**Critically Appraised Topic (CAT)**

|  |
| --- |
| **Project Team:**  |
| Click here to enter text. |
| **Project Team Participants:**  |
| **Rizwan Bader, Rebecca Willfahrt, Marrisa Bunge, Shawn Nelson** |
| **Clinical Question:** |
| **What is the most effective treatment for patients needing an endodontic retreatment**  |
| **PICO Format:** |
| **P:** |
| **Patients needing endodontic intervention** |
| **I:** |
| **Endondontic surgery** |
| **C:** |
| **Extraction and implant** |
| **O:** |
| **More favorable success outcome** |
| **PICO Formatted Question:** |
| **In patients needing endodontic intervention, is endodontic surgery more successful than when compared against extraction and implant placement**  |
| **Clinical Bottom Line:** |
| **Due to implants and endodontic surgery having different criteria of success the need for more randomized control trials between endodontic surgery and extraction and implant placement are needed in order to determine which treatment option is more superior. Available evidence is unable to provide clinicians with reliable guidelines in order to treat periapical lesions** |
| **Date(s) of Search:**  |
| **10/6/2020, 10/7/2020, 10/14/2020** |
| **Database(s) Used:** |
| **Pubmed** |
| **Search Strategy/Keywords:** |
| **Endodontic mircrosurgery, single implants, endodontic intervention** |
| **MESH terms used:** |
| **Tooth extraction, dental implants, single tooth, microsurgery**  |
| **Article(s) Cited:** |
| 1. Tooth retention through endodontic microsurgery or tooth replacement using single implants: a systematic review of treatment outcome

Torabinejad M, Landaez M, Milan M, Sun CX, Henkin J, Al-Ardah A, Kattadiyil M, Bahjri K, Dehom S, Cortez E, White SN. Tooth retention through endodontic microsurgery or tooth replacement using single implants: a systematic review of treatment outcomes. J Endod. 2015 Jan;41(1):1-10. doi: 10.1016/j.joen.2014.09.002. Epub 2014 Oct 11. PMID: 25306305.Comparison of Long-term Survival of Implants and Endodontically Treated TeethSetzer FC, Kim S. Comparison of long-term survival of implants and endodontically treated teeth. J Dent Res. 2014 Jan;93(1):19-26. doi: 10.1177/0022034513504782. Epub 2013 Sep 24. PMID: 24065635; PMCID: PMC3872851.Outcomes of Surgical Endodontic Treatment Performed by Modern Technique: An Updated Meta-Analysis of the LiteratureTsesis I, Rosen E, Taschieri S, Telishevsky Strauss Y, Ceresoli V, Del Fabbro M. Outcomes of surgical endodontic treatment performed by a modern technique: an updated meta-analysis of the literature. J Endod. 2013 Mar;39(3):332-9. doi: |
| **Study Design(s):** |
| 1. Systematic Review of Randomized Control Trials
2. Expert Opinion
3. **Meta Analysis**
 |
| **Reason for Article Selection:** |
| The reason for the article selection was due relevancy of the PICO question. The literature lacked randomized control trials that compared the two studies. However, the articles were most relevant sources of information that allowed me to answer the pico question by examining both side by side. The last article looked more at which type of endodontic surgery would lead to the highest success. The articles made a good choice of success between endodontic microsurgery and tooth replacement using single implants.  |
| **Article(s) Synopsis:** |
| 1. **The use of endodontic microsurgery with extraction and implant placement resulted in a better or worse clinical, and psychosocial outcome. The survival rates at 4-6 years of single implants was much higer than teeth that were treated with endodontic microsurgery. The success criteria for the different treatment modalities was largely different. However, research found that SI success rate was not different than survival rate. While in contrast EMS success rate was lower than its survival rate. The study found that in the event of a failure of non surgical root canal therapy, the use of a single implant was a superior option to EMS in respect to survival. In terms of economics, it was a general consensus that endodontic interventions were less costly than single implants. There was a lack of a common success definition between the two.**
2. **The article examined and compared studies that summarized the benefits, disadvantages, success, and survival of implant and endodontic microsurgery. The success rates of single unit implants was 96.7-97.5 over the span of 6-7 years and 91.4%-93.5% for endodontic microsurgery after 1 year follow-up. Moreover, the article mentioned that it was harder to obtain satisfactory esthetics and gingival architecture for implants which can influence patient preferences.**
3. **This article examined clinical trials of surgical endodontic treatment performed in patients with apical periodontitis in endodontically treated teeth. The research found that teeth that don’t have periodontal disease modern endodontic surgery using MTA retrofilling material using endoscope or operative microscope is a successul treatment option with a 1 year postoperative period.**
 |
| **Levels of Evidence:** (For Therapy/Prevention, Etiology/Harm) See <http://www.cebm.net/index.aspx?o=1025>[x]  **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)[ ]  **1b** – Individual RCT[ ]  **2a** – Systematic Review of Cohort Studies[ ]  **2b** – Individual Cohort Study[ ]  **3** – Cross-sectional Studies, Ecologic Studies, “Outcomes” Research[ ]  **4a** – Systematic Review of Case Control Studies[ ]  **4b** – Individual Case Control Study[ ]  **5** – Case Series, Case Reports[x]  **6** – Expert Opinion without explicit critical appraisal, Narrative Review[ ]  **7** – Animal Research[ ]  **8** – In Vitro Research |
| **Strength of Recommendation Taxonomy (SORT) For Guidelines and Systematic Reviews**See article **J Evid Base Dent Pract 2007;147-150**[ ]  **A** – Consistent, good quality patient oriented evidence[x]  **B** – Inconsistent or limited quality patient oriented evidence[ ]  **C** – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening |
| **Conclusion(s):** |
|  **Although the literature has no comparative trials and there is a lack of evidence based guidelines, patient specific factors can influence treatment. For our patient, esthetics and finance was not a concern. Extraction and implant have high success and survival rates for longer periods of time. This would is a better option for the patient.**  |