

Laser perfect for atraumatic procedures in paediatrics

By Joseph Allbeury

For Perth-based specialist paediatric dentist, Dr Tim Johnston, dental lasers have become well and truly entrenched in his clinical protocols. Owing no less than five systems, he uses lasers in both his rooms and the operating theatre to deliver optimal care to his young patients.

“Lasers allow me to perform many procedures on children in the chair that would traditionally have been performed under general anaesthetic or perhaps not at all if the severity of the treatment outweighed the severity of the condition,” Dr Johnston said. “Now lasers make formerly complex procedures far more routine.”

The latest additions to Dr Johnston’s practice in West Perth are a Syneron Lite Touch Erbium laser and a Fox 810nm diode laser, both supplied by Innovative Medical Technologies.

“The Syneron Lite Touch is a very powerful and it cuts very fast. It’s ideal for hard tissue work and cavity preps. It’s compact, sits under the bunch and is very easy to use. It has an intuitive digital touch panel display and it’s very comfortable to use. The actual laser is in the handpiece – so there are no fibre optics in the arm – and it’s balanced and supported in such a way that you don’t even notice the handpiece is attached.

“The Fox diode is an excellent soft tissue handpiece that I’m using more and more as it lends itself well to paediatrics. At the time, the Fox was the only diode that was battery operated, which means I can use it in theatre without having it electrically tested every time I use it. It lives in the back of my car and I use it in theatre and in my rooms. It comes with two batteries and I think I have only recharged it



The Syneron Lite Touch Erbium laser is compact and portable yet high powered.

three times in a year. It’s very portable and doesn’t use a lot of power.”

Dr Johnston said that compared to a restorative dentist working on adults, the procedures he performs as a paediatric dentist are relatively basic.

“I would probably only use 5 to 10% of the laser’s full potential,” he said, “but even so, I swear by the technology and have invested accordingly.

“Lasers are perfect for atraumatic cavity preparations, for example, as there is no vibration and the kids feel no pain. I have to remind young patients not to close their

mouths as they can quickly forget I’m doing anything at all when they’re engrossed in a DVD.

“I also use the Syneron Erbium laser to decontaminate fissures prior to sealing. On the low power setting, it will take out any organic matter in the fissure as far as the working length of the laser will go without affecting the enamel. It can also be set to slightly etch the surface when required to increase bond strength.

“As a paediatric dentist, I see lots of cases of molar incisor hypo-mineralisation. The molars are typically thermally



Figure 1a. Pre-op: Chronic cheek biting.



Figure 1b. Post-op after Erbiun laser.



Figure 1c. 10 days post-op.



Figure 2a. Pre-op: Mucocele.



Figure 2b. Post-op after laser treatment.



Figure 2c. 3 weeks post-op.



Figure 3a. Pre-op: Verruca.



Figure 3b. Post-op after laser treatment.

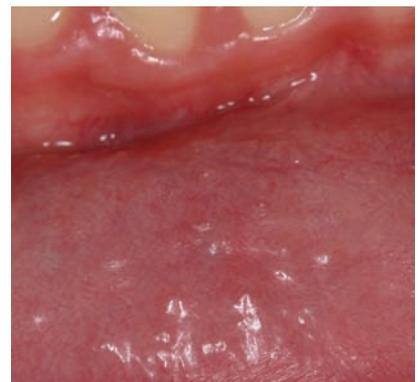


Figure 3c. 7 days post-op.

hyposensitive and washing and drying with cold water is very painful. So prior to beginning treatment, I wash the tooth with the laser which has an anaesthetic affect, desensitising the hard and soft tissues so there is no need for LA. It's a lot more comfortable for the patient and it makes it a completely non-invasive procedure.

"After desensitisation, I prepare the hypo-mineralised enamel with the laser at a low power setting to etch the tooth and then I typically restore it using a glass ionomer as anecdotally at least, these seem to last longer than compomers.

"I also use the Syneron laser for cavity preps as well. I complete the primary prep with the laser, then use a slow speed to remove the bulk of the caries. I could use

the laser for the complete procedure, but it's quicker in my situation with a small operating field and limited time to use a combination of laser and slow speed. I then finalise the prep with the laser.

"There is often some soft tissue or fractured enamel remaining in the floor of the prep so using the laser prior to restoring cleanses the area very efficiently. Because I use a microscope for everything, I can see the evidence of how effective the laser is. It gets rid of all the foreign bodies from your cavity preparation plus the smear layer and any soft tissue debris. It leaves a very nice, clean dentine and enamel surface to restore.

"I also complete a lot of frenectomies referred from orthodontists and I have a fairly established treatment protocol for

early intervention in these cases. The frenem will eventually cause a diastemia and the orthodontist wants to instead use that space to decrowd the rest of the mouth. I've completed well over 600 in the past 5 years that I've been using lasers.

"The Erbiun is really the only laser you can use for a frenectomy. You need to remove bone along the suture line and you have to go subgingivally to remove the wedge of fibrous tissue at the apex palatally to buccally that causes it. You have to be able to remove that and a diode will not cut bone. If you don't, you're only treating the symptoms and not the problem.

"You normally complete that procedure under GA and scrape out the fibrous tissue with a periodontal instrument. With the



Figure 4a. Pre-op: Bracket trauma following ortho treatment.



Figure 4b. 10 days following treatment with a laser.

laser, you remove the wedge and remove the fibres without any burn injury and it's a very atraumatic surgical technique. I have a good protocol on how to treat these problems now in around 30-45 minutes using less than half a ml of LA.

"Canine exposures are also routine and lingual frenectomies to treat ankyglosia are also becoming more common. I treat from day old babies to older children and we can fix this problem immediately. It

only takes a few seconds with topical anaesthetic. We get newborns in and suddenly the baby starts feeding immediately and you can see the look of relief on the mum's face. I quickly learnt that you have to sit mum in your office and not the surgery as once the tongue tie is gone, the baby seems to feed forever!

"We see adolescents as well who have tongue ties who are getting gingival stripping or for social reasons.

It's permanent and immediate and increases tongue mobility.

"The Fox diode laser is very good for gingivectomies in orthodontics where there is gingival overgrowth around brackets. I de-bulk the tissues with the Erbium laser and then use the Fox for the fine details of the soft tissue. I now receive referrals from several orthodontists for this procedure and the Fox is perfect for any fine tissue contouring whether it's affecting brackets or for hygiene reasons."

Dr Johnston said the fox laser is also perfect for removing mucoceles, warts on the lip and other minor soft tissue procedures.

"I originally had two practices, both equipped with lasers, but I have consolidated into a single location," he said. "This now affords me the luxury of being able to leave one Erbium laser and a microscope at the day stay hospital in Perth I use for the theatre work and the rest in my practice.

"That means I always have laser technology on tap whenever I need it and can thus offer the best quality of care to my young patients."

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