

Bölüm 17

ORTODONTİK TEDAVİLERİN AĞIZ KOKUSU (HALİTOZİS) İLE İLİŞKİSİ

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Giriş

Kötü ağız kokusunu ifade eden halitozis, Latince 'halitus' (nefes) ve Yunanca 'osis' (patolojik oluşum süreci) kelimelerinin bir araya gelmesinden oluşur (Aydın, 2008), (Quirynen & ark. 2015), (McDowell & Kassebaum; 1993). Kaynağı ağız olan veya olmayan, hoş gitmeyen veya rahatsız edici bir nefesten kaynaklanan kokuyu ifade eden genel bir terimdir. Literatürde, halitozis terimi yerine oral malodor, fetor ex ore, fetor oris, ozostomia terimleri de kullanılmaktadır.

Günümüzde, dünya nüfusunun yaklaşık dörtte birinde halitozis görülmektedir. Kişiler arası iletişimi ve kendini ifade etmeyi etkilemesi nedeniyle son yıllarda giderek artan bir ilgi ile üzerinde durulmaya başlanmıştır. Sosyal baskı, psikososyal stres ve kişide özgüven problemlerine yol açabilmektedir. Tıbbi açıdan, halitozis patolojik bir bulgudur ve bazı hastalıkların habercisi olup bireyin fiziksel, ruhsal ve mental iyilik halini bozmaktadır (Aydın, 2008), (Porter & Scully, 2006). Diş hekimleri tarafından dikkate alınması gereken önemli bir konudur (Oppliger, Roth & Flippi, 2014).

Birey rahatsız edici kötü bir kokudan yakınıyor, sosyal yaşantısını etkilediğini ifade ediyor ise, ağızdan ölçülebilir seviyede çirkin kokulu gaz tespit edilmese bile bu bir halitozis hastasıdır. Her sağlıklı bireyde sabah bir süre boyunca kabul edilebilir seviyede halitozis duyulabilir. Bireyin ağızda kötü kokulu gaz ölçülse bile, bireyin kendisi dahil birden fazla kişi tarafından algılanmıyorsa, halitozis hastalık olmaktan çıkar. Halitozisin patolojik olma sınırı, insan burnunun koku algılama sınırına indekslidir. Kantitatif karşılığı 50 ppb (milyarda bir) aromatik gaz konsantrasyonudur (Aydın, 2008), (Porter & Scully, 2006).

Etyoloji

Gerçek halitozis; nefeste kötü koku deneyimli biri tarafından değerlendirilebilen veya sorumlu bileşenlerin ölçümü ile tanımlanabilen ağız kokusudur. Hastada sa-

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Kaynakça

- Addy, M. & Moran, J.M. (2000). Clinical indications for the use of chemical adjuncts to plaque control: chlorhexidine formulations. *Periodontol* 2000, 15, 53-4
- Anhoury, P. Nathanson, D. Hughes, C.V. Socransky, S. Feres, M. & Chou, L.L. (2002). Microbial profile on metallic and ceramic bracket materials. *Angle Orthod*, 72, 338-4
- Arendorf, T. & Addy, M. (1985). Candidal carriage and plaque distribution before, during and after removable orthodontic appliance therapy. *J Clin Periodontol*, 12, 360-8
- Arikan, F. Eronat, N. Candan, U. & Boyacıoğlu, H. (2007). Periodontal conditions associated with space maintainers following two different dental health education techniques. *J Clin Pediatr Dent*, 31, 229-34
- Arweiler, N.B. & Ilse, A. (2007). Niedrig dosierte Chlorhexidinpräparate. *Oralproph Kinderzahnheilk*, 29, 16-21
- Atack NE, Sandy JR, Addy M. (1996). Periodontal and microbiological changes associated with the placement of orthodontic appliances. A review. *J Periodontol*, 67, 78-85
- Aydın M. (2008). *Ağız Kokusu*. (1. Baskı). Adana; Nobel Tıp Kitabevleri
- Ay, Z.Y. Esenlik, & E. Çağlar, F. (2013). Effect of different oral hygiene motivation methods on halitosis levels of patients treated by fixed orthodontic therapy. *Atatürk Üniv Diş Hek Fak Derg* 23, 307-12
- Babacan, H. Sokucu, O. Marakoglu, I. Ozdemir, H. & Nalcacı, R. (2011). Effect of fixed appliances on oral malodor. *Am J Orthod Dentofacial Orthop*, 139, 351-5
- Batoni, G. Pardini, M. Giannotti, A. Ota, F. Giuca, M.R. Gabriele, M. Campa, M. & Senesi, S. (2001). Effect of removable orthodontic appliances on oral colonisation by mutans streptococci in children. *Eur J Oral Sci*, 109, 388-92
- Burton, J.P. Wescombe, P.A. Macklaim, J.M. Chai, M.H.C. MacDonald, K. Hale, J.D.F. Tagg, J. Reid, G. Gloor, G.B. & Cadieux, P.A. (2013) Persistence of the oral probiotic *Streptococcus salivarius* M18 is dose dependent and megaplasmid transfer can augment their bacteriocin production and adhesion characteristics. *PLoS One*, 8, e65991
- Carranza, F. Takei, H. Newman, M.G. & Klokkevold, P.R. (2015). *Breath Malodor*. Quirynen M, Laleman I, Dadamio J, Geest SD, Vanderkerckhove B, Teughels W.(Ed.), *Carranza's Clinical Periodontology*(544-552). California: Elsevier
- Chang, H.S. Walsh, L.J. & Freer, T.J. (1997). Enamel demineralization during orthodontic treatment. *Aetiology and prevention. Aust Dent J*, 42, 322-7
- De Boever, E.H. De Uzeda, M. & Loesche, W.J. (1994). Relationship between volatile sulfur compounds. BANA- hydrolyzing bacteria and gingival health in patients with and without complaints of oral malodor. *J Clin Dent*, 4, 114-9
- Doruk, C. Öztürk, F. Özdemir, H. & Nalçacı, R. (2008). Oral and Nasal Malodor in Patients With and Without Cleft Lip and Palate Who Had Undergone Orthodontic Therapy. *Cleft Palate Craniofac J*, 45, 481-4
- Erovc Ademovski, S. Lingström, P. Winkel, E. Tangerman, A. Persson, G.R. & Renvert, S. (2012). Comparison of different treatment modalities for oral halitosis. *Acta Odontol Scand*, 70, 224-33
- Gray, D. & McIntyre, G. (2008). Does oral health promotion influence the oral hygiene and gingival health of patients undergoing fixed appliance orthodontic treatment? A systematic literature review. *J Orthod*, 35, 262-9
- Hoffmann, T. Bruhn, G. Richter, S. Netuschil, L. & Brex, M. (2001). Clinical controlled study on plaque and gingivitis reduction under long-term use of low-dose chlorhexidine solutions in a population exhibiting good oral hygiene. *Clin Oral Invest*, 5, 89-95
- Huser, M.C. Baehni, P.C. & Lang, R. (1990). Effects of orthodontic bands on microbiologic and clinical parameters. *Am J Orthod Dentofacial Orthop*, 97, 213-8
- Iha, K. Suzuki, N. Yoneda, M. Takeshita, T. & Hirofuji, T. (2013). Effect of mouth cleaning with hinokitiol-containing gel on oral malodor: a randomized, open-label pilot study. *Oral Surg Oral Med Oral Pathol Oral Radiol*, 116, 433-9
- Kasap, E. Zeybel, M. & Yüceyar, H. (2009), Halitosis (Ağız kokusu). *Güncel Gastroenterol Derg*, 13, 72-6
- Kaygısız, E. Uzuner, F.D. Yuksel, S. Taner, L. Culhaoğlu, R. Sezgin, Y. & Ates, C. (2015). Effects of self-ligating and conventional brackets on halitosis and periodontal conditions. *Angle Orthod*, 85, 468-73
- Keriş, E.Y. Atabek, D. & Güngör, K. (2016). Effects of fixed and removable space maintainers on halitosis. *BMC Oral Health*, 16, 99
- Kim, K. Heimisdottir, K. Gebauer, U. & Persson, G.R. (2010). Clinical and microbiological findings at sites treated with orthodontic fixed appliances in adolescents. *Am J Orthod Dentofacial Orthop*, 137, 223-8
- Krupińska-Nanys, M. & Zarzecka, J. (2015). An assessment of oral hygiene in 7-14-year-old children undergoing orthodontic treatment. *J Int Oral Health*, 7, 6-11

- Kozlovsky, A. Goldberg, S. Natour, I. Rogatky-Gat, A. Gelernter, I. & Rosenberg, M. (1996). Efficacy of a 2-phase oil: water mouthrinse in controlling oral malodour, gingivitis, and plaque. *J Periodontol*, 67, 577-82
- Lambardo, L. Martini, M. Cevinara, F. Spedicato, G.A. Oliverio, T. & Siciliani, G. (2017) Comparative SEM analysis of nine F22 aligner cleaning strategies. *Prog Orthod*, 18, 26
- Lara-Carrillo, E. Montiel-Bastida, N.M. Sa´nchez-Pe´rez, L. & Alami´s-Tavira, J. (2010). Effect of orthodontic treatment on saliva, plaque and the levels of *Streptococcus mutans* and *Lactobacillus*. *Med Oral Patol Oral Cir Bucal*, 15, 924-9
- Levin, L. Samorodnitzky-Naveh, G.R. & Machtei, E.E. (2008). The association of orthodontic treatment and fixed retainers with gingival health. *J Periodontol*, 79, 2087-92
- Loesche, W.J. & Kazor, C. (2002). Microbiology and treatment of halitosis. *Periodontol 2000*, 28, 256-79
- Maden, E.A. & Altun, C. (2012). Probiyotikler ve Ağız Sağlığı. *Atatürk Üniv Diş Hek Fak Derg* 22, 334-9
- McConnell, M.D. Liu, Y. Nowak, A.P. Pilch, Sç. Masters, J.G. & Composto, R.J. (2010). Bacterial plaque retention on oral hard materials: effect of surface roughness, surface composition, and physisorbed polycarboxylate. *J Biomed Mater Res A*, 92, 1518-27
- McDowell, J.D. & Kassebaum, D.K. (1993). Diagnosing and treating halitosis. *J Am Dent Assoc*, 124, 55-64
- Miethke, R.R. & Brauner, K. (2007). Comparison of the periodontal health of patients during treatment with the Invisalign® system and with fixed lingual appliances. *J Orofac Orthop*, 68, 223-31
- Moakeem, S.A. (2014). Halitosis: a review of the etiologic factors and association with systemic conditions and its management. *J Contemp Dent Pract*, 1(15), 806-11
- Morita, M. & Wang, M.L. (2001). Relationship of sulcular sulfide level of severity of periodontal disease and BANA test. *J Periodontol*, 72, 74-8
- Nalcaci, R. Ozat, Y. Cokakoglu, S. Turkkahraman, H. Onal, S. & Kaya, S. (2014). Effect of bracket type on halitosis, periodontal status, and microbial colonization. *Angle Orthod*, 84, 479-85
- Naranjo, A.A. Trivino, M.L. Jaramillo, A. Betancourth, & M. & Botero, J.E. (2006). Changes in the subgingival microbiota and periodontal parameters before and 3 month after bracket placement. *Am J Orthod Dentofacial Orthop*, 275, 17-22
- Nasir, N. Ali, S. Bashir, U. & Ullah, A. (2011). Effect of orthodontic treatment on periodontal health. *Pakistan Oral Dent J*, 31, 111-4
- Neiders, M. & Ramos B. (1999) Operation of bad breath clinics. *Quintessence Int*, 30, 295-301
- Niles, H.P. & Gaffar, A. (1995). Advances in mouth odor research. Mel Rosenberg (Ed.): *Bad breath: research perspectives* (55-69). Tel Aviv: 1995
- Pandis, N. Vlachopoulos, K. Polychronopoulou, A. Madianos, P. & Eliades, T. (2008). Periodontal condition of the mandibular anterior dentition in patients with conventional and selfligating brackets. *Orthod Craniofac Res*, 11, 211-5
- Pathak, A.K. & Sharma, D.S. (2013). Biofilm Associated Microorganisms on Removable Oral Orthodontic Appliances in Children in the Mixed Dentition. *J Clin Pediatr Dent*, 37, 335-9
- Pellegrini, P. Sauerwein, R. Finlayson, T. McLeod, J. Covell, D.A. Maier, T. & Machida, C.A. (2009). Plaque retention by self-ligating vs elastomeric orthodontic brackets: quantitative comparison of oral bacteria and detection with adenosine triphosphate-driven bioluminescence. *Am J Orthod Dentofacial Orthop*, 135, 426, e1-e9
- Porter, S.R. & Scully, C. (2006). Oral malodour (halitosis). *BMJ Glob Health*, 333(7569), 632-5
- Santamaria Jr M, Petermann KD, Vedovello SAS, Degan V, Lucato A, Franzini CM. (2014). Antimicrobial effect of *Melaleuca alternifolia* dental gel in orthodontic patients. *Am J Orthod Dentofacial Orthop*, 145, 198-202
- Santos, I.R. Moreira, A.C. Costa, M.G. & Castellucci e Barbosa, Md. (2014). Effect of 0.12% chlorhexidine in reducing microorganisms found in aerosol used for dental prophylaxis of patients submitted to fixed orthodontic treatment. *Dental Press J Orthod*, 19,95-101
- Schaefer, I. & Braumann, B. (2010). Halitosis, Oral Health and Quality of Life during Treatment with Invisalign® and the Effect of a Low-dose Chlorhexidine Solution. *J Orofac Orthop*, 71(6), 430-41
- Scheie, A.A. Arneberg, P. & Krogstad, A.O. (1984). Effect of orthodontic treatment on prevalence of *Streptococcus mutans* in plaque and saliva. *Scand J Dent Res* 92, 211-7
- Scully, C. & Greenman, J. (2011). Halitology (breath odour: aeriopathogenesis and management). *Oral Dis*, 18, 333-45

Diş Hekimliği

- Sinclair, P.M. Berry, C.W. Bennett, C.L. & Israelson, H. (1987). Changes in gingiva and gingival flora with bonding and banding. *Angle Orthod*, 57, 271-8
- Sökücü, O. Akpınar, A. Özdemir, H. Birlik, M. & Çalışır, M. (2016). The effect of fixed appliances on oral malodor from beginning of treatment till 1 year. *BMC Oral Health*, 16, 14
- Türköz, Ç. Bavbek, N.C. Varlık, S.K. & Aksu, G. (2012). Influence of thermoplastic retainers on *Streptococcus mutans* and *Lactobacillus* adhesion. *Am J Orthod Dentofacial Orthop*, 141, 598-603
- Oppliger, N. Roth, B. & Filippi, A. (2014) Knowledge of halitosis among dentists and dental hygienists. *Swiss Dent J*, 124, 133-43
- Zachrisson, B.U. & Alnaes, L. (1973). Periodontal condition in orthodontically treated and untreated individuals. II. Alveolar bone loss: radiographic findings. *Angle Orthod*, 43, 402-12
- Zachrisson, S. & Zachrisson, B.U. (1972). Gingival condition associated with orthodontic treatment. *Angle Orthod*, 42, 26-34
- Zurfluh, M.A. van Waes, H.J.M. & Flippi, A. (2013). The Influence of Fixed Orthodontic Appliances on Halitosis. *Schweiz Monatsschr Zahnmed*, 123, 1064-9