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Incidence of gingival black triangles following treatment with fixed orthodontic appliance

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Statement of the Problem: Recently, adults' desire of seeking orthodontic treatment has changed; they seek perfection in smile esthetic and function. This makes orthodontic treatment planning a challenging procedure for orthodontists and periodontists. Therefore, it is important to have well studied treatment plans for each periodontal problem that is present before or arise during orthodontic treatment like Gingival Black Triangle (GBT).

Aim: This systematic review aimed to investigate the relation between Orthodontic Treatment (OT) and the incidence of the Gingival Black Triangle (GBT) after completing treatment with a fixed orthodontic appliance, as well as the associated risk factors and the level of alveolar bone. **Methodology & Theoretical Orientation:** Electronic and hand searches were conducted in three electronic databases for relevant articles published up to March 2022. Retrieved articles went through a two-step screening procedure and the Risk of Bias (RoB) was assessed by the Joanna Briggs Institute checklists. The incidence of GBT after OT was set as the primary outcome, while the secondary outcomes were the risk factors associated with GBT and alveolar bone loss following OT. Out of 421 papers, 5 were selected for the final analysis. The RoBs of three studies were moderate and the remaining two were low. The incidence of GBT following OT ranged from 38% to 58%. In addition, three studies reported that alveolar bone loss was reduced significantly following OT and associated with GBT, while one study found the opposite. Regarding the risk factors associated with GBT, the reported results attributed GBT to several factors including age, tooth-related factors, treatment duration and soft tissue factors.

Conclusion & Significance: The analysis indicates an increased incidence of GBT following OT; however, a firm conclusion cannot be drawn. Additionally, it was not possible to reach a consensus on risk factors associated with GBT due to the heterogeneity of the data. Therefore, further randomized clinical trials are highly recommended to draw a firm conclusion.

Recent publications

1. Rashid, Z.J.; Gul, S.S.; Shaikh, M.S.; Abdulkareem, A.A.; Zafar, M.S. Incidence of gingival black triangles following treatment with fixed orthodontic appliance: A systematic review. *Healthcare* 2022,10, 1373.
2. Mohammed SA, Ali TM, Rashid ZJ. Evaluation of skeletal jaw relation by different cephalometric angles for sample of kurdish young adults in sulaimani city-A Cephalometric study. *Sulaimani Dent J.* 2022;9(1):21-30
3. Rashid ZJ, Chawshli OF. Is bracket position determination from digital techniques accurate 100%? A comparative ex-vitro study. *European Journal of Molecular & Clinical Medicine.* 2021 Jan 10;7(01):2020.

Biography

Zhwan Jamal Rashid Hama is a lecturer at the University of Sulaimani/ college of dentistry in the department of Pedodontics, Orthodontics and Preventive Dentistry. She graduated with BDS in Dentistry in 2003 from the University of Sulaimani, college of dentistry. Following graduation, She completed Dental Vocational Training from 2003-2005 with different dental teaching centers. She was closely involved in treating patients over this period and obtained MSc and PhD degree in Orthodontics at same college in 2007 and 2021, respectively. She is involved in the teaching process as a lecturer in the orthodontics at the College of dentistry in Sulaimani

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University since 2008 and practiced her work in private clinic since 2007. She taught all aspects of undergraduate and postgraduate orthodontics through the clinical supervision of students on the clinic, lectures, tutorials, clinical skill practical and seminars from 2008 and 2021 respectively to this day. She works as assistant of head of postgraduate study office for PhD students affairs since 2021. Additionally, she had authored several publications in peer reviewed Journals including original research, case reports and reviews. Moreover, she has authored a book for the 5th year undergraduate students entitled Clinical Manual for Orthodontics.

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