

Apexum goes to the root of the problem

By David Shamah for Israel 21c, a Focus beyond.

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Having a root canal operation is bad enough, but getting an infection in your jawbone afterwards can lead to serious consequences - in particular an Apicoectomy, a surgery that can take years to properly heal.

Now an Israeli startup, Apexum, has come up with an alternative that could make a trip to the endodontist (root canal specialist) a great deal less worrying.

Periapical lesions are post-root canal infections. They generally occur in the area of the jawbone past the deepest part of the root, called the apex. The area gets infected due to excess bacteria, which wasn't cleaned out when the dentist closed up the root canal.

For many sufferers this means a trip to a surgeon who must cut into the gum, in an attempt to get beyond the root to clean up the bacteria in the jawbone.

According to Idan Tobis, general manager of Apexum, it's a common problem. Some 50 percent of root canal patients also have periapical lesions show up on X-rays. Most of them will heal in time if the root canal treatment was done properly, but it can take anything from six months to four years, he explains.

"Root canal treatments generally do not directly treat the periapical lesions," he tells ISRAEL21c. Once the work is done, the patient is left to fend for himself.

Or Yehuda based Apexum has developed an innovative cleansing system that can be used to treat infections while the root canal is in progress. The tools are based on nitinol, a superelastic nickel-titanium alloy first developed for the US Navy and much used in dentistry and root canal treatments already.

A nitinol tool from Apexum's kit is inserted into the open tooth, down past the apex into the lesion. The nitinol tool rotates at high speed, breaking down the lesion tissue and turning it into goop - which is then pushed out of the jawbone when saline solution is sent down, flooding out the remains of the debris. The process takes just three minutes, and all cleaned out, the dentist closes up the tooth.

In clinical studies conducted by Apexum, more than 90 percent of the patients were found to have healed within one to three months (depending on the severity of the infection, the patient's age, state of general health). This is a huge improvement over the six month to four year healing process for standard root canal treatment.

In fact, Tobis says, none of the patients in the study who were treated with the Apexum system reported the soreness that is typically associated with the root canal procedure within two to three days of the procedure - as opposed to the 28% in the control group, who were given standard root canal treatment.

"The whole Apexum process takes a just few minutes - but it can save patients months or even years of aggravation," Tobis says.

Apexum is a private company founded in 2005 within the R&D Center of venture capital company Peregrine Ventures. Tobis says the company anticipates getting FDA approval shortly, and should be available to endodontists in the US by the end of the year. Sales to Europe will begin this summer.

And, he adds, plans are in the works to develop other products using nitinol that could help people avoid invasive procedures or even surgery.

