“No Anaesthesia” endodontics in children

By Dr Imneet Madan, UAE

“Laser Popping Sound” in dentistry for children is one of the best approaches that can help us to overcome the initial fear of the unknown when it comes to first treatment appointments in children. Its uniqueness lies in the fact that the need for numbing is completely exempted. Today’s children like technology playing at its best. Lasers definitely meet that perception of technology.

The routine first visit appointments are usually not a concern as children do not anticipate any intervention. Since they are not in pain, their mindset of approach is not defensive. Rather when there is no pre-biased opinion or fear, there is a pleasant sense of adaptation that allows the smooth flow of the appointment. Any different kind of behavioural exhibit occurs only when kids are anticipating an intervention, when they had been in pain or when in general they come fatigued.

The discussion of needles is considered to be the most common subject just prior to the visit to the dentist. This discussion can become even more intense when there is already a perceived treatment need. Very young children can have the fear of the unknown, anxiety with strange and new places. The older ones develop extreme fear by talking to peers who have been to the dentist before. Some of them might have had good and some others not so good experience. Sometimes, past unpleasant parental experience can distort the child’s adaptability to the dental appointment. They enter the clinic with the preformed image of the dentist which is not very convincing and helpful to the child. These external experiences can lay the foundation of the child’s coping ability in the dental chair.

How can lasers help?

Since laser is not commonly available at all practices, there could be a possibility that there had been no real discussion on the use of lasers in the treatment. Another possibility of having a good experience with lasers can change the perception of the child who is in for the first time. When laser is introduced to the parents, they are informed about details on the functioning of laser and its benefits. While explaining euphemisms to the child, the laser is shown as “Popping Light”. There is a significant number of children who go awe-inspired to come back and get their teeth fixed.

The whole mindset of the child changes when they are told that treatments do not involve any needles approach.

“No Anaesthesia” Procedures that can be done without anaesthesia are:

- Restorations: Decays involving occlusal, labial, palatal, buccal or proximal surfaces of the teeth.
- Deep restorations on teeth with decays close to the pulp.
- Pulpotomies in primary teeth.
- Pulpectomies in primary teeth.
- Pulpectomies in primary teeth with abscess, fistula or swellings.

The term “No Anaesthesia” is a misnomer as the procedure is accomp-
Pulpectomy procedure with erbium laser

When the carious decay is found deep and in close proximity to pulp, exposure of the pulp canals can happen while removing this decay. In such situations, exposed pulp needs to be treated by removing the affected coronal pulp contents. This procedure is referred to as pulpectomy. Deep caries are excavated with pre-adjusted rapid prep settings: MX7, 5 W, 20 Hz, air 60, water 50 and then completed with intrapulpal drops of anaesthesia.

Pulpectomy procedure with erbium laser

Teeth that have chronic profound caries, active signs and symptoms, and radiographical signs of pulp involvement, are indicated for pulpectomy. Pulpectomy involves the removal of both coronal and radicular pulp contents. When the tooth is indicated for pulpectomy or root canal procedure, deep caries are excavated with pre-adjusted Rapid prep settings: MX7, 5 W, 20 Hz, air 60, water 50; and then completed with intrapulpal drops of anaesthesia.

Pulpotomy procedure in primary tooth with abscess or fistula

In cases where there are long-standing infections or chronic irreversible pulpotitis, it becomes inevitable to use both diode and erbium laser sterilisation after the laser assisted access and further steps as described above. Until the point that canals are found completely dry, obturation is deferred. Usually it takes one or two visits to complete the final step of obturation in teeth with abscess or fistula. The entire treatment is completed with intrapulpal drops of anaesthesia when required. No infiltrations or blocks are used in the entire procedure.

This procedure has been practised as an alternate to pre-times extraction of primary teeth that has to be then replaced with a space maintainer. Most of the parents prefer this approach when compared to extraction, as they do understand that losing the natural tooth as the space maintainer is indeed the best approach.

Benefits of “No Anaesthesia” dentistry

- No risk of children having traumatic bite after the procedure is completed. The times when anaesthesia in children was a common practice, it was imperative to let the child and parents know about the numbing effect that would stay for few hours after the procedure. Cotton roll is given to bite on so that it serves as a reminder for the child.
- Despite all these precautions, children may still land up in biting there lip or cheek. Once there is a traumatic bite, there is nothing much that can be done as the traumatized tissue has to self-heal. This can be quite painful for the child, thereby defeating the entire purpose of pain free dental approach.
- Multi-quadrant dentistry can be practiced on the same day, same appointment.
- There is actual saving of chairside time, as there is no waiting period for local anaesthesia to work.
- Children can eat a few minutes after the procedure, which is not the case with local anaesthesia.

Conclusion

Practicing contemporary dentistry in children with the appropriate usage of technology and the key tools, is the way forward. The benefits of the “No Anaesthesia” erbium approach far outweighs the existing alternatives. This kind of professional approach can certainly become the gold standard for dentistry in children in the very near future.

Contact

Prof. James Prichard, UK
Endo Micro Surgical Retreatment (Management of Endodontic Failure)

TIME & LOCATION:
Saturday - Sunday, 07 - 08 July 2018
CAPP Training Institute, Dubai, UAE

COURSE AIM:
DAY 1: To understand the rational behind micro surgical retreatment approaches and acquire basic surgical knowledge.
DAY 2: To understand the importance of magnification in endodontic microsurgery and acquire basic micro surgical skills.

Dr Imreet Madan
Specialist Pediatric Dentist
Preventive Dentistry
MBBS Pedodontics Dentistry
NMM Hospital Management
Children’s Dental Center, Dubai
Villa 1012 Al Wasl Road
Umm Suquim 1, Dubai
United Arab Emirates
Tel: +971 506823462
imreet.madan@yahoo.com
www.drmichaels.com

Endo Non-surgical and Surgical Retreatment (Management of Endodontic Failure)

Dr. Antonis Chaniotis, Greece

TIME & LOCATION:
Thursday - Friday, 05 - 06 July 2018
CAPP Training Institute, Dubai, UAE

COURSE OUTLINE:
DAY 1: To understand the rational behind non surgical retreatment approaches and the aetiology of root canal treatment failure. To present an evidence based framework for the safe and effective disassembly of non obturated and obturated materials.
DAY 2: To understand the factors related to the long term outcome of non surgical endodontic retreatment and to develop a rational diagnostic and decision making framework.

Contact

Email: events@cappmea.com
Mob: +971 50 2793711
CAPP Training Institute, Dubai, UAE

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Root canal therapy and coronectomy

By Drs Mina Hobelka, Ali Haj Has san, Edgard Jabbour & Philippe Sleiman, Lebanon

Coronectomy is a procedure that generally spares the vital coronal pulp and is performed to avoid the risk of damaging the inferior alveolar nerve (IAN) during the surgical procedure when extraction of mandibular third molars is indicated or needed. Coronectomy is the removal of the crown of the mandibular third molar without exposing the pulp. The coronectomy procedure is performed only on the third molar crown, leaving the roots in the socket. This procedure is now well known for its benefits and success rate, in contrast to the contemporary belief that the roots left behind will be a source of problems. Two risk factors for nerve injury include root proximity, the surgeon’s experience, surgical procedure, the patient’s age and pre-existing disease. Several studies have shown that coronectomy significantly decreases the risk of iatrogenic injury to the IAN and lowers the complication rate.1 Coronectomy has been associated with a low incidence of complications in terms of IAN injury (0.0–9.5 %), lingual nerve injury (0.0–10 %) and pulp disease (0.4–5 %), in addition to other rare events, such as swelling, fever, alveolitis, pulps and root exposure.3

Coronectomy to prevent IAN damage was first proposed by Ecuyer and Debien in 1984 and it remained controversial owing to the possibility of infection and other pathologies arising from the roots left behind.2 Potential complications include deep dry sockets, local postoperative infections, postoperative pain, pulpsitis, root canal necrosis and infection, and an increased risk of IAN infection, which is known as failed IAN1 injury. The point of discussion is whether it is necessary to perform root canal therapy simultaneously with coronectomy if the pulp is going to be exposed during the surgical procedure. A new method combining coronectomy with root canal therapy, when necessary, in order to decrease the risk of infection, pain and other complications is introduced in this paper.

Case presentation

A female patient in her mid-twenties was suffering from typical partially erupted third molar complications (Fig. 1). Extraction was advised in order to relieve the patient. A preoperative radiograph was taken (Fig. 2) for the surgeon and endodontist to discuss the shape of the roots and the IAN proximity. At the request of the endodontist, a CBCT scan was performed (i-CAT), as is advised prior to any surgery (Fig. 1). The cross sections revealed an intimate relation between the mesial root and the IAN, and thus indicated that any surgery at this point could cause some trauma to the nerve.

The situation was explained to the patient, who was very concerned about the potential injury to the IAN. However, the patient presented with acute pain, which would require treatment, possibly antibiotic therapy, which in the future would be her go-to in case of a flare-up. This was definitely not an ideal solution, especially in view of the efforts currently being undertaken by the European Society of Endodontontology to limit antibiotic prescription for root canal therapy to a reasonable and evidence-based minimum. The alternative solution in such cases is coronectomy.

From discussing this option with the surgeon and studying carefully the radiographs and CBCT data, it was clear that it was necessary to cut the crown below bone level, pulp exposure and partial pulpectomy were inevitable. Therefore, in order to minimize postoperative complications, the decision was made to perform a root canal therapy on the third molar to reduce the risk of pulpsitis or infection in the apical part. The patient agreed to this solution.

Endodontic treatment was performed using the TF Adaptive SM (small/medium) procedure pack (Kerr) for root canal shaping. During the treatment, one pericalical radiograph was taken (Fig. 4) and it showed the curve on the mesial roots. Irrigation was performed very safely with the EndoVac unit (Kerr), as any extrusion of sodium hypochlorite could have severe consequences for the nerve and the apical area. The root canal therapy was completed in a single visit (Fig. 5), following which the surgeon performed the coronectomy. A bitewing radiograph was taken to check the level of the coronal part after the extraction (Fig. 6), following which the surgeon performed the coronectomy. A bitewing radiograph was taken to check the level of the coronal part after the extraction (Fig. 6), following which the surgeon performed the coronectomy. A bitewing radiograph was taken to check the level of the coronal part after the extraction (Fig. 6), following which the surgeon performed the coronectomy. A bitewing radiograph was taken to check the level of the coronal part after the extraction (Fig. 6), following which the surgeon performed the coronectomy. A bitewing radiograph was taken to check the level of the coronal part after the extraction (Fig. 6), following which the surgeon performed the coronectomy. A bitewing radiograph was taken to check the level of the coronal part after the extraction (Fig. 6)...
When an idea turns into innovation

By Marc Chalupsky, DTI

Although the headquarters of COLTENE are in Switzerland, its endodontics plant is in southern Germany. At the factory, located in Langenau, a town between Stuttgart and Munich, 155 employees produce treatment auxiliaries and endodontic equipment in a fully automated and camera- and laser-controlled process. The German location houses an impressive logistics department thanks to the office’s central location. Dental Tribune was invited to learn more about the company’s endodontic products.

A now well-known expert in endodontics, Dr Barbara Müller has been responsible for the company’s endodontics business unit for over 20 years. She takes pride in the company’s achievements. Today, COLTENE is an international leader in the development and manufacture of dental consumables and solutions for a variety of applications. The company operates worldwide, with subsidiaries and distributors in over 120 countries. With the 1990 introduction of the ParaPost X System, COLTENE came to be known as a provider of endodontic solutions. This position has been further entrenched in recent years as the company’s portfolio of endodontic products has continued to grow.

An impressive endodontic range

The CanalPro line, for example, features a cordless endodontic motor, a fully automated electronic apex locator and a variety of rinsing solutions, which are colour-coded for procedural safety. ROEKO and HYGENIC paper points are sterile and highly absorbent, and being non-adhesive, allow for reliable and easy drying of the root canal. Fast and safe obturation can be conducted with GuttaFlow bioseal, a bioactive three-in-one obturation material that combines cold free-flow gutta-percha with a sealer and bioceramic in one outstanding filling system and with HYGENIC and ROEKO Gutta-percha points. Recent studies have evaluated the in vitro toxicity of endodontic sealers such as GuttaFlow bioseal and GuttaFlow 2, as well as Angelus’s MTA-FILLAPEX and Dent-
Root canal treatments with the Endo-System by VDW – Peace of mind included

By VDM

MUNICH, Germany: Deliver root canal treatments with an opt-mally integrated concept from a single source. This claim is be-hind the campaign ‘Peace of mind included – the Endo-System by VDW’.

Peace of mind included with the Endo-System by VDW means that dentists have a holistic system for simplified, individualised work processes. They also benefit from safety, time and cost efficiency and strong fatigue resistance. To achieve these characteristics, HyFlex CM and HyFlex EIDM are manufactured using a special ther-momechanical process whereby the crystallographic phase transition from austenite to martensite at root temperature results in an advanced controlled memory effect of the material, making both files extremely flexible. ‘We successfully managed to give our NITI material shape memory properties,’ said Müller. ‘We did this by changing the DNA of the material through a switch from low to room temperature. Our idea came not only as an innovation, but a product many of our competitors have tried unsuccessfully to copy,’ Introduced at the International Dental Show in Germany two years ago, the new HyFlex EIDM reduces the number of files needed to two to three, particularly in straight and larger canals.

Proven clinical experience

According to Müller, a number of clinical studies have demonstrated the efficacy of both systems. For example, Goo et al compared the bending stiffness, cyclic fatigue and torsional fracture resistance of NITI rotary instruments, including HyFlex EIDM OneFile, with V-Taper 2H (both SS White). HyFlex CM, HyFlex EIDM and ProTaper Next X2 (Dentsply Sirona). HyFlex EIDM showed the highest cyclic fatigue resistance of the group, with V-Taper 2H and HyFlex CM coming in next. Overall, they showed high torsional resistance. In comparison with HyFlex CM, the EIDM version demonstrated a higher fracture resistance.

In another study, Kaval et al aimed to evaluate these properties in novel NITI rotary files, including HyFlex EIDM OneFile from COLTENE, ProTaper Gold and ProTaper Universal (both Dentsply Sirona). The results showed that HyFlex EIDM OneFile demonstrated significantly higher cyclic fatigue resistance and higher distortion angle to fracture, but a lower torsional resistance than both ProTaper options. In addition, Pedulla et al sought to measure the torsional and cyclic fatigue resistance of HyFlex EIDM OneFile in comparison with VDW’s REPROFIl R2 and Dentistry Sirona’s WaveOne Primary. HyFlex was found to have a significantly higher cyclic fatigue resistance and higher angular rotation to fracture. Furthermore, Lacoon et al aimed to measure the wear of HyFlex EIDM after clinical application. No fractures were registered, no wear or degradation was reported, and the increased fatigue resistance of HyFlex EIDM (compared with HyFlex CM) allowed it to remain usable for longer when shaping severely curved canals.

A case from the Philippines

Dr Margaret Tui, a clinician based in the Philippines, agrees that the increase in cross-talk fatigue resistance and strong flexibility of both HyFlex systems allowed her to manage an S-shaped case more easily. At a recent COLTENE Train the Trainer event, she presented a mandibular first molar case with four canals that was referred to her by another dentist who could not negotiate the canal owing to its difficult anatomy. After utilising the crown-down technique and the HyFlex CM files to flare the coronal third of the distobuccal and distolingual canals, Tui then continued to use HyFlex EIDM to negotiate the mesobuccal and mesiolingual canals, as she had discovered a slight curvature in the middle third of the canals. As for the S-shaped distobuccal and distolingual canal, she continued with the HyFlex CM files. Post obturation radiographs showed properly shaped canals with proper healing.

References


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