

# **Assessment of Relapse Following Surgical Lip Repositioning With and Without Botulinum Toxin Injection in Management of Excessive Gingival Display**

Thesis Submitted for partial fulfillment of the requirements for  
Master Degree in Oral and Maxillofacial Surgery

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**2017**



“This thesis was a part of a self-funded research project conducted on lip repositioning surgery to assess the technique and to assess the relapse accompanied by the surgery and compare it with the adjunctive use of botulinum toxin injections in cases of excessive gingival display. This project included thesis of dear colleague Ahmed Nabil entitled ‘Assessment of Surgical Lip Repositioning Technique for Correction of Excessive Gingival Display’. Where the patients of his thesis were included in this thesis as a control group. The study was presented in ‘Ain shams university 2<sup>nd</sup> international dental congress’ and in ‘Faculty of Dentistry 1<sup>st</sup> Scientific Day’.”



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# **List of Abbreviations**

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- BTX: Botulinum toxin.
- BTX-A: Botulinum toxin serotype A.
- CEJ: Cementoenamel junction.
- DAO: Depressor anguli oris.
- EGD: Excessive Gingival Display.
- F: Female.
- HAL: Hyperactive lip.
- IU: International unit
- KT: keratinized tissue.
- LAO: Levator anguli oris.
- LLS: Levator labii superioris.
- LLSAN: Levator labii superioris alaeque nasi.
- M: Male.
- MGJ: mucogingival junction
- QRP: Quick Releasing Plate.
- SARPE: Surgically assisted rapid palatal expansion.
- SD: Standard deviation.
- SNAP-25: Synaptosome-associated protein.
- VME: Vertical maxillary excess.
- Zm: Zygomaticus minor.
- ZM: Zygomaticus major.



The smile is a voluntary facial expression showing pleasure, happiness and greeting. A beautiful smile is a key feature of aesthetics of the face that improve the self-esteem and confidence. The smile is a manifestation of positive mood and a feeling of happiness or joy. According to Fernández Dolls and Ruiz-Belda, happiness is not a sufficient or necessary cause of smiling. Their suggestion is that social interaction is the factor that induces smiling and that happiness rather facilitates smiling<sup>(1)(2)</sup>.

Excessive Gingival Display (EGD) commonly termed ‘gummy smile’, is one of several developmental and acquired deformities, in which there is an overexposure of gingiva of upper jaw during smiling. EGD has diverse different etiologies: delayed passive eruption, dentoalveolar extrusion, vertical maxillary excess (VME), short lip, hyperactive lip and conditions that cause gingival enlargement. Careful diagnosis to reach the etiology is considered the most critical part in treatment planning. Each etiology has a different protocol of management.

Excessive Gingival Display (EGD) due to hyperactive lip still has controversial management and a lot of trials were made to set an effective definitive treatment. Lip repositioning surgery is a simple and safe procedure, first introduced in 1973 by Rubinstein and Kostianovsky, which had been used to manage patients with hyperactive lip and VME as well. The surgery was reported to have some relapse which was not reported in any of the case reports published. Furthermore all the studies in the literature