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DENTAL TREATMENT UNDER A MICROSCOPE

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The use of high-tech technology has made it possible to achieve a qualitatively new level of treatment in modern dentistry. One example is dental treatment under a microscope.

Introduction

Nowadays optical devices are often used in dental practice. They are used for the diagnosis and treatment of caries at different stages of development, in periodontics for inflammatory processes in the gums, when removing pathological neoplasms, to assess the condition of enamel, when filling canals. In endodontics, the microscope allows you to almost completely eliminate the possibility of complications, which are quite common without its use.

What are the advantages of treatment under a microscope in dentistry

The process of dental treatment under a microscope has such advantages over traditional treatment:

1. The effectiveness of diagnostics increases. The development of various pathological processes can be detected at early stages. Thanks to the device, it is possible to detect even the smallest lesions, which eliminates the need for radiography.

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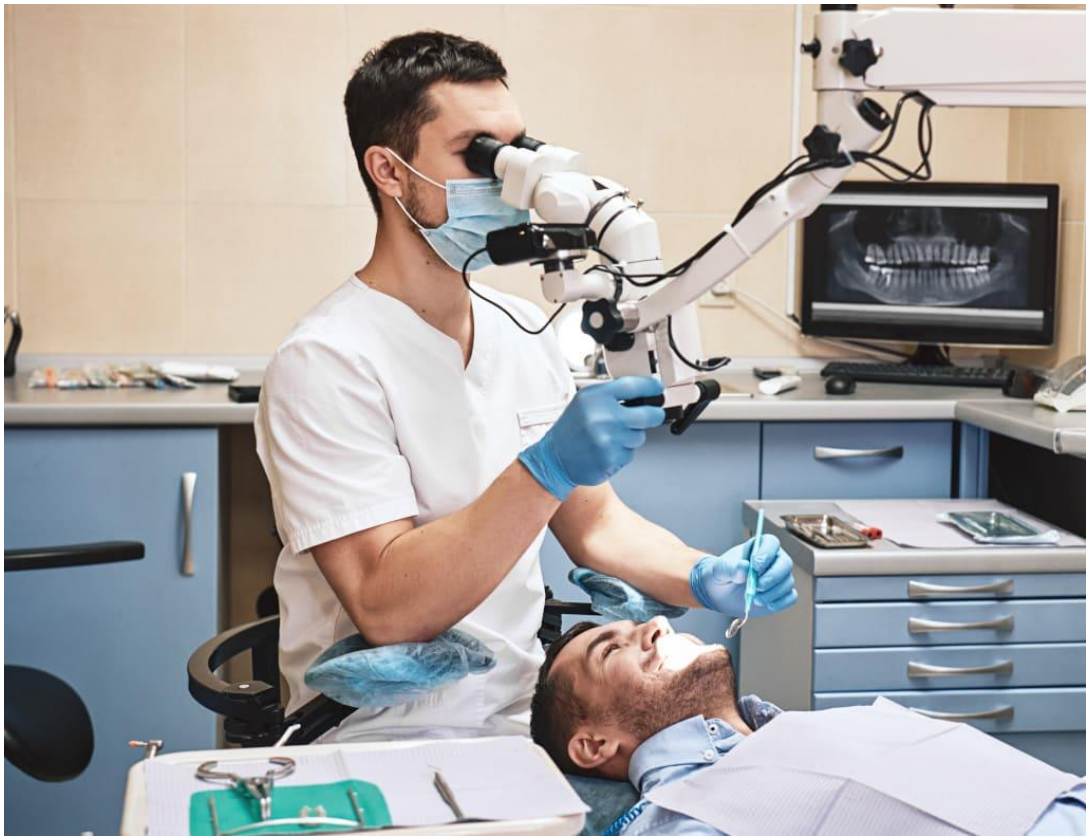
2. During treatment, healthy tissues are touched minimally. When working only with a mirror, the dentist has to capture healthy tissues, removing the affected ones. With a complete picture, it can excise only infected areas.
3. The degree of fit of the seal or orthopedic system is evaluated as accurately as possible. This significantly increases the quality of the installation.
4. Complex root canals have become easier to treat. They do not exceed a thousandth of a millimeter in diameter. It is very difficult to process them qualitatively and seal them without optical equipment. Channels that went unnoticed will be unprocessed. This can lead to the development of infection in the future and early tooth loss. The microscope allows you to detect everything.
5. The device is also needed for overtreatment, especially when channel sealing is necessary. The doctor will clean out all the bad composite without any problems.
6. The device prevents medical error and minimizes the risk of complications.
7. The specialist gets absolutely complete control over any manipulations.
8. The patient is less afraid and anxious, feels more comfortable.
9. It is possible to perform certain manipulations through an artificial crown. In some cases, it is not necessary to remove it.
10. All manipulations can be photographed and videotaped.



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The use of a microscope in dentistry minimizes the risk of medical errors during the passage of root canals, the installation of crowns and fillings, the treatment of pulpitis, granulomas and cysts, dental caries.

A doctor can only treat what he sees, and the quality of his work largely depends on how well he sees what he is doing. This is of particular importance in complex manipulations, for example, in the treatment of root canals, which can literally be called fine work. After all, the diameter of the root canals usually does not exceed 1 mm, while they often have a sinuous structure with microscopic branches. It is almost impossible to see such branches with the naked eye. But if you let at least one of them go, do not treat it with an antiseptic and seal it, and it can become a focus of inflammation. This has often happened before, and is still happening. Suffice it to say that up to 70% of cases of unsuccessful treatment of pulpitis and inflammation under a seal or crown are due to medical errors associated with the complex structure of the channels.

It is clear why this happened earlier. But why is this happening today? The explanation is frustratingly simple: not all clinics have dental microscopes and not all dentists can use them in their work.

An X–ray, even at high magnification, may not show all the features of the root system of the tooth, and each of them has from one to three to four roots, not counting internal branches. Focusing on the X-ray, the doctor is forced to work almost blindly. Therefore, if you need to remove a nerve (pulp), and an X-ray shows the complex structure of the root system, it is advisable to ask if there is a microscope available, and whether the doctor can use it in his work. And if it turns out that there is no dental microscope, and the doctor will work at random, you should think about choosing another clinic.

Indications

A dental microscope is extremely useful not only in the treatment of pulpitis, but also for monitoring the quality of canal passage. Its use is of great benefit in the diagnosis of, in particular, superficial caries.

Dental caries, which leads to the destruction of enamel, and then dentin, begins with an inconspicuous white spot. It is very easy to cure it at this stage, it does not even require a drill. The chalk stain is sanded, after which the enamel surface is covered with a protective fluoride-containing varnish. This procedure is called remineralization, and its effectiveness is so high that it prevents not only tooth loss, but also its treatment.

The only problem is that it can be very difficult to detect such a speck, even if it is located on the outside of the enamel. But caries often begins in the interdental spaces, where it can be even more difficult to see it. And then the microscope comes to the rescue. Examination of the tooth surface under high magnification leaves no chance for caries to go unnoticed.

Treatment of a tooth cyst under a microscope often allows you to save it from removal. It is equally useful to use a dental microscope for dental prosthetics. After all, it is enough to leave the slightest gap between the crown and the tooth so that an infection can enter it and cause secondary

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inflammation. And it's good if it's limited to removing the crown and replacing it. In many cases, this can lead to tooth loss.

It's the same with the seal. If at least a tiny gap remains between the filling material and the tooth wall, this may cause inflammation and the need for removal.

The use of a microscope in dentistry has not only improved the quality of dental treatment, but also significantly expanded the possibilities of their re-treatment. If earlier unsuccessful treatment of pulpitis and the development of inflammation in the root system of the tooth almost always led to its removal, now you can remove the filling material and re-go through all the channels using a microscope.

It happens that by removing a nerve (pulp), the doctor leaves tiny fragments in the channels that become inflamed under the seal. It happens that the doctor leaves areas that are not sealed or untreated small branches of the channels.

Another possible mistake is the perforation of the tooth wall when drilling with boron, that is, the creation of a hole in it, which then becomes a focus of infection and inflammation.

Finally, the doctor may leave metal fragments of instruments in the canal, and they can also provoke inflammation.

Now that he has a dental microscope in his arsenal, such errors have become extremely rare. And if such a mistake was made by a doctor who treated before, it became possible to fix everything and not lose a tooth.

Thus, the scope of application of the microscope in the diagnosis and treatment of modern dentistry (endodontics, orthopedics) is very wide.

The main indications for its use:

- granulomas and cysts,
- toothache, the cause of which cannot be detected by X-ray,
- complex structure of the root system,
- treatment of pulpitis,
- detection and treatment of caries at the chalk spot stage,
- detection and treatment of enamel microcracks,
- detection and elimination of perforations, cracks of dental walls,
- removal of fragments of dental instruments, pins,
- channel quality control,
- quality control of the installation of seals, crowns, tabs.

How is the treatment of tooth canals under a microscope?

A dental microscope is a device into which a doctor looks continuously, during the entire treatment, without looking up from the eyepieces.

During treatment, the patient does not sit, but lies in an armchair. The microscope is located at a distance of 20-25 cm from his open mouth. At the same time, the doctor does not hover over him,

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but is located behind his head and looks not at the tooth he is treating, but into the eyepieces of the device.

At the same time, the image is transmitted to a computer monitor, allowing the assistant to monitor the doctor's manipulations and prepare and serve him the necessary materials and tools on time.

Otherwise, all dental treatment methods with a microscope are no different from those without it. The difference lies in a qualitatively different level of accuracy, tooth conservation, and guarantee of results.

Dental care means that the doctor sees exactly how much tissue he needs to remove and does not remove anything superfluous, because with a microscope he does not need to do it blindly, with a margin and "just in case".

Advantages

The advantages of using a dental microscope in the treatment, diagnosis and quality control of dental treatment are obvious.

It is enough to list the main ones:

1. the opportunity to study root canals in detail with their complex, sinuous structure, to see even the smallest branches invisible to the naked eye and on an X-ray;
2. the ability to detect the first signs of caries at the stage of chalky spots, as well as enamel microcracks;
3. maximum preservation of healthy tissues and 100% removal of infected, affected, inflamed tissues;
4. 100% guarantee of the quality of the passage of dental canals, filling, tightness of the seal, crown;
5. minimizing the risk of secondary inflammation (under the seal, crown), leaving a fragment of the instrument in the canal, perforation of the tooth wall;
6. Better illumination of the manipulation area due to the use of local halogen illumination;
7. wider opportunities to identify and eliminate the cause of poor-quality endodontic treatment, fillings, prosthetics and the need for re-treatment, reprosthetics, re-sealing;
8. More comfortable working conditions for the doctor and a comfortable position during treatment for the patient (without neck and back stiffness).

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