CoV-SARS-2, which included 3.8% of infected patients in the country, and 6 people died from this group.

**Summary of clinical manifestations:** Most patients experienced fever and dry cough, while some also had shortness of breath, fatigue, and other atypical symptoms such as muscle pain, confusion, headache, sore throat, diarrhea, and vomiting [4-6]. In general, older people with underlying problems (e.g., diabetes, high blood pressure, and cardiovascular disease) had a poorer prognosis.

**Infection control in dentistry:** The risk of nosocomial infection in the dental work environment, patients who cough and sneeze or receive dental treatments, including in procedures that use high-speed or ultrasonic hand pieces, release the patient's oral secretions, saliva, or blood into the air and spread around the environment (Figure 1). After use, dental hand tools have the possibility of being contaminated with various pathogenic microorganisms or even being exposed to a contaminated environment in the clinic [7-9]. Also, infections can be caused by piercing the skin with sharp instruments or direct contact between mucous membranes and infected hands [10-12].



**Figure 1.** Deciphering the Immune Response to Viral Infection

Due to the unique characteristics of dental procedures with the large number of droplets and airborne particles that are created, standard routine protective measures during clinical dental

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treatments are not effective enough to prevent the spread of Covid-19. Especially when patients are in the latent period, unaware that they have an infection or choose to hide their infection [13].

**Effective infection control protocols:** Observing hand hygiene is the most important measure to reduce the risk of transmitting microorganisms to patients. Depending on the type of surface, the temperature or humidity of the environment, CoV-SARS-2 can exist on surfaces for several hours or up to several days. This reinforces the need for good hand hygiene and the importance of thorough disinfection of all surfaces in the dental clinic. The use of personal protective equipment, including masks, gloves, clothing and goggles or face shields, is recommended to protect the skin and mucous membranes (potentially) from contaminated blood and secretions. Since the main route of transmission of CoV-SARS-2 is droplets are breathable, N-95 masks approved by the National Institute of Occupational Safety and Health or 2FFP standard masks designated by the European Union are recommended for routine dental work.

**Recommendations for dental clinics:** Dentists should take strict personal protection measures and avoid or minimize operations that can produce droplets or aerosols. The use of saliva repellants with a small or large volume can reduce the production of droplets and suspended particles in the air [14-16]. Check your staff in advance (Figure 2), and patients should be asked questions about their health status and contact or travel history, patients and companions should be provided with medical masks upon arrival, and their temperatures should be measured. Patients with fever should be registered and referred to certain hospitals. If the patient has visited epidemic areas in the past 14 days, quarantine for at least 14 days is recommended. In areas where Covid-19 has spread, non-emergency dental procedures should be postponed.

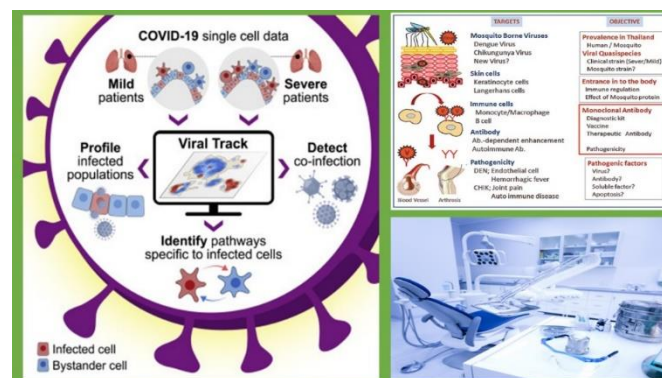


Figure 2. Reveal Signatures of Severe COVID-19 Patients

**Oral and dental examination:** Antimicrobial mouth rinse before treatment procedures can reduce the number of microbes in the oral cavity. Procedures that may induce coughing should be avoided (if possible) or performed with caution. Aerosol production steps, such as the use of air and water vapor, should also be minimized as much as possible [17]. Although intraoral x-ray examination is

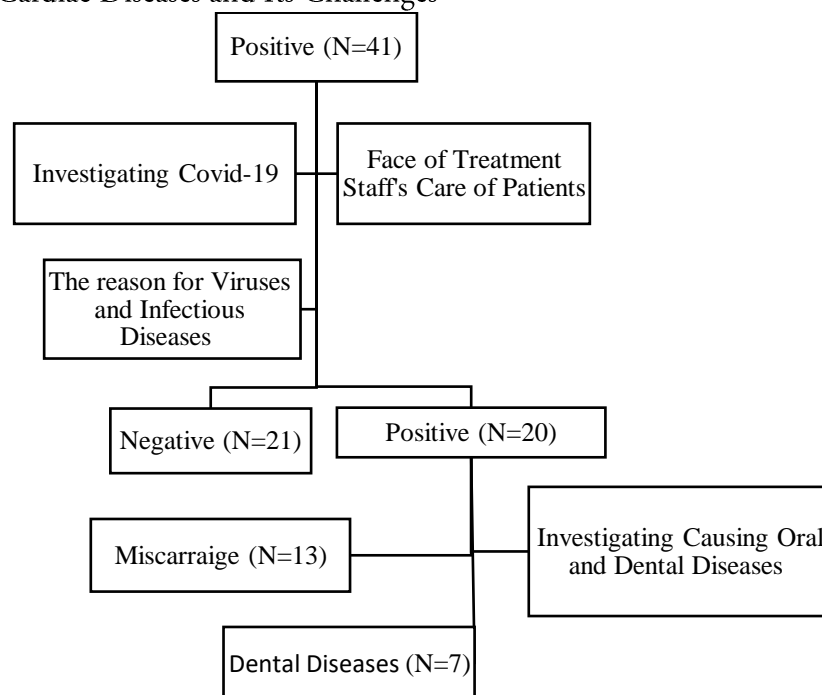
the most common radiographic method in dental imaging. However, it can stimulate salivation and coughing. Therefore, extra oral radiography, such as panoramic radiography and CT, are suitable options during the outbreak of Covid-19.

**Treatment of Emergencies:** Dental emergencies may occur and worsen over a short period of time and therefore require immediate action. The use of a large amount of sputum and saliva can help minimize aerosols or prevent them from spreading during the treatment procedure. In addition, face shield and goggles are necessary while using the hand piece at high speed or low speed with water spray [18]. If a decayed tooth is diagnosed with symptoms of irreversible pulpitis, pulp exposure is performed after local anesthesia, caries removal is performed by chemical-mechanical method using rubber and high-volume saliva remover; And finally, denervation can be done to reduce pain.

The filler material can be replaced later slowly without the need for anesthetic according to the manufacturer's instructions and recommendations. The patient requested to keep his tooth and was placed as the last patient of the day to reduce the risk of infection and spread of nosocomial infection. After the treatment, cleaning, disinfection and disinfection of the environment was done. On the other hand, in case of suspected cases of Covid-19, patients can be treated in an isolated room with proper ventilation or in rooms under negative pressure. The treatment plan for tooth fractures, displacement of teeth, and complete loss of teeth depends on the age, severity of dental tissue damage, root development, and the duration of tooth loss. If the tooth needs to be extracted, an absorbable suture is preferred [19]. For patients with facial soft tissue damage, debridement and sutures should be used. It is recommended to wash the wound area gently and use a saliva repellent to prevent the spread of saliva. Threatening cases of oral and maxillofacial injuries and combined injuries should be immediately performed chest CT for hospitalization and, if present, to diagnose and rule out suspected infections.

### Search strategy and selection of articles

Search in Scopus, Google scholar, PubMed databases and by searching with keywords such as "Treatment Measures in the Face of Viruses and Infectious Diseases" and "Covid-19" and "Oral and Dental Diseases" to obtain articles related to the selected keywords [7] (figure 3).



**Figure 3.** Flow chart of included subjects

Case report articles, editorials, and articles that were not published or only an introduction of them were available, as well as summaries of congresses and meetings that were in languages other than English, were ignored. Only the original research articles that evaluated the effectiveness of different drugs in the treatment of COVID-19 using standard methods were studied.

### Infectious diseases

Infectious diseases are disorders caused by organisms such as bacteria, viruses, fungi or parasites. Many organisms live in and on our bodies. They are usually harmless or even helpful. But some of them may cause disease under certain conditions [20]. Some infectious diseases may be transmitted from person to person. Some of them are transmitted by insects or other animals, and others are transmitted by consuming contaminated food or water or exposure to environmental organisms. Signs and symptoms vary depending on the organism causing the infection, but often include fever and fatigue. Mild infections may respond to rest and home remedies, while some life-threatening infections may require hospitalization and referral to an infectious disease specialist [21]. Many infectious diseases such as measles and chicken pox can be prevented with vaccines. Frequent and thorough washing of hands also helps in protection against infectious diseases.

### **Symptoms of infectious diseases**

Each infectious disease has its own signs and symptoms. General signs and symptoms that are common to a number of infectious diseases include:

- Fever;
- Diarrhea;
- Fatigue;
- Muscle pains;
- Cough;

Parasites, fungi, viruses and bacteria are among the main causes of infectious diseases.

### **When should you see a doctor?**

Seek medical attention if any of the following occur:

- Bitten by an animal;
- Having breathing problems;
- Coughing for more than a week;
- Severe headache with fever;
- Experiencing skin rash or swelling;
- Unexplained or prolonged fever;
- Sudden vision problems.

### **Cause of infectious diseases**

Infectious diseases can be caused by the following:

- **Bacteria's.** These single-celled organisms are the cause of diseases such as microbial sore throat, urinary tract infection and tuberculosis.
- **Viruses.** Viruses are even smaller than bacteria and cause many diseases from colds to AIDS.
- **Mushrooms.** Many skin diseases such as ringworm and athlete's foot are caused by fungi. Other types of fungi can infect the lungs or the nervous system.
- **Parasites.** Malaria is caused by a parasite that is transmitted by mosquito bites. Other parasites may be transmitted to humans from animal feces (Figure 4).

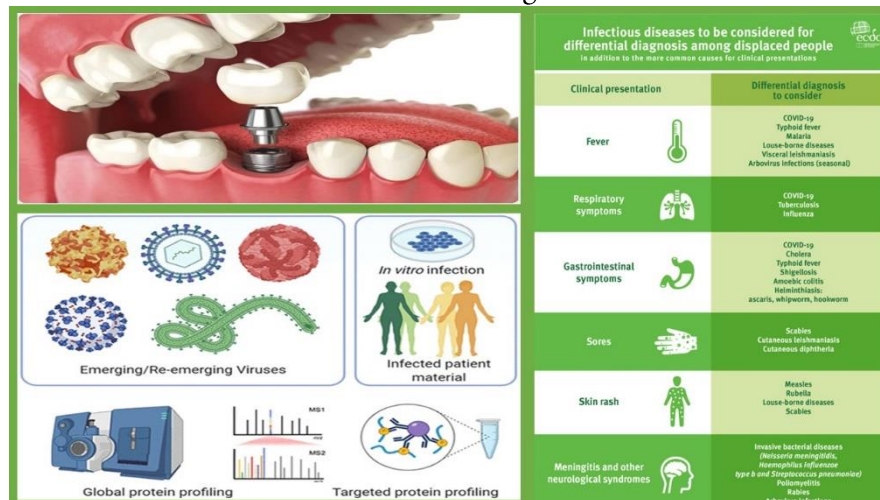


Figure 4. Cause of infectious diseases

### Direct contact

The easiest way to catch most infectious diseases is to contact an infected person or animal. Infectious diseases can be transmitted through direct contact in the following ways:

- **Person to person.** Infectious diseases are usually spread by direct transmission of bacteria, viruses, or other microbes from person to person. This may occur when someone infected with the bacteria or virus coughs, sneezes, touches, or kisses an uninfected person.
- **These microbes can also be spread through the exchange of body fluids during sexual contact.** A person carrying the germ may not have any symptoms of the disease, but can easily be a carrier [22].
- **Animal to person.** A bite or scratch from an infected animal – even a pet – can make you sick and put you in an acute condition that can be fatal. Handling animal feces can also be dangerous. For example, you can get toxoplasmosis by picking up your cat's litter box.
- **Mother to unborn child.** A pregnant woman may transmit germs that cause infectious diseases to her unborn baby. Some germs can be transferred from the placenta or breast milk. Germs in the vagina can also be transferred to the baby at birth.

### Indirect contact

Disease-causing organisms can also be transmitted through indirect contact. Many germs can remain on inanimate objects such as tablecloths, doorknobs, or faucet handles.

### Insect bites

Some microbes rely on insect vectors—such as mosquitoes, fleas, lice, or ticks—for transmission from one host to another. These carriers are known as vectors. Mosquitoes can carry malaria parasites or West Nile virus. Deer ticks may carry bacteria that cause Lyme disease [23].

### **Food contamination**

Disease-causing microbes can infect you through contaminated food and water. This transmission mechanism allows the spread of microbes to a large number of people through a single source. For example, *Escherichia coli* (*E. coli*) is some bacteria that can be found in or on certain foods such as undercooked hamburger or unpasteurized fruit juice.

### **Risk factors**

If the immune system of a person with an infectious disease does not work properly, he will probably get sick.

This is likely to occur if the following conditions exist:

- Getting sick while taking steroids or other drugs, such as anti-rejection drugs for a transplanted organ, that suppress the body's immune system.
- Having HIV or AIDS;
- Suffering from certain types of cancer or other disorders that affect the body's immune system.

In addition, other clinical conditions, such as implanted medical devices, malnutrition, and advancing age may predispose a person to infection.

### **Side effects of infectious diseases**

Most infectious diseases are associated with only minor complications. But some infections—such as pneumonia, AIDS, and meningitis—can be fatal. Several types of infections are associated with a long-term increase in cancer risk:

- Human papillomavirus is associated with cervical cancer.
- *Helicobacter pylori* is related to stomach cancer and stomach ulcers.
- Hepatitis B and C are related to liver cancer.

**Infectious disease diagnosis methods:** The doctor may order laboratory tests or imaging scans to determine the cause of the symptoms [24].

**Laboratory tests:** Many infectious diseases have similar signs and symptoms. Sometimes a sample of body fluids can show evidence of the specific germ causing the disease. This helps the doctor in the treatment process.

- **Blood tests.** A technician takes a blood sample by inserting a needle into a vein, usually in the arm.
- **Urinalysis.** This painless test involves urinating into a container. To avoid possible contamination of the specimen, it may be instructed to first clean the genital area with an antiseptic and then collect the urine.
- **Throat swabs.** Samples obtained from the throat or other moist areas of the body may be taken with a sterile swab.



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- **Stool sample.** You may be taught how to take a stool sample to submit to a laboratory to test for parasites and other organisms.
- **Spinal cord injury (lumbar puncture).** This procedure is done to take a sample of cerebrospinal fluid through a needle carefully inserted between the bones of the spine. Usually, the patient is asked to lie on his back with his knees drawn towards his chest.

**Imaging scans:** Imaging procedures—such as X-rays, computed tomography, and magnetic resonance imaging—can help make an accurate diagnosis and rule out other diseases that cause these symptoms.

**Biopsy:** During a biopsy, a small tissue sample is taken from an internal organ for testing. For example, a biopsy of lung tissue can be used to check for the types of fungi that cause a particular type of pneumonia.

**Ways to treat infectious diseases:** Knowing the type of germ makes it easier for the doctor to choose the most appropriate treatment option.

**Antibiotics:** Antibiotics are grouped into similar families. Bacteria are also classified into groups containing similar types (such as streptococcus or E. coli). Certain types of bacteria are sensitive to certain classes of antibiotics [25]. If the doctor knows the type of bacteria causing the disease, the treatment can be more targeted (Figure 5). Antibiotics are usually used for bacterial infections, as these drugs have no effect on diseases caused by viruses. But sometimes it is difficult to determine which type of microbe is involved in the disease. For example, pneumonia can be caused by bacteria, viruses, fungi, or parasites. Excessive use of antibiotics has led to the creation of types of bacteria that are resistant to one or more types of antibiotics. This makes treating these bacteria much more difficult.

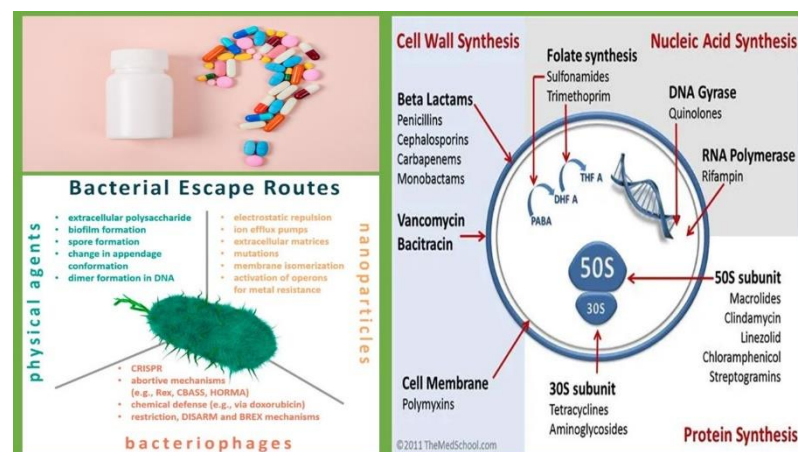


Figure 5. Antibiotics

**Antifungals:** Topical antifungal medications can be used to treat skin or nail infections caused by fungus. Some fungal infections, such as those affecting the lungs or mucous membranes, can be treated with an oral antifungal medication. More severe fungal infections of internal organs, especially in people with weakened immune systems, may require intravenous antifungal drugs.

**Anti-parasitic drugs:** Some diseases, including malaria, are caused by tiny parasites. Although there are drugs to treat these diseases, some types of parasites have shown resistance to these drugs.

### **Oral and dental infectious diseases**

Among oral and dental diseases, the most well-known infectious diseases of the mouth are oral herpes, which may be called cold sores or fever blisters. It is estimated that 50-80% of adults live with oral herpes dormant or active. People with oral infections are susceptible to bacterial, fungal and viral infections [26]. These infections often cause lesions on your lips, under your tongue, and the soft tissues inside your cheeks. These lesions can be uncomfortable or painful and cause dry mouth and swallowing problems [27-29]. After the first bout with oral herpes, your body makes antibodies to fight the virus and its effects. So, the next outbreak of HSV-1 in your mouth may not be as severe, or the virus may remain dormant. However, if you are experiencing the early stages of an oral herpes outbreak, taking antiviral medications can prevent cold sores from fully developing. You can minimize the incidence of disease by maintaining emotional and physical health.

### **The most common oral and dental diseases in children**

Each and every thing that was said for oral and dental disease in adults is also true for children. Such as tooth cavities and decay, gum diseases, including swelling and bleeding, infectious diseases such as herpes, which often appear in children aged 6 months to 5 years, mouth and throat cancer, etc. But due to the greater sensitivity of children, some other diseases also include their condition. When a tooth infection occurs, the infected tooth may show some symptoms. One of the main symptoms of a tooth infection is the pain of an infected tooth.

**Also, in more severe cases, pain in the area:**

- Jaw;
- Neck;
- Or the ear, which is usually on the same side as the toothache.

A toothache that progresses while sleeping is one of the signs of infection in the tooth. Also, sensitivity to pressure in the mouth, sensitivity to cold and hot foods and drinks are also symptoms of tooth infection [30].

**Other symptoms of tooth infection include:**

- Swelling of lymph nodes, tonsils and neck.

- Or even swelling of the cheek also mentioned.

Bad breath, unpleasant taste in the mouth and in some cases, fever are also signs of tooth infection. When the tooth infection is untreated and severe and can spread to other parts of the body, its symptoms may change and the person may experience new symptoms.

**Among these symptoms can be:**

- Headache;
- Fatigue;
- And feeling unwell noted.

Fever and chills with reddening of the skin or sweating are also symptoms of severe tooth infection. Swelling of the face in such a way that the person cannot open his mouth completely or has difficulty in breathing and swallowing water is also a serious symptom of tooth infection. When heart pulses increase, heart rate increases and headache also occur.

These conditions can also be symptoms of serious tooth infections. Also, the number of breathings in this situation may exceed 25 times per minute, and in some cases, nausea and diarrhea may also occur. One of the symptoms of a tooth infection is a throbbing pain that repeats continuously in a person's tooth. The patient stays awake during the night with this pain, and in this situation, it is most likely that the person's tooth has an abscess and infection [31]. Tooth infection can spread in the areas around the root or in the areas at the end of the tooth root. Dental infection originates from central nerve and dental pulp conflicts. In general, it can be said that there is a channel in the center of the tooth, inside this channel there are blood vessels and nerves of the tooth, which is called the pulp. When tooth decay progresses and approaches the dental pulp, all kinds of microbes and bacteria are transported to the dental pulp and multiply in that part.

- 1- After spreading and multiplying the microorganisms by multiplying in the dental pulp, they cause the infection to spread inside this cavity.
- 2- And in this case, the infection also spreads at the end of the tooth root.
- 3- It can be said that at this time, the infection will also penetrate into the tissues adjacent to the root or jaw bone.

**What is the process of tooth infection?**

When the tooth has cracks, cracks or any kind of decay, bacteria can easily enter the tooth and cause an infection in the tooth. There are various risk factors for tooth infection, which can be mentioned. One of these factors is not observing oral and dental hygiene.

- Not brushing twice, a day;
- And not using dental floss by the person.

It causes poor dental and oral hygiene, which results in the easier growth of bacteria in the teeth.

**Also, people who have a high sugar diet and high consumption of:**

- Chocolate;
- Carbonated drinks;

- And they have all kinds of sweets.

They are also seriously exposed to tooth infection.

Also, having a dry mouth, which is usually caused by:

- Increasing age;
- Mouth breathing;
- Or different types of diseases are caused; it also increases the risk of tooth infection.

Tooth decay causes the loss of tooth enamel and then causes damage to the soft tissue layers under the tooth, which are called dental dentin. This caries can enter the center of the tooth, which includes the dental pulp, and in this case, it is said that the dental pulp is inflamed [32]. When the tooth pulp becomes inflamed, the tooth pulp dies and the infection spreads. Microorganisms that cause infection in the pulp continue to cause infection as long as possible, so that the infection reaches the adjacent tissues of the tooth as well as the bones that surround the tooth.

In this way, serious infections are created in the teeth. Tooth infection or abscess will not go away without treatment. If a tooth abscess has developed, which is a bag containing pus, it can rupture if left untreated, and in this case, the pain caused by it may be greatly reduced [33]. But it should be noted that treatment must be done in this case as well. If the tooth abscess is not drained, the infection can easily spread to the jaws and other parts of the head and neck and cause sepsis or blood infections, which are a type of infection. They are a widespread infection and a serious threat to the human body. Any factor that causes bacteria to enter the root of the tooth can cause an infection in the pulp. Among these factors, we can mention the most important ones, i.e., severe tooth decay. Also, among the factors that cause infection in the dental pulp are:

- Impact or trauma to the tooth;
- Tooth fracture;
- An untreated abscess as well as grinding teeth are also mentioned.

In addition, one of the main causes of tooth infection is damage to tooth enamel. Tooth enamel that has become vulnerable and fragile becomes a very good way for bacteria to enter the internal cavities of the tooth, which causes serious decay in the tooth [34]. The infection created in the tooth causes the formation of a latex or dead tissue, which includes live, dead cells and even white blood cells, on the tooth and causes tissue swelling. This phenomenon causes toothache and if the teeth are destroyed, they may not be damaged anymore, but the infection is still active and continues to spread and destroy the tissues.

### Signs and symptoms of tooth abscess

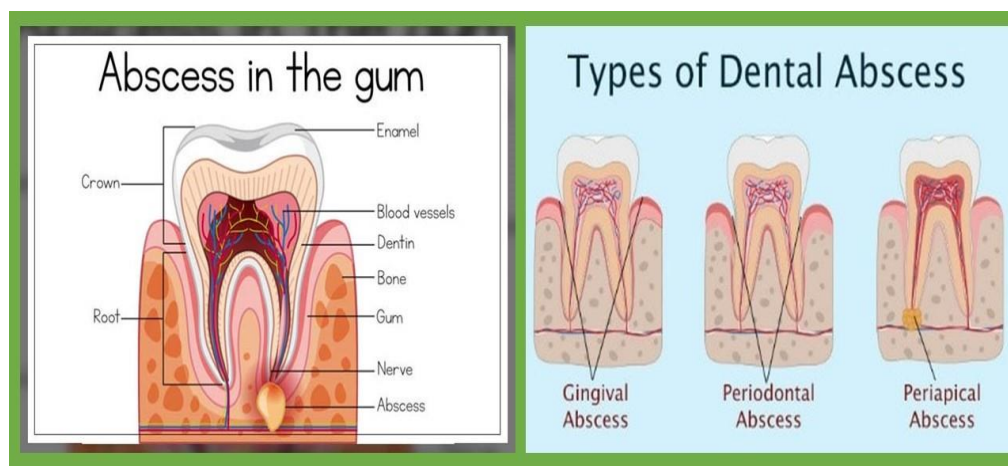
The damaged tooth becomes darker than the surrounding teeth. By-products of necrotic pulp penetrate into the layers filled with tooth pores and cause this discoloration. In many cases, there may be no toothache, but sometimes there is pain when eating or pressing on the tooth. An abscess that has extended the root tip causes the supporting structures (gums and bone) to be affected. Sometimes the throbbing and swelling caused by the pain is so severe that it cannot be treated with painkillers, which usually happens when the infection has spread and there is too much pressure

on the surrounding gum and bone structures [34-36]. A swelling can be seen on the gum which is full of pus. The swelling looks like a pimple near the damaged tooth.

This open boil is called a "draining fistula" and can be drained to release pus. This is a clear sign of infection! Other symptoms of tooth abscess include a bad taste or smell in the mouth, pain when biting and chewing food, and difficulty in swallowing and breathing. Swelling of the face, jaw, or surrounding lymph nodes often indicates a growing infection [37-39]. Jaw pain caused by swelling can also be present. It should also be noted that a tooth abscess may not have any symptoms at all. Now, if a tooth is decayed and has lost its sensitivity, it may not cause pain. However, the abscess is still present and can further spread the tooth infection. Sometimes, this disease is diagnosed during a routine radiographic (X-ray) examination where the patient has not experienced any symptoms of a dental abscess.

### Treatment of dental abscess disease

In adults, the usual treatment for an abscessed tooth begins with proper cleaning of the infection. Treatment depends on the extent of the infection (Figure 6). The course of action usually includes oral antibiotics such as penicillin. The tooth is opened to remove the infected contents into the pulp chamber and, if necessary, an incision and drainage is made on the soft tissue to allow more pus to drain and reduce the pressure of the growing infection. After the infection is cleared and the tooth is restored, a procedure called "root canal treatment" is performed [40].



**Figure 6.** Treatment of dental abscess disease

In this method, the entire interior of the tooth (pulp chamber and related canals) is cleaned and the space is sealed with an ineffective rubber material called "gutta percha". Cleaning and sealing the interior of the tooth protects it more against aggressive infections. The tooth may sometimes need to be extracted if the surrounding structure or bone is lost due to decay and infection. In the case of children's primary teeth (baby teeth), if the tooth has an abscess, the probability of saving the tooth is very low, because the infection has progressed and there is no way to completely eliminate the infection [41]. The proper treatment to remove the infection is to extract the

abscessed tooth. Complete extraction of an abscessed tooth is essential to prevent ongoing infection and can reduce the risk of damage to the underlying adult tooth. Depending on the extent of the infection, you may or may not need oral antibiotics.

### **Some home remedies for tooth abscess**

In general, home remedies related to oral and dental hygiene are not recommended for this disease. Home remedies can be used to temporarily reduce these symptoms, for example, methods such as rinsing the mouth with salt water or placing a warm compress on the abscess area can be mentioned, as well as over-the-counter pain relievers such as non-steroidal anti-inflammatory drugs (NSAIDs) used. However, if the disease is not treated properly, the infection will continue to progress.

### **Ozone therapy**

Simply put, it is a comprehensive method for treating all kinds of dental diseases. Ozone is made up of three oxygen atoms bonded together, which means it can actually kill the organisms that cause many dental diseases. This method is antibacterial, antiviral and antifungal. Ozone therapy is effective in helping your body fight things like bacteria, fungi, protozoa, viruses, and yeast. When faced with severe gum sensitivity and an infected root canal, ozone therapy can help to desensitize the gums and roots [42].

After the initial decay in the mouth is resolved, the dentist can treat the area with ozone therapy before completing the filling. This ensures that no decay reaches the nerve of your tooth.

### **Surgical alternatives to root canal treatment**

In some cases, root canal treatment is not enough to save the tooth. Sometimes root canal surgery is the best option. Surgery can be more effective in cases where the anatomy of the patient's canal is complex and there are small canals that do not show up clearly on x-rays.

Surgery provides an opportunity to treat bone and root injuries. Apicoectomy is a specific procedure that is likely to be seen as a more invasive option for a root canal. During this procedure, the specialist makes an incision in the gum tissue to expose the bone and surrounding tissue. They remove the damaged tissue and use a root end filling to fill in the area and then seal it again.

Root fillings especially help prevent re-infection. Bone naturally heals around the root. While apicoectomy makes the list of root canal alternatives, it is important to note that when a root canal requires additional treatment, this procedure is actually an alternative to extraction and extraction. Finally, the final option is tooth extraction [43-45]. Dentists try to preserve natural teeth whenever possible. Root canal treatment is often the best alternative to tooth extraction, and patients are usually happy that they opted for root canal treatment after a short period of treatment [46-48].

### **Dental implants**

Many dentists recommend that patients do dental implants instead of root canal treatment and denervation, especially if the tooth or teeth in question are severely damaged. This method can help many people not to have to do additional procedures later when the root canal treatment was not able to save the natural tooth. Dental implant is one of the methods that can take care of tooth damage. The dentist simply pulls out the damaged tooth and replaces it with an artificial tooth root or dental implant [49-51].

#### **There are two types of dental implants**

- Titanium;
- Zirconia non-metallic implants.

Titanium is a gray metal-based dental implant. Titanium has been the gold standard for dental implants for years, but research has shown that titanium corrodes slowly in biological systems and can cause problems for those with metal sensitivities. Corrosion and fracture can also occur over time with titanium implants. Zirconia are ceramic-based dental implants. They do not contain any metal, which greatly reduces the risk of an allergic reaction [52-54]. Zirconia implant does not corrode and is the same color as natural teeth. Research has shown that titanium corrodes in biological systems and can cause sensitivity, discomfort, safety issues, and implant loss [55].

While many people believe that ceramics are much easier to break, over the years, the dental industry has been able to strengthen ceramics in a way that makes them extremely durable. This has made zirconia dental implants last a lifetime. When people decide to replace their damaged teeth with dental implants, they usually don't have to worry about dealing with those particular teeth again. Unlike root canals, dental implants do not create cavities or cause abscesses [56].

### **Discuss**

#### **Prevention methods of common oral and dental diseases**

We have heard many times that prevention is better than cure. Because time, money, energy, etc. are costs that we have to pay for treatment. Similarly, diseases have pain and side effects proper care and maintenance; Best practice before treatment:

Oral care not only keeps your teeth strong, but is also important in keeping your mouth free from disease.

Many oral diseases can be prevented by observing daily oral and dental hygiene, regularly scheduling dental screenings and avoiding certain behaviors [57]. The first and most important factor for disease prevention is hygiene. You should take these things seriously to prevent mouth disease and ulcers. Brush and floss twice a day. Be careful, learn the correct way to brush your teeth and be careful not to injure your mouth [58].

**Taking care of the physical condition:** Have a proper diet plan. Use meat, milk, fresh fruits and vegetables, bran, etc. to strengthen your gums, mouth and teeth [44]. Do not eat hot and spicy

foods. This makes the nerves in the mouth sensitive. Have a proper diet and make sure you don't have underlying diseases such as intestinal and digestive diseases and diabetes.

## Conclusion

When a decayed and damaged tooth is left without treatment, the human tooth becomes infected. Infection of the tooth root in the gap between the gum line and the jaw bone is called tooth infection. An untreated tooth infection can spread to all parts of the body and cause serious complications. When a decayed and damaged tooth is left without treatment, the human tooth becomes infected. Infection of the tooth root in the gap between the gum line and the jaw bone is called tooth infection. An untreated tooth infection can spread to all parts of the body and cause serious complications. This painful condition often does not appear suddenly, and we encounter it when the treatment of tooth decay and gum disease is delayed.

In general, it can be said that tooth infection occurs over a relatively long period. Tooth infection begins with toothache. If the tooth decay is very high, over time, the central nerve of the human tooth is involved, and if the patient does not receive proper treatment, including denervation, his tooth is infected. In this case, the tooth root area in the jawbone becomes cystic. In some cases, the created cyst (Cyst) also opens inside the mouth and the infection created from the tooth exits into the internal cavity. In this case, the patient should go to the dentist's office quickly with dental abscess, infection and toothache. The treatment of this condition is easier if the cyst is small and the tooth is treated with root canal therapy. If the cyst is large, a small surgery should be performed in the dental office and the cyst at the end of the root should be removed. The surgery is performed in such a way that the patient's gum is opened with a scalpel blade and the end of the root is accessible to the doctor. Through open surgery, the entire infected area is removed and then the desired area is washed with physiological serum. The end of the root is also filled with special tooth filling materials. In the last step, the doctor stitches the gum on the bone again.

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