**Critically Appraised Topic (CAT)**

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| **Project Team:** |
| **Group 6A-5** |
| **Project Team Participants:** |
| **Carli Hogan, Hanna Benelhachemi, Jessica Romano, Cameron Johns** |
| **Clinical Question:** |
| **Why are silver points no loner recommended as an obturation material for RCT?** |
| **PICO Format:** |
| **P:** |
| **Patients reciving root canal therapy** |
| **I:** |
| **Silver point fillings** |
| **C:** |
| **Gutta Percha** |
| **O:** |
| **Likelihood of retreatment** |
| **PICO Formatted Question:** |
| **In patients who have had root canal therapy, do teeth obtutrated with silver point fillings, as compared to teeth obturated with gutta percha, have an increased likelihood of requiring retreatment?** |
| **Clinical Bottom Line:** |
| **Patient has symptomatic #14 with PARLS at apex of MB and P roots that was previously treated with silver point fillings in another country overseas** |
| **Date(s) of Search:** |
| **9/20/2020** |
| **Database(s) Used:** |
| **PubMed** |
| **Search Strategy/Keywords:** |
| **Silver Points AND Root Canal** |
| **MESH terms used:** |
| **Gutta Percha**  **Root Canal Filling Materials**  **Root Canal Obturation**  **Silver\*** |
| **Article(s) Cited:** |
| Wollard, Ronald R., et al. “Scanning Electron Microscopic Examination of Root Canal Filling Materials.” *Journal of Endodontics*, vol. 2, no. 4, 1976, pp. 98–110., doi:10.1016/s0099-2399(76)80147-1.  Chana, et al. “Degradation of a Silver Point in Association with Endodontic Infection.” *International Endodontic Journal*, vol. 31, no. 2, 1998, pp. 141–146., doi:10.1046/j.1365-2591.1998.01136.x. |
| **Study Design(s):** |
| **Invivo**  **Case Report** |
| **Reason for Article Selection:** |
| **Article 1: This article compares standard of care treatment for root canal therapy in different time periods; silver point fillings were readily used as a root canal filling material before gutta percha was introduced. Failures of silver point fillings lead to the use of gutta percha over the years. Silver point fillings are now rarely seen in patients unless they were placed decades ago. I chose this article because it provides a better understanding of the two most common types of RCT filling materials.**  **Article 2: This article is a case report that explains a patient’s experience with silver point fillings and I chose this article in hopes that the symptoms of a failing silver point filling would overlap or compare to our patient’s symptomatic failure of their root canal filling.** |
| **Article(s) Synopsis:** |
| **Article 1: This invivo article uses 130 extracted and preserved teeth to compare various RCT filling materials along with different types of cements/sealers. The teeth were irrigated, dried with paper points, obtuated, and filled with amalgam. Photomicrographs were taken of apical/middle/coronal third and analyzed for best adaptation/adhesion of filling material.**  **Article 2:** 52 y/o female referred for symptomatic lower right mandibular premolar previously treated w/ silver point filling w/ unknown cement. Patient received tx- retrograde amalgam (improperly placed) but symptoms improved & no signs pain/swelling. PA’s were taken over a 2 year period → noted that SP filling was degrading at apical end. 1st  year filling degraded 5mm. 2nd year, it degraded 10 mm  (total) and small portion had detached itself from main body of silver point. Patient experienced pain- especially upon biting- “unremitting throbbing pain”, tooth was tender to tapping. Patient wanted tooth save tooth→ non surgical approach to retrieve silver point filling |
| **Levels of Evidence:** (For Therapy/Prevention, Etiology/Harm)  See <http://www.cebm.net/index.aspx?o=1025>  **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  **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  **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):** |
| **Article 1:**  During processing of the samples, cracks developed in the dentin  due to dehydration. Findings confirm that root canal fillings do not completely obturate root canals  (poor adaptation/chemical bonding). GP and Silver Cones have NO adhesive qualities-- sealer/cement must be used. GP shrinks + poor adaptation; Silver cones poor adherence + prone to corrosion  Article 2: Failure and degradation due to multitude of reasons: Coronal microleakage (bacteria rods formed on inner surface), corrosion- galvanic reaction/reaction with amalgam core of abutment + areas of voids, occlusion- could have exacerbated degradation. It also could have been a combination of infection, microleakage, and galvanic degradation |