

Announcer A: "It's time for our Special Report. They say that in our mouths there are about 80 kinds of bacteria. When your teeth are treated, your blood vessels and gums can be damaged, raising the danger of infection from the hepatitis virus."

Announcer B: "The key to preventing such infection is sterilization of the dental equipment. The power of disinfectant water created by electrolysis is now being studied."

[on screen] Many kinds of bacteria seen through a microscope

Reporter: "You are watching various kinds of bacteria through a microscope. Are these bacteria from ditch water, or from someone's kitchen? Neither. They are in fact bacteria from the mouth that live in small cracks between our teeth. In our mouth, there are about eighty kinds of bacteria, including *Trichomonas candida* and MRSA against which even antibiotics do not work any more."

[on screen] Air turbine

Dr. Kashiwada: "This is a heated air turbine. It sounds like this and water comes out from here."

[on screen] Jikei Dental Clinic, Tokyo

Reporter: "When you have an intense toothache, the place you run to is the dentist's office. There, without exception, your will be taken care of by this air turbine. It rotates 500,000 times a minute with compressed air, scraping away at your tooth. When the instrument is employed, water is used to prevent vibration and friction from heat. The trouble is, when the turbine is stopped, it sucks in water."

[on screen] Illustration depicting reverse flow of air turbine

Dr. Kashiwada: "Many kinds of turbines with an attachment to prevent this reverse flow have been brought out on the market lately. When a turbine is stopped, water gets sucked back in along with blood and other things from the patient's mouth."

Reporter: "Are AIDS or hepatitis viruses hiding in this blood?"

Dentist: "It can be very dangerous. So, dentists disinfect the turbine after every use."

Reporter: "Disinfecting a turbine takes time, money and cause wear on the instrument. There is yet another problem in handling an air turbine."

Dentist: "When water is splashed into the patient's mouth, water splashes out."

Reporter: "We experimented with water using red dye to see how far the water splashed."

[on screen] Water splashing experiment with air turbine

Dentist: "The water that splashes off the teeth is mixed with bacteria, blood and saliva. So, it becomes very unsanitary."

Reporter: "There are many bacteria living in our mouths. Not only do the germs splash all over the dental equipment, endangering other patients, but they can infect the staff as well."

Reporter: "The staff could develop an infection, huh?"

Dentist: "Yes, we must be careful."

Reporter: "This office has a side vacuum system now to prevent the splashing of water. It's good equipment, but it is not yet in common use."

Dr. Kashiwada: "In dentistry, we deal with many kinds of bacteria and it has been very difficult to kill them all. But, now we can use a superbly effective disinfectant called hyperoxidized water."

Reporter: "This is the equipment that creates the hyperoxidized water. By adding a small amount of salt to tap water and then applying electrolysis, a powerfully disinfectant water is created."

[on screen] Documentation

Dr. Kashiwada: ""Hyperoxidized water has been studied at universities and research institutes. We gathered the available information and created this chart."

[on screen] Chart

Reporter: "Crosses indicate no disinfecting ability, triangles indicate not effective all the time, and circle indicate effectiveness."

Dr. Kashiwada: "The results show that the hyperoxidized water is very effective in eradicating viruses such as AIDS and hepatitis B. It can be said that strong hyperoxidized water has the same or better disinfectant effectiveness as conventional drugs."

Reporter: "Dr. Kashiwada uses the disinfectant properties of this water to sterilize the air turbine."

Dr. Kashiwada: "The air turbine becomes filthy after use. First, we wipe it off with a towel that is soaked with strong hyperoxidized water. Then the turbine is turned on to push out unclean water from inside. Right before the turbine stops, it is put into hyperoxidized water. In this way, hyperoxidized water is sucked back into the tube, disinfecting the inside of the turbine."

Reporter: "After that, air is bubbled out from the turbine, and finally it is wiped again by a sterilized towel."

Reporter: "Research is being conducted to confirm the effectiveness of hyperoxidized water in preventing in-clinic infections caused by splashing when using an air turbine. The amazing thing is that some dentists now have abandoned conventional sterilization equipment that use ultra sonic waves, heat or gas."

Dr. Kashiwada: "Conventional sterilization has never been perfect. The disinfectant effects of strong hyperoxidized water shortens sterilization time drastically, and we can be sure of its effectiveness. It makes me wonder if it could be an epoch-making method."

Reporter: "There is more to this."

Dr. Kashiwada: "We no longer use any conventional sterilization here. Everything has been replaced by this water."

Reporter: "When administering Novocane, the tooth is now splashed with hyperoxidized water. It should be noted that cleaning the inside of the mouth involves dousing it with plenty of hyperoxidized water, then all the bacteria die just like this." [on screen]

[on screen] Dr. Okamura, dental clinic

Dr. Okamura: "We have just extracted a wisdom tooth at the back of the jaw. Can you see that there is very little bleeding?"

Reporter: "Dr. Okamura started to pay attention to hyperoxidized water three years ago. He purchased a small unit and is using the hyperoxidized water regularly."

Dr. Okamura: "We have found that it is very effective in accelerating the healing of the surgical wound and in arresting the bleeding. It makes it easier to perform surgery."

Reporter: "It was surprising to see that they were using an IV bag for the hyperoxidized water. It is easier to carry them around in this way. The hospital is happy not to have to invest in more equipment."

Reporter: "What happens if you accidentally drink this hyperoxidized water? Doesn't it cause any problem if this water gets into the eyes? We flew to Kyushu to visit the Chemical Inspection Association which tested the toxicity of this hyperoxidized water."

Mr. Imatanaka: "To see if it was toxic when accidentally ingested, we first conducted acute toxicity tests. Absolutely no toxicity was detected. Then we test it on a rabbit to see if contact with the eye would cause irritability. Nothing unusual was seen in the rabbit's eye."

Reporter: "Powerful disinfectant, hyperoxidized water -- it is non-toxic and can suppress bleeding. It is expected that from now on it will be indispensable in dentistry."