

## Bölüm 34

# BAŞ- BOYUN VE OROFASİYAL BÖLGEDE AĞRIYA NEDEN OLAN ÖNEMLİ SENDROMLAR

Zülküf KAYA<sup>1</sup>

### GİRİŞ

Ağrı; vücudun herhangi bir bölgesinden kaynaklanan, gerçek bir doku harebiyetiyle birlikte olan ya da olmayan, kişinin geçmiş tecrübeleriyle ilişkili, hoş karşılanmayan duyuşsal ve emosyonel bir deneyimdir. Tanımında güçlükler olan ağrı; herhangi bir vücut kısmından köken alan, organizmayı tehdit eden olası tehlikeleri haber veren, kişide ağrıyı durdurmayı amaçlayan tepkilere ve panik duygusuna yol açan, kişinin önceki tecrübeleriyle de yorumlanabilen pek hoş gitmeyen bir algılama şekli olarak tanımlanabilir (1). Ağrı, yaşam boyu her an karşılaşılabileceğimiz bir uyarıdır. Ağrı, doktorlar için hastalıkların tanısında hayati öneme haiz bir ipucudur. Kişilerin bireysel özelliklerden etkilenen, her zaman öznel, subjektif, anlaşılması ve tanımlanması oldukça güç, ölçülmesi zor ve karmaşık bir histir (2). Hastaların tıbbi yardım alması için en yaygın semptom olması nedeniyle doktorların ağrı hakkında yakinen hem ilgi hem de bilgi sahibi olması gereklidir. Çeşitli ağrı türleri arasında sırt ağrısı en yaygın olanıdır, bunu şiddetli baş ağrıları, eklem ağrıları ve boyun ağrıları izler (3). Orofasiyal ve servikofasiyal bölgeden hissedilen ağrılar somatik, nörojenik ve psikojenik vasıfta olabilir. Baş ve boyun bölgesinin ağrı duyusuna, trigeminal, intermedial, glossofaringeal, vagus, oksipital ve büyük auriküler sinir yoluyla üst servikal spinal kord kökleri tarafından taşınan duyuşsal lifler aracılık eder (4).

Her yıl kulaktan, burundan, sinüslerden, boğazdan ve baş-boyundan kaynaklanan ağrı nedeniyle hastalar birinci basamak sağlık kuruluşlarına ve spesifik uzmanlarına önemli sayıda ziyarette bulunmaktadır. Hem erkek hem de kadınlarda 6 aydan uzun süren kronik boyun ağrısı, sık görülen bir durumdur.

<sup>1</sup> Dr.Öğr.Üyesi, Atatürk Üniversitesi Tıp Fakültesi, Kulak Burun Boğaz ve Baş Boyun Cerrahisi Anabilimdalı, zulkuf.kaya@atauni.edu.tr

ve trigeminal nevraljilerde Gama Knife Radyocerrahi (GKRC) minimal invazif etkili bir seçenek olduğu görüldü (176). GKRC, süperior laringeal sinir nöraljisi içinde başarı bir şekilde uygulanabilir (176).

## **SONUÇ**

Ağrı, vücudun herhangi bir yerinde değişik nedenlerle meydana gelen kişinin tecrübesiyle de ilişkili hoş olmayan bir duygudur. Aslında ağrı bir yaşam belirtisidir. Bazen hayatı tehdit eden patolojileri haber veren ilk uyarı olabilir. Orofasiyal ve servikofasiyal bölgeden hissedilen ağrılar somatik, nörojenik ve psikojenik vasıfta olabilir. Baş, boyun ve orofasiyal bölgede ağrının en sık nedeni, yüzeysel ve derin enfeksiyonların yanı sıra primer veya metastatik tümörlerdir. Bu anatomik bölgelerde enfeksiyon ve tümörler dışında Eagle sendromu, Yanan ağız sendromu, Periyodik Ateş, Aftöz Stomatit, Farenjit ve Adenit sendromu (PFAPA), Ernest sendromu, Crown dens sendromu ve Hiyoid sendromun da dahil olduğu bir çok sendromik hastalıklar da ağrıya neden olur. Baş-boyun ve boğaz bölgesindeki ağrılar değerlendirilirken bu sendromlar da hatırlanmalıdır. Klinisyen özellikle, bu bölgedeki ağrıyı hiçbir zaman seri fizik muayene, laboratuvar değerlendirmeleri ve görüntüleme yöntemlerini kullanmadan idiyopatik veya psikojenik bir etiyo-lojiye bağlamamalıdır. En sık ağrı nedenleri dışlandıktan sonra bu sendromların tanısının konması ve uygun olarak tedavi edilmesiyle hem hastanın yaşam kalitesi artırılabilir hem de gereksiz zaman ve ekonomik kayıplar önlenebilir.

**Anahtar Kelimeler:** Sendrom, Esgle sendromu, PFAPA, Boyun dil sendromu, stiloid proçes, Crown dens sendromu

## **KAYNAKLAR**

1. Aslan FE, Badır A. Ağrı kontrol gerçeği: Hemşirelerin ağrının doğası, değerlendirilmesi ve geçirilmesine ilişkin bilgi ve inançları. *Ağrı*. 2005;2:44-51.
2. Nadler D.O, Scott F. Nonpharmacologic management of pain. *JAOA*. 2004;104:6-12.
3. Steven, P. C. and Srinivasa N. R. (2016). Pain. *Goldman-Cecil Medicine*, (25<sup>th</sup> ed., pp. 133-143.e2)
4. Headache Classification Committee of the International Headache Society (IHS). *The International Classification of Headache Disorders*. Cephalalgia, 3rd edition. 2018; 38:1.
5. Heim N, Warwas FB, Wiedemeyer V, et al. The role of immediate versus secondary removal of the odontogenic focus in treatment of deep head and neck space infections. A retrospective analysis of 248 patients. *Clin Oral Investig*. 2019; 23: 2921.
6. Grushka M, Epstein JB, Gorsky M. Burning mouth syndrome. *Am Fam Physician*. 2002;65(4):615-20.
7. Drage LA, Rogers RS. 3rd. Burning mouth syndrome. *Dermatol Clin*. 2003;21(1):135-45.
8. Scala A, Checchi L, Montevecchi M, et al. Update on burning mouth syndrome: Overview and patient management. *Crit Rev Oral Biol Med*. 2003;14(4):275-91.
9. Coculescu EC, Tovu S, Coculescu BI. Epidemiological and etiological aspects of burning mouth syndrome. *J Med Life*. 2014;7(3):305-9.

10. Lopez-Jornet P, Camacho-Alonso F, Andujar-Mateos P, et al. Burning mouth syndrome: A update. *Med Oral Patol Oral Cir Bucal*. 2010;15(4):e562–8.
11. Gurvits GE, Tan A. Burning mouth syndrome. *World J Gastroenterol*. 2013;19(5):665–72.
12. Bergdahl M, Bergdahl J. Burning mouth syndrome: Prevalence and associated factors. *J Oral Pathol Med*. 1999;28(8):350–4.
13. Woda A, Navez ML, Picard P, et al. A possible therapeutic solution for stomatodynia (burning mouth syndrome). *J Orofac Pain*. 1998;12(4):272–8.
14. Kohorst JJ, Bruce AJ, Torgerson RR, et al. A population-based study of the incidence of burning mouth syndrome. *Mayo Clin Proc*. 2014; 89:1545.
15. Feller L, Fourie J, Bouckaert M, et al. Burning Mouth Syndrome: A etiopathogenesis and Principles of Management. *Pain Res Manag* 2017;1926269.
16. das Neves de Araujo Lima E, Barbosa NG, Dos Santos AC, et al. Comparative analysis of psychological, hormonal, and genetic factors between burning mouth syndrome and secondary oral burning. *Pain Med*. 2016;17(9):1602–11
17. Forssell H, Teerijoki-Oksa T, Kotiranta U, et al. Pain and pain behavior in burning mouth syndrome: A pain diary study. *J Orofac Pain*. 2012;26(2):117–25.
18. Grushka M. Clinical features of burning mouth syndrome. *Oral Surg Oral Med Oral Pathol*. 1987;63(1):30–6.
19. de Souza FT, Teixeira AL, Amaral TM, et al. Psychiatric disorders in burning mouth syndrome. *J Psychosom Res*. 2012;72(2):142–6.
20. Galli F, Lodi G, Sardella A, et al. Role of psychological factors in burning mouth syndrome: A systematic review and meta-analysis. *Cephalalgia*. 2017; 37:265.
21. Lauria G, Majorana A, Borgna M, et al. Trigeminal small-fiber sensory neuropathy causes burning mouth syndrome. *Pain*. 2005; 115:332.
22. Cho GS, Han MW, Lee B, et al. Zinc deficiency may be a cause of burning mouth syndrome as zinc replacement therapy has therapeutic effects. *J Oral Pathol Med*. 2010;39(9):722–7.
23. Suarez P, Clark GT. Burning mouth syndrome: an update on diagnosis and treatment methods. *J Calif Dent Assoc*. 2006;34(8):611–22.
24. Maltzman-Tseikhin A, Moricca P, Niv D. Burning mouth syndrome: will better understanding yield better management? *Pain Pract*. 2007; 7:151–6.
25. Bartoshuk LM, Snyder DJ, Grushka M, et al. Taste damage: previously unsuspected consequences. *Chem Senses*. 2005;30(Suppl 1):i218–9.
26. Bartoshuk LMCA, Duffy VB, Gruhska M, et al. Oral phantoms: Evidence for central inhibition produced by taste. *Chem Senses*. 2002;27:52.
27. Bartoshuk LM, Snyder DJ, Grushka M, et al. Taste damage: Previously unsuspected consequences. *Chem Senses*. 2005;30(Suppl 1):i218–9.
28. Grushka M, Epstein JB, Gorsky M. Burning mouth syndrome and other oral sensory disorders: A unifying hypothesis. *Pain Res Manag*. 2003;8(3):133–5.
29. Gao J, Chen L, Zhou J, et al. A case-control study on etiological factors involved in patients with burning mouth syndrome. *J Oral Pathol Med*. 2009;38(1):24–8.
30. Leimola-Virtanen R, Salo T, Toikkanen S, et al. Expression of estrogen receptor (ER) in oral mucosa and salivary glands. *Maturitas*. 2000;36(2):131–7.
31. Forabosco A, Criscuolo M, Coukos G, et al. Efficacy of hormone replacement therapy in postmenopausal women with oral discomfort. *Oral Surg Oral Med Oral Pathol* 1992;73(5):570–4.
32. Woda A, Dao T, Gremeau-Richard C. Steroid dysregulation and stomatodynia (burning mouth syndrome). *J Orofac Pain*. 2009;23(3):202–10.
33. Kaufer D, Ogle WO, Pincus ZS, et al. Restructuring the neuronal stress response with anti-glucocorticoid gene delivery. *Nat Neurosci* 2004;7(9):947–53.
34. de Tommaso M, Lavolpe V, Di Venere D, et al. A case of unilateral burning mouth syndrome of neuropathic origin. *Headache*. 2011;51(3):441–3.

35. Yılmaz Z, Renton T, Yiangou Y, et al. Burning mouth syndrome as a trigeminal small fibre neuropathy: Increased heat and capsaicin receptor TRPV1 in nerve fibres correlates with pain score. *J Clin Neurosci.* 2007;14(9):864–71.
36. Shortland PJ, Baytug B, Krzyzanowska A, et al. ATF3 expression in L4 dorsal root ganglion neurons after L5 spinal nerve transection. *Eur J Neurosci.* 2006;23(2):365–73.
37. Wood PB. Role of central dopamine in pain and analgesia. *Expert Rev Neurother.* 2008; 8:781
38. Stuginski-Barbosa J, Rodrigues GG, Bigal ME, et al. Burning mouth syndrome responsive to pramipexol. *J Headache Pain.* 2008; 9:43.
39. Cárcamo Fonfría A, Gómez-Vicente L, Pedraza MI, et al. Burning mouth syndrome: Clinical description, pathophysiological approach, and a new therapeutic option. *Neurologia* 2017; 32:219.
40. Sardella A, Lodi G, Demarosi F, et al. Burning mouth syndrome: a retrospective study investigating spontaneous remission and response to treatments. *Oral Dis* 2006;12(2):152–5.
41. James W.Lance AO, Peter JG. (2005). Cranial neuralgias and central causes of facial pain. In: *Mechanism and management of headache* (p.333). Elsevier Butterworth Heinemann, Philadelphia.
42. Minor JS, Epstein JB. Burning mouth syndrome and secondary oral burning. *Otolaryngol Clin North Am.* 2011;44(1):205–19.
43. Sauer SE, Burris JL, Carlson CR. New directions in the management of chronic pain: self-regulation theory as a model for integrative clinical psychology practice. *Clin Psychol Rev.* 2010;30(6):805–14.
44. Aravindhan R, Vidyalakshmi S, Kumar MS, et al. Burning mouth syndrome: a review on its diagnostic and therapeutic approach. *J Pharm Bioallied Sci.* 2014;6(Suppl 1):21–5.
45. Miziara I, Chagury A, Vargas C, et al. Therapeutic options in idiopathic burning mouth syndrome: literature review. *Int Arch Otorhinolaryngol.* 2015;19(1):86–9.
46. McMillan R, Forssell H, Buchanan JA, et al. Interventions for treating burning mouth syndrome. *Cochrane Database Syst Rev.* 2016; 11:CD002779.
47. Marshall GS, Edwards KM, Butler J, et al. Syndrome of periodic fever, pharyngitis, and aphthous stomatitis. *J Pediatr.* 1987; 110:43.
48. Padeh S, Stoffman N, Berkun Y. Periodic fever accompanied by aphthous stomatitis, pharyngitis and cervical adenitis syndrome (PFAPA syndrome) in adults. *Isr Med Assoc J.* 2008; 10:358.
49. Manthiram K, Lapidus S, Edwards K. Unraveling the pathogenesis of periodic fever, aphthous stomatitis, pharyngitis, and cervical adenitis through genetic, immunologic, and microbiologic discoveries: an update. *Curr Opin Rheumatol.* 2017; 29:493.
50. John CC, Gilsdorf JR. Recurrent fever in children. *Pediatr Infect Dis J.* 2002; 21: 1071- 80.
51. Wurster VM, Carlucci JG, Feder HM Jr, et al. Long-term follow-up of children with periodic fever, aphthous stomatitis, pharyngitis, and cervical adenitis syndrome. *J Pediatr.* 2011; 159:958.
52. McDermott MF, Aksentijevich I, Galon J, et al. Germline mutations in the extracellular domains of the 55 kDa TNF receptor, TNFR1, define a family of dominantly inherited autoinflammatory syndromes. *Cell.* 1999; 97:133.
53. Manthiram K, Zhou Q, Aksentijevich I, et al. The monogenic autoinflammatory diseases define new pathways in human innate immunity and inflammation. *Nat Immunol.* 2017; 18:832.
54. Kastner DL, Aksentijevich I, Goldbach-Mansky R. Autoinflammatory disease reloaded: a clinical perspective. *Cell.* 2010; 140:784.
55. Gattorno M, Caorsi R, Meini A, et al. Differentiating PFAPA syndrome from monogenic periodic fevers. *Pediatrics.* 2009; 124(4): 721-8.
56. Adachi M, Watanabe A, Nishiyama A, et al. Familial cases of periodic fever with aphthous stomatitis, pharyngitis, and cervical adenitis syndrome. *J Pediatr.* 2011; 158(1): 155-9.
57. Feder HM, Salazar JC. A clinical review of 105 patients with PFAPA (a periodic fever syndrome). *Acta Paediatr.* 2010; 99:178.

58. Førsvoll J, Kristoffersen EK, Qymar K. Incidence, clinical characteristics and outcome in Norwegian children with periodic fever, aphthous stomatitis, pharyngitis and cervical adenitis syndrome; a population-based study. *Acta Paediatr.* 2013; 102:187.
59. Taniuchi S, Nishikomori R, Iharada A, et al. MEFV Variants in Patients with PFAPA Syndrome in Japan. *Open Rheumatol J.* 2013; 7:22.
60. Di Gioia SA, Bedoni N, von Scheven-Gête A, et al. Analysis of the genetic basis of periodic fever with aphthous stomatitis, pharyngitis, and cervical adenitis (PFAPA) syndrome. *Sci Rep.* 2015; 5:10200.
61. Manthiram K, Nesbitt E, Morgan T, et al. Family History in Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome. *Pediatrics.* 2016; 138.
62. Kolly L, Busso N, von Scheven-Gete A, et al. Periodic fever, aphthous stomatitis, pharyngitis, cervical adenitis syndrome is linked to dysregulated monocyte IL-1 $\beta$  production. *J Allergy Clin Immunol* 2013; 131:1635.
63. Stojanov S, Lapidus S, Chitkara P, et al. Periodic fever, aphthous stomatitis, pharyngitis, and adenitis (PFAPA) is a disorder of innate immunity and Th1 activation responsive to IL-1 blockade. *Proc Natl Acad Sci.*2011;108:7148.
64. Dytrych P, Krol P, Kotrova M, et al. Polyclonal, newly derived T cells with low expression of inhibitory molecule PD-1 in tonsils define the phenotype of lymphocytes in children with Periodic Fever, Aphthous Stomatitis, Pharyngitis and Adenitis (PFAPA) syndrome. *Mol Immunol.* 2015; 65:139.
65. Hofer M, Pillet P, Cochard MM, et al. International periodic fever, aphthous stomatitis, pharyngitis, cervical adenitis syndrome cohort: description of distinct phenotypes in 301 patients. *Rheumatology (Oxford)* 2014; 53:1125.
66. Perko D, Debeljak M, Toplak N, et al. Clinical features and genetic background of the periodic fever syndrome with aphthous stomatitis, pharyngitis, and adenitis: a single center longitudinal study of 81 patients. *Mediators Inflamm.* 2015; 2015:293417.
67. Celiksoy MH, Ogur G, Yaman E, et al. Could familial Mediterranean fever gene mutations be related to PFAPA syndrome? *Pediatr Allergy Immunol.* 2016; 27:78.
68. Thomas KT, Feder HM Jr, Lawton AR, et al. Periodic fever syndrome in children. *J Pediatr.* 1999; 135:15.
69. Padeh S, Breznjak N, Zemer D, et al. Periodic fever, aphthous stomatitis, pharyngitis, and adenopathy syndrome: clinical characteristics and outcome. *J Pediatr.* 1999; 135:98.
70. Marshall GS, Edwards KM, Lawton AR. PFAPA syndrome. *Pediatr Infect Dis J.* 1989; 8:658.
71. Thomas KT, Feder HM Jr, Lawton AR, et al. Periodic fever syndrome in children. *J Pediatr* 1999; 135(1): 15-21.
72. Keleş S, Özdemir C, Bahçeciler NN, et al. Periyodik ateş sendromları. *Güncel Pediatri* 2007; 5(2): 57-61.
73. Nalbantoğlu A, Nalbantoğlu B. Vitamin D deficiency as a risk factor for PFAPA syndrome. *Int J Pediatr Otorhinolaryngol.* 2019; 121:55.
74. Cassidy JD, Diakow PRP, De Korompay VL, et al. Treatment of neck-tongue syndrome by spinal manipulation: a report of three cases. *Pain Clin.* 1986;1:41-6.
75. Cyriax J. (1962). *Textbook of Orthopaedic Medicine*, 4th edition edn. London: Cassell, p.158.
76. Lance JW and Anthony M. Neck-tongue syndrome on sudden turning of the head. *J Neurol Neurosurg Psychiatry.* 1980; 43: 97-101.
77. Gelfand AA, Johnson H, Lenaerts ME, et al. Neck-Tongue syndrome: A systematic review. *Cephalalgia.* 2018;38(2):374-382.
78. Borody C. Neck-tongue syndrome. *J Manip Physiol Therapeutics.* 2004; 27: E67.e1-E67.e6.
79. Biondi DM. Cervicogenic headache: a review of diagnostic and treatment strategies. *J Am Osteopath Assoc.* 2005;105-16S-22.
80. Webb J, March L, Tyndall A. The neck-tongue syndrome: occurrence with cervical arthritis as well as normals. *J Rheumatol.* 1984;11:530-3.

81. Waldman SD. (2014). Neck-tongue syndrome: In. Waldman SD (ed.). Atlas of Uncommon Pain Syndrome (3<sup>rd</sup> ed. pp.72-3). Philadelphia; PA:Saunders.
82. Kraemer J, Pal J, Bajwa ZH. (2009). Headaches other than migraine. In. Smith H (ed.). Current Therapy in Pain (1<sup>st</sup> ed. pp.111-20). Philadelphia; PA:Saunders.
83. Chedrawi A.K., Fishman M.A., Miller G.: Neck-tongue syndrome. *Pediatr Neurol* 2000; 22: pp. 397-399.
84. Maheshwari PK, Pandey A. Unusual headaches. *Ann Neurosci* 2012;19:172-6.
85. Terrett AGJ. (1988). Neck-Tongue syndrome and spinal manipulative therapy. In: Vernon H (ed.) Upper Cervical Syndrome: Chiropractic Diagnosis and Treatment (pp.223-39). Baltimore:Williams & Wilkins.
86. Kim JB, Yoo JK, Yu S. Neck-tongue syndrome precipitated by prolonged poor sitting posture. *Neurol Sci.* 2014;35(1):121-2.
87. Niethamer L, Myers R. Manual therapy and exercise for a patient with neck-tongue syndrome: A case report. *J Orthop Sports Phys Ther.* 2016;46:217-24.
88. Waldman S.D. (2008). Eagle's syndrome. In Waldman SD (eds). Uncommon pain syndromes (2<sup>nd</sup> ed. pp. 28). Philadelphia: Saunders.
89. Diamond LH, Cottrell DA, Hunter MJ, et al. *J Oral Maxillofac Surg.* 2001;59:1420-6.
90. Murthy PSN, Hazarika P, Mathai M, et al. Elongated styloid process: an overview. *Int Maxillofac Surg.* 1990; 19: 230-231.
91. Fini G, Gasparini G, Filippini F, et al. The long styloid process syndrome or Eagle's syndrome. *J Craniomaxillofac Surg.* 2000;28:123-7.
92. Badheya A, Jategaonkara A, Joseph A. Eagle syndrome: A comprehensive review. *Clinical Neurology and Neurosurgery.* 2017;159:34-38.
93. Eagle WW. Elongated styloid process. Report of two cases. *Arch Otolaryngol.* 1937;25:584.
94. Eagle WW. Elongated styloid process: symptoms and treatment. *Arch Otolaryngol.* 1958;67:172-6.
95. Ilgüy M, Ilgüy D, Güler N, et al. Incidence of the type and calcification patterns in patients with elongated styloid process. *J Int Med Res.* 2005;33:96-102.
96. Zammit M, Chircop C, Attard V, et al. Eagle's syndrome: a piercing matter. *BMJ Case Rep.* 2018 Nov 28;11(1).
97. Péus D, Kollias SS, Huber AM, et al. Recurrent unilateral peripheral facial palsy in a patient with an enlarged styloid process. *Head Neck.* 2019 Mar;41(3):E34-E37.
98. Galletta K, Siniscalchi EN, Cicciù M, et al. Eagle Syndrome: A Wide Spectrum of Clinical and Neuroradiological Findings From Cervico-Facial Pain to Cerebral Ischemia. *J Craniofac Surg.* 2019 Mar 15.
99. Omami G. Retromandibular Pain Associated With Eagle Syndrome. *Headache.* 2019 Jun;59(6):915-916.
100. Montevecchi F, Caranti A, Cammaroto G, et al. Transoral robotic surgery (TORS) for bilateral eagle syndrome. *ORL J. Otorhinolaryngol. Relat. Spec.* 2019;81(1):36-40.
101. Ceylan A, Köybařıođlu A, Çelenk F, et al. Surgical treatment of elongated styloid process: experience of 61 cases. *Skull Base.* 2008;18:289-95.
102. van Schaik P, de Borst GJ. Compression of the internal carotid artery by turning the head to the left. *Eur. J. Vasc. Endovasc. Surg.* 2015;50(6):701.
103. Eagle WW. The symptoms, diagnosis and treatment of the elongated styloid process, *Am. Surg.* 1962;28:1-5.
104. Ergun G, Yaprak N, Özçađlar HÜ. Eagle sendromu olgu sunumu ve literatürün gözden geçirilmesi. *Göztepe Tıp Dergisi.* 2014;29(2):124-8.
105. Özemre MÖ, Seçgin CK, Gülřahı A. Yumuřak doku kalsifikasyonları ve ossifikasyonları: derleme. *Acta Odontol Turc.* 2016;33(3):166-75.
106. Yıldırım D, Bilgir E. Bař boyun bölgesindeki yumuřak doku kalsifikasyon ve ossifikasyonları. *J Dent Fac Atatürk Uni.* 2015;13:82-90.



107. Christiansen TA, Meyerhoff WL, Quick CA. Styloid process neuralgia: myth or fact. *Arch Otolaryngol.* 1975;101:120-122.
108. Philipp K, Barnes L, Carrau RL. Eagle syndrome produced by a granular cell tumor. *Arch Otolaryngol Head Neck Surg.* 2001;127:1499-1501.
109. Maher T, Shankar H. Ultrasound-guided peristyloid steroid injection for eagle syndrome. *Pain Pract.* 2016.
110. Green BN, Browske LKM. Elongated styloid processes and calcified stylohyoid ligaments in a patient with neck pain: implications for manual therapy practice. *J.Chiropr. Med.* 2014;13(2):128-133.
111. Müderris T, Bercin S, Sevil E, et al. Surgical management of elongated styloid process: intraoral or transcervical? *Eur. Arch. Otorhinolaryngol.* 2014;271(6):1709-13.
112. Sullivan T, Rosenblum J. Eagle syndrome: Transient ischemic attack and subsequent carotid dissection. *Ear Nose Throat J.* 2018 Oct-Nov;97(10-11):342-344.
113. Caylakli F. Important factor for pain relief in patients with eagle syndrome: Excision technique of styloid process. *Am J Otolaryngol.* 2019 Mar - Apr;40(2):337.
114. Hettiarachchi PVKS, Jayasinghe RM, Fonseka MC, et al. Evaluation of the styloid process in a Sri Lankan population using digital panoramic radiographs. *J Oral Biol Craniofac Res.* 2019 Jan-Mar;9(1):73-76.
115. Oka A, Okazaki K, Takeno A, et al. Crowned dens syndrome: report of three cases and a review of the literature. *J Emerg Med.* 2015;49(1): 9-13.
116. Heck A, Nolan N, Rojas-Moreno C. Crowned dens syndrome: calcium pyrophosphate deposition disease masquerading as osteomyelitis. *J Rheumatol.* 2018 Oct.
117. Godfrin-Valnet M, Godfrin G, Godard J, et al. Eighteen cases of crowned dens syndrome: Presentation and diagnosis. *Neurochirurgie.* 2013;59:115.
118. Goto S, Umehara J, Aizawa T, et al. Crowned dens syndrome. *J Bone Joint Surg Am.* 2007;89(12):2732-36.
119. Rho YH, Zhu Y, Zhang Y, et al. Risk factors for pseudogout in the general population. *Rheumatology (Oxford).* 2012;51(11):2070-74.
120. Koyfman A, and Yaffe D. Crowned dens syndrome. A case report. *Neuroradiol J.* 2014;27:495-7.
121. Takahashi T, Minakata Y, Tamura M, et al. A rare case of crowned dens syndrome mimicking aseptic meningitis. *Case Rep Neurol.* 2013;5(1):40-46
122. Urits I, Peck J, Chesteen G, et al. An acute presentation of cervical pain: Crowned dens syndrome. *J Clin Anesth.* 2019 May 30;58:117-118.
123. Siau K, Lee M, and Laversuch CJ. Acute pseudogout of the neck--the crowned dens syndrome:2 case reports and review of the literature. *Rheumatol Int.* 2011;31:85-8.
124. Wu OC, Atli K, Kasliwal MK. Images in neuroscience: cervical bony lesion. *J Clin Neurosci.* 2018 Oct 26;61:256-7.
125. Lee GS, Kim RS, Park HK, et al. Crowned dens syndrome: a case report and review of the literature. *Korean J Spine.* 2014;11(1):15-17.
126. Aouba A, Vuillemin-Bodaghi V, Mutschler C, et al. Crowned dens syndrome misdiagnosed as polymyalgia rheumatica, giant cell arteritis, meningitis or spondylitis: an analysis of eight cases. *Rheumatology (Oxford).* 2004;43(12):1508-12.
127. Klineberg E, Bui T, Schlenk R, et al: Retro-odontoid calcium pyrophosphate dehydrate deposition: surgical management and review of the literature. *Evid Based Spine Care J.* 2014;5:63-69.
128. Takahashi T, Tamura M, Takasu T, et al. Clinical and quantitative analysis of patients with crowned dens syndrome. *J Neurol Sci.* 2017 May 15;376:52-9.
129. Ernest EA, Salter EG. Hyoid bone syndrome: a degenerative injury of the middle pharyngeal constrictor muscle with photo microscopic evidence of insertion tendinosis. *J Prosthet Dent.* 1991;66:78-83.

130. Stern N, Jackson-Menaldi C, Rubin AD. Hyoid bone syndrome: a retrospective review of 84 patients treated with triamcinolone acetonide injections. *Ann Otol Rhinol Laryngol.* 2013;122:159–62.
131. Kim JS, Hong KH, Hong YT, et al. Sternohyoid muscle syndrome. *Am J Otolaryngol.* 2015;36:190-4.
132. Josea A, Nagorib S.A, Aryac S, et al. Hyoid bone syndrome masquerading as temporomandibular joint dysfunction. *British Journal of Oral and Maxillofacial Surgery.* 2019;57:477-8.
133. Ernest EA. (1982). Temporomandibular joint & craniofacial pain-an orthopedic & neurological approach to diagnosis and management (1<sup>st</sup> ed. pp. 114).
134. Keidel M, Rieschke P, Stude P, et al. Antinociceptive reflex alteration in acute posttraumatic headache following whiplash injury. *Pain.* 2001;92:319-26.
135. Peñarrocha-Oltra D, Ata-Ali J, Ata-Ali F, et al. Treatment of orofacial pain in patients with stylo-mandibular ligament syndrome (Ernest Syndrome). *Neurologia.* 2013 Jun;28(5):294-8.
136. Ernest EA. Three disorders that frequently cause temporomandibular joint pain: internal derangement, temporal tendonitis and Ernest syndrome. *J Neurol Orthop Surg.* 1986;7:789-91.
137. Slavin KV. Eagle syndrome: entrapment of the glossopharyngeal nerve? Case report and review of the literature. *J Neurosurg.* 2002;97.216-18.
138. Gelabert-González M, García-Allut A. Eagle syndrome. An unusual cause of neck pain. *7. Neurocirugia (Astur).* 2008;19:254-6.
139. Sun CK, Mercuri V, Cook MJ. Eagle syndrome: an unusual cause of head and neck pain. *Arch Neurol.* 2006;63.294-5.
140. Weyand CM, and Goronzy JJ. Giant cell arteritis and polymyalgia rheumatica. *N Eng J Med.* 2014; 371:50-7.
141. Evans JM, Bowles CA, Bjornsson J, et al. Thoracic aortic aneurysm and rupture in giant cell arteritis. A descriptive study of 41 cases. *Arthritis Rheum.* 1994;37:1539– 47.
142. Maldini C1, Dépinay-Dhellemmes C, Tra TT, et al. Limited value of temporal artery ultrasonography examinations for diagnosis of giant cell arteritis: analysis of 77 subjects. *J Rheumatol.* 2010;37:2326-30.
143. Hoffman GS, Cid MC, Rendt-Zagar KE, et al. Infliximab for maintenance of glucocorticosteroid-induced remission of giant cell arteritis: a randomized trial. *Ann Intern Med.*2007;146:621-30.
144. Balcı MA, Pamuk ÖN. Dev hücreli (temporal) arterit. *RAED Dergisi.* 2015;7(1):10–5.
145. Olopade CO, Sekosan M, Schraufnagel DE. Giant cell arteritis manifesting as chronic cough and fever of unknown origin. *Mayo Clin Proc.* 1997;72:1048–50.
146. Salvarani C, Giannini C, Miller DV, et al. Giant cell arteritis: Involvement of intracranial arteries. *Arthritis Rheum.* 2006;55:985–9.
147. Hunder GG, Bloch DA, Michel BA, et al. The American College of Rheumatology 1990 criteria for the classification of giant cell arteritis. *Arthritis Rheum.* 1990;33:1122–8.
148. Gonzalez-Gay MA, Barros S, Lopez-Diaz MJ, et al: Giant cell arteritis: disease patterns of clinical presentation in a series of 240 patients. *Medicine (Baltimore)* 2005;84:269-76.
149. de Boysson H, Boutemy J, Creveuil C, et al. Is there a place for cyclophosphamide in the treatment of giant-cell arteritis? A case series and systematic review. *Semin Arthritis Rheum.* 2013;43:105-12.
150. Riordan T, Wilson M. Lemierre's syndrome: more than a historical curiosa. *Postgrad Med.* 2004; 80:328.
151. Centor RM. Expand the pharyngitis paradigm for adolescents and young adults. *Ann Intern Med.* 2009; 151:812.
152. Baig M, Rasheed J, Subkowitz D, et al. A Review Of Lemierre Syndrome. *Int J Infect Dis.* 2005;5:2.



153. Sinave CP, Hardy GJ, Fardy PW. The Lemierre syndrome: suppurative thrombophlebitis of the internal jugular vein secondary to oropharyngeal infection. *Medicine (Baltimore)*. 1989; 68:85.
154. Baker CC, Petersen SR, Sheldon GF. Septic phlebitis: a neglected disease. *Am J Surg*. 1979;138:97.
155. Righini CA, Karkas A, Tourniaire R, et al. Lemierre syndrome: study of 11 cases and literature review. *Head Neck*. 2014; 36:1044.
156. Goldenberg NA, Knapp-Clevenger R, Hays T, et al. Lemierre's and Lemierre's-like syndromes in children: survival and thromboembolic outcomes. *Pediatrics*. 2005;116:e543.
157. Golpe R, Marín B, Alonso M. Lemierre's syndrome (necrobacillosis). *Postgrad Med J*. 1999; 75:141.
158. Chirinos JA, Lichtstein DM, Garcia J, et al. The evolution of Lemierre syndrome: report of 2 cases and review of the literature. *Medicine (Baltimore)*. 2002; 81:458.
159. Hagelskjaer Kristensen L, Prag J. Lemierre's syndrome and other disseminated *Fusobacterium necrophorum* infections in Denmark: a prospective epidemiological and clinical survey. *Eur J Clin Microbiol Infect Dis*. 2008; 27:779.
160. O'Neill F, Nurmikko T, Sommer C. Other facial neuralgias. *Cephalgia*. 2017;37(7):658–69.
161. Avellis G. Typische Form von Kehlkopfneuralgie. *Münch med wochenschr*. 1900:1592-94.
162. Baugh RF, Baugh A and Bunge F. Superior laryngeal nerve syndrome and the evaluation of anterior neck pain. *Am J Otolaryngol*. 2012;33:481-3.
163. Aydin O, Ozturk M, Anik Y. Superior laryngeal neuralgia after acute laryngitis and treatment with a single injection of a local anesthetic. *Arch Otolaryngol Head Neck Surg*. 2007;133:934–5.
164. Kodama S, Oribe K and Suzuki M. Superior laryngeal neuralgia associated with deviation of the hyoid bone. *Auris Nasus Larynx*. 2008; 35:429-31.
165. Amin MR, Koufman JA. Vagal neuropathy after upper respiratory infection: a viral etiology? *Am J Otolaryngol*. 2001;22(4):251–6.
166. Bruyn GW. Superior laryngeal neuralgia. *Cephalgia* 1983;3:235–40.
167. Stuck BA, Maurer JT, Mockel C, et al. Excessive weight loss caused by dysphagia in superior laryngeal nerve neuralgia: a case report. *Laryngorhinootologie*. 2000;79:548–50.
168. O'Neill BP, Aronson AE, Pearson BW, et al. Superior laryngeal neuralgia. *Headache*. 1982;22:6–9.
169. Baugh RF, Baugh A, Bunge F. Superior laryngeal nerve syndrome and the evaluation of anterior neck pain. *Am J Otolaryngol*. 2012;33:481–3.
170. Stern N, Jackson-Menaldi C, Rubin AD. Hyoid bone syndrome: a retrospective review of 84 patients treated with triamcinolone acetonide injections. *Ann Otol Rhinol Laryngol*. 2013;122(3): 159-62.
171. Tamaki A, Thuener J, Weidenbecher M. Superior Laryngeal Nerve Neuralgia: Case Series and Review of Anterior Neck Pain Syndromes. *Ear Nose Throat J*. 2019 Apr 17:145561318823373.
172. Brownstone PK, Ballenger JJ, Vick NA. Bilateral superior laryngeal neuralgia: its successful treatment with carbamazepine. *Arch Neurol*. 1980;37:525.
173. Brownstone PK, Ballenger JJ, Vick NA. Bilateral superior laryngeal neuralgia: its successful treatment with carbamazepine. *Arch Neurol*. 1980;37:525.
174. Takahashi SK, Suzuki M, Izuha A, et al. Two cases of idiopathic superior laryngeal neuralgia treated by superior laryngeal nerve block with a high concentration of lidocaine. *J Clin Anesth*. 2007;19:237–8.
175. Fu P, Xiong NX, Abdelmaksoud A, et al. Gamma Knife Radiosurgery of the Superior Laryngeal Neuralgia: A Report of 3 Cases. *World Neurosurg*. 2018 Aug;116:144-148.
176. Xiong NX, Tan D, Fu P, et al. Gamma knife radiosurgery for glossopharyngeal neuralgia by targeting the medial cisternal segment of the glossopharyngeal nerve: report of 3 cases. *Stereotact Funct Neurosurg*. 2015;93:292-6.