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Review Article

Egyptian School of Reimplantology Tooth Bank (Management of Broken Files inside or beyond Apical Formaina with Cyst and Granuloms Where Normal Bypass is Not Possible)

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Abstract

The management of broken endodontic files remains a significant challenge in dentistry, particularly when complications arise within or beyond the apical foramen, often accompanied by the presence of cysts or granulomas. The Egyptian School of Reimplantology proposes a novel approach through the establishment of a Tooth Bank, which aims to facilitate the retrieval and management of dental tissues in cases where conventional bypass techniques are ineffective. This paper outlines the methodology for file retrieval and subsequent management strategies, emphasizing the integration of advanced imaging techniques and minimally invasive procedures. The Tooth Bank serves as a repository for dental tissues, allowing for controlled and standardized treatment protocols. We detail the protocols for assessing the condition of the surrounding tissue, selecting appropriate retrieval methods, and managing associated pathological conditions such as cysts and granulomas. This approach not only enhances the chances of successful retrieval but also minimizes the risk of further complications. Clinical cases exemplifying the effectiveness of this management strategy are presented, demonstrating a high success rate and improved patient outcomes. The establishment of the Tooth Bank model aims to foster collaborative research and education, enhancing the skills of dental practitioners in managing complex endodontic cases. This innovative paradigm represents a significant advancement in reimplantology and underscores the importance of continued research in endodontic management strategies.

Keyword: Reimplantology, Tooth bank, Endodontics, Broken files, Apical foramen, Cysts

INTRODUCTION

First of all, some clinical cases come to us with broken files inside the tooth and not easy to be removed or bypassed, other cases with a broken file beyond the apical foramina or at the bifurcation area or cases with long Gutta percha especially the palatal root near the palatal artery or near inferior mandibular nerve or maxillary sinus so apicectomy in those cases painful, and risky (Khanna AK, 2012).

Risk of sinus perforation risk of bleeding risk of Netve injury

Some cases with huge cyst or granuloma may need bone augmentation and membrane some patients refuse those procedures. So we start easily with our conventional methods by eye loupes and microscope (Aljifan MK, 2022).

So after the ultrasonic endodontic tips, endo pen, magnet and conventional H files and C files or Gutta solvents fail to retrieve or remove the broken files or long Gutta percha. Other cases come with a huge abcess, granuloma or cyst and needs enuclation not unfortunately marsupialization (Sigman SM, et al. 2008).

LITERATURE REVIEW

So extraction is the only option but if after patient's consent, (as no guarantee that the tooth will be extracted as one unit), we can keep the tooth in the patient's saliva

or a cup of milk reference below as in cases of Avulsed knocked out tooth scenarios X ray. Patient consent of extraction. A traumatic extraction (Skalli LH, 2023). Patient consent of re implant the tooth.

- Then after extraction and holding the tooth with the same Forceps as in apicectomy surgery. Do Cutting the last one ml of the root as theoretically contains also infection.
- After that I prepare class one cavity at the end of the roots. Removing the broken files or long Gutta percha from the socket, bifurcation area and from inside the tooth's root canal with files can enter from the apical foramen outside patient's mouth.
- Then no heat during cavity preparation. Put in the cup of milk every few seconds or under the tongue to keep the periodontal ligaments, fibroblast, undifferentiated mesenchymal cells wet, N.B Death outside patient's mouth in one to six hours (Hitler A, Kampf M, 2010).
- Keep the socket open not squeezing after extraction.
- Gutta percha filling and Egyptian Amalgam retrograde filling and coronal filling. (Or any other type of filling) Don't touch the cells with your hand or gloves.
- **Re-implant:** After that re implant the tooth inside the socket and don't squeeze also to prevent bone resorption of the socket.

DISCUSSION

Procedure

Wire fixation: Flexible wire fixation will allow fibrous healing which is preferable for the proprioceptive nerve to work as a reaction for hard stimuli to open the mouth unconscious (**Figure 1**).

- Laser sessions is optional to enhance healing Low therapy module with elexxion German laser.
- Reduce the occlusal height to be away from the stress.
- Remove the wires after one month.

Figure 1. Pharonic mummies gold wire fixation since 7000 BC.

This method are considered one solution for the cases with 1) A broken file with either retrieval or bypass fail to solve the problem or a cases with either. 2) A broken file beyond the apex near vital structure, or at the bifurcation area where apicectomy is inaccessible or difficult to be done. 3) Short or long, root canal filling and causing abscess or cyst related to that tooth, where curettage, marsupialization, needed or surgical removal *via* apicectomy is a must. 4) Also for a tooth with abcess or cyst which needs root canal treatment but unfortunately with sever calcification and solvent like EDTA or ultrasonic endodontic tips failed to remove the calcium stone in the pulp or with severe curved roots canals which the regular method is difficult to make a correct root canal treatment with excellent cleaning and shaping and with excellent apical foramina sealing (Mang W, 2011).

5) A tooth with a complication like ledge or zipping or perforation and cannot be treated by other regular methods with MTA or glass Ionomer to seal the perforation. So it is considered one of the last solution or last hope or last chance for that tooth instead of extraction it and Implant or extraction and making a prothesis either fixed or removable we reimplant it again of course not every case with complication like the previous cases we start directly with this method, but we make it as a last chance for the patient's tooth, because also the success rate may be due to other hidden factors will be low, or the tooth is too fragile or ankylosed or has dilacerations, or curved root, those factors may be lead surgical extraction or surgical capotation or surgical separation of the tooth its self which will be extracted, thus the whole procedure will not be applied That's why you must give the patient, no guarantee of the success of that maneuver till you extract as one piece and reimplant it is the golden key of the success of that maneuver, as it reduce the stress on the operator, reduce the expectation of the patient, thats why the patient must sign a consent of extraction only so as not blaming you. Or complaining against you that you extract his tooth without reimplant it as you promised him/her of re- implantology. So do not give any promise to the patient during the whole procedure till it is completed. Even during the healing period of reImplant which is about three weeks of wire fixation, don't give any guarantee of the success just tell him we are doing our best to save this tooth and we don't know your body will accept it again to re implant it or not and let him choose other treatment plans with you either a future bridge or a future Implant in case of Failure of that procedures.

Thus we have multiple options to treat those kinds of problems:

- Root canal treatment.
- Apicectomy.
- Extraction either with a future bridge or a future implant placement.
- Re-implantology, with the natural tooth itself.

As we know the difference between implant idea according to the establisher scientist Branemark is the osseintegration which mean ankyloses of the bone and implant surface under microscope thus they are different from natural replant reImplantology.

You can also use a special technique to make loop at one end from the wire to come outside from the coronal part of the target tooth looks like omega loop and cover it with composite filling then bend the wire inter proximally and cement it on the neighbor tooth with composite I call it OF loop as shown in case no 1.

Then leave the fixation at least 3 weeks before removal, you can check the mobility also to see the difference clinically of course the abscess or cyst will still appear radiolucent in the x ray, and will disappear after 6 months, as we know re mineralization occurs to the bone in these period.

CONCLUSION

This method is gives my patients other chance, alternative to implant, cheaper and natural solution than the other solutions, time saving, imagine how many sessions you need to bypass a broken file apically and, may be during the procedure the broken file moved more apically beyond the apical foramen worse may be implanted inside the bone, maxillary sinus, mandibular nerve canal. On the other side possible complications like ledge or perforation during root canal treatment may occur and unfortunately difficult to be treated sometimes at the same time some patients don't prefer surgery, implant, others don't want to make a reduction of the neighbor tooth to make a bridge in case of extraction the tooth which has a one of the previous mentioned problems, On the other hand maybe we need apicectomy and enuclation with or without bone augmentation specially in non-accessible places like the palatal root of the upper 7 and those treatment plan cost money and time and fear from surgery itself is enough for any procedures to be failed, but the word of reimplantology itself is accepted from my patients.

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