**Critically Appraised Topic (CAT)**

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| **Project Team:**  |
| **7B-3** |
| **Project Team Participants:**  |
| **Reema Daas, Mikaella Sabinash, Manika Luhano, Hannah Hamwi** |
| **Clinical Question:** |
| **What are the etiologies of excessive gingival display?** |
| **PICO Format:** |
| **P:** |
| **Patients with excessive gingival display or “gummy” smile**  |
| **I:** |
| **Crown lengthening** |
| **C:** |
| **Orthodontic intrusion or other treatment options**  |
| **O:** |
| **Improvement of smile esthetics and long-term stability**  |
| **PICO Formatted Question:** |
| **In patients with excessive gingival display, will crown lengthening lead to better smile esthetics compared to orthodontic intrusion or other treatment interventions?** |
| **Clinical Bottom Line:** |
| **In patients with excessive gingival display, it is essential to determine the etiology of the gummy smile in order to determine the treatment for a patient. The two treatments crown lengthening and orthodontic intrusion are not interchangeable and depend on the specific diagnosis.** |
| **Date(s) of Search:**  |
| **11/1, 11/3, 11/7** |
| **Database(s) Used:** |
| **Pubmed.gov, The International Journal of Dentistry, SPEAR Education** |
| **Search Strategy/Keywords:** |
| **Studies containing information about the etiologies of a gummy smile and the specific treatments developed for the diagnosis.**  |
| **MESH terms used:** |
| **Excessive gingival display, gummy smile, etiology, interventions, crown lengthening, orthodontia intervention** |
| **Article(s) Cited:** |
| [**https://pubmed.ncbi.nlm.nih.gov/10321231/**](https://pubmed.ncbi.nlm.nih.gov/10321231/)**,** [**https://www.speareducation.com/spear-review/2015/12/managing-over-eruption-following-tooth-wear**](https://www.speareducation.com/spear-review/2015/12/managing-over-eruption-following-tooth-wear)**, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3433145/** |
| **Study Design(s):** |
| **Cross-sectional study, individual clinical study** |
| **Reason for Article Selection:** |
| **There are no articles that directly compare the two treatment options for excessive gingival display: crown lengthening and orthodontic intrusion. I chose these articles because they discuss the etiologies of a gummy smile that determine the specific treatment for that patient. Furthermore, the second article I chose is because our case deals with a large amount of tooth wear on the lower anterior teeth causing the excessive gingival display. Finally, I selected these articles because the differential diagnosis of a gummy smile is essential in determining the specific combination of treatments.**  |
| **Article(s) Synopsis:** |
| **Article 1: The first article dicusses the the various etiologies for a gummy smile, including lip length and mobility, length of the crown, dentoalveolar extrusion, and vertical maxillary excess. To determine a treatment for a patient with excessive gingival display, it is essential to develop a differential diagnosis for the patient. Our case deals primarily with dentoalveolar extrusion due to lack of an adequate opposing occlusion. The treatment for dentoalveolar extrusion is typically moving the teeth into their original position through orthodontia or surgicially with an osteotomy.** **Article 2: The second article describes how to manage dentoalveolar extrusion following tooth wear. The most common approaches to treating eruption following wear is with orthodontic intrusion and periodontal crown lengthening. It is important to evaluate several criteria such as root length, occlusal relationship, remaining tooth structure, and periodontal status to determine the proper treatment therapy.** **Article 3: The third article is a study that discusses the comparison of gingivectomy versus ostectomy, which is what is normally done for crown lengthening. Surgical crown lengthening is typically done to gain length in the crown of a tooth for prosthetic retention, access caries, or access the margins. It was concluded that an ostectomy with an apically positioned flap is more effective than a gingivectomy for crown lengthening.**  |
| **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)[x]  **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[ ]  **B** – Inconsistent or limited quality patient oriented evidence[x]  **C** – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening |
| **Conclusion(s):** |
| **In conclusion, it is essential to determine the etiology of the gummy smile in order to develop a specific treatment plan for the patient to ensure long-term stability and improve esthetics. Often, patients with excessive gingival display present with multiple etiologies and will undergo a combination of treatment therapies such as orthontia and surgical methods. In our case, the lower anterior teeth are worn down resulting in dentoalveolar extrusion and a gummy smile; this diagnosis, along with the age of the patient, leads to crown lengthening as a the recommended choice of treatment to improve the patients smile esthetics and long-term stability.** |