

BÖLÜM

19

VERTEBRA METABOLİK VE SİSTEMİK HASTALIKLARI

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Tamer TUNÇKALE²

Vaka 1: Scheuermann Hastalığı

Vaka 2: Diastometamyeli

Vaka 3: Akondroplazi

Vaka 4: Osteogenezis İmperfekta

Vaka 5: Tarlov Kisti

Vaka 6: Ekstramedüller Hematopoez

Vaka 7: Brown Tümörü

Vaka 8: Sarkoidoz

Vaka 9: Ankilogran Spondilit

Vaka 10: Spondilodiskit

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KAYNAKLAR

1. Armbrecht G, Felsenberg D, Ganswindt M, et al. Vertebral Scheuermann's disease in Europe: prevalence, geographic variation and radiological correlates in men and women aged 50 and over. *Osteoporos Int.* 2015;26(10):2509–2519. doi:10.1007/s00198-015-3170-6
2. Heithoff KB, Gundry CR, Burton CV, et al. Juvenile discogenic disease. *Spine (Phila Pa 1976).* 1994;19(3):335–340. doi:10.1097/00007632.199402000-00014
3. Ali RM, Green DW, Patel TC. Scheuermann's kyphosis. *Curr Opin Pediatr.* 1999;11(1):70–75. doi:10.1097/00008480.199902000-00014
4. Gustavel M, Beals RK. Scheuermann's disease of the lumbar spine in identical twins. *AJR Am J Roentgenol.* 2002;179(4):1078–1079. doi:10.2214/ajr.179.4.1791078
5. Blumenthal SL, Roach J, Herring JA. Lumbar Scheuermann's. A clinical series and classification. *Spine (Phila Pa 1976).* 1987;12(9):929–932.
6. de Mauroy J, Weiss H, Aulisa A, et al. 7th SOSORT consensus paper: conservative treatment of idiopathic & Scheuermann's kyphosis. *Scoliosis.* 2010;5:9. Published 2010 May 30. doi:10.1186/1748-7161-5-9.
7. Tsirikos AI, Jain AK. Scheuermann's kyphosis; current controversies. *J Bone Joint Surg Br.* 2011;93(7):857–864. doi:10.1302/0301-620X.93B7.26129.
8. Vetrilé ST, Kuleshov AA, Shvets VV, et al. Vestn Ross Akad Med Nauk. 2008;(8):34–40.
9. Soo CL, Noble PC, Esses SI. Scheuermann kyphosis: long-term follow-up. *Spine J.* 2002;2(1):49–56. doi:10.1016/s1529-9430(01)00168-1
10. Özlek MM, Cinalli G, Maixner WJ. The Spina Bifida, Management and Outcome. Springer Verlag. (2008) ISBN:884.700.6503.
11. Davies SG. Aids to Radiological Differential Diagnosis. Saunders Ltd. (2009) ISBN:070.202.9793.
12. Vissarionov SV, Krutelev NA, Snischuk VP, et al. Diagnosis and treatment of diastematomyelia in children: a perspective cohort study. *Spinal Cord Ser Cases.* 2018;4:109. Published 2018 Dec 19. doi:10.1038/s41394-018-0141-0
13. Moreland LW. (2004) Rheumatology and immunology therapy, *A to Z essentials.* Springer Verlag. ISBN:354.020.6256.
14. Xue Y, Sun A, Mekikian PB, et al. FGFR3 mutation frequency in 324 cases from the International Skeletal Dysplasia Registry. *Mol Genet Genomic Med.* 2014;2(6):497–503. doi:10.1002/mgg3.96
15. Pauli RM, Legare JM. [(1998) Updated 2018 May 10]. Achondroplasia. In M.P Adam, H.H. Arlinger, R.A. Pagon, et al. (Eds), GeneReviews® (pp. 1993-2020) [Internet]. Seattle (WA): University of Washington, Seattle.
16. Minch CM, Kruse RW. Osteogenesis imperfecta: a review of basic science and diagnosis [published correction appears in Orthopedics 1998 Aug;21(8):842]. *Orthopedics.* 1998;21(5):558–569.
17. Redon JY, Gloaguen D, Collet M, et al. L'ostéogénèse imparfaite. Réflexions sur le diagnostic prénatal (à propos de deux cas) [Osteogenesis imperfecta. Reflections after the prenatal diagnosis of 2 cases]. *J Gynecol Obstet Biol Reprod (Paris).* 1993;22(2):173–178.
18. Renaud A, Aucourt J, Weill J, et al. Radiographic features of osteogenesis imperfecta. *Insights Imaging.* 2013;4(4):417–429. doi:10.1007/s13244-013-0258-4
19. Grissom LE, Harcke HT. Radiographic features of bisphosphonate therapy in pediatric patients. *Pediatr Radiol.* 2003;33(4):226–229. doi:10.1007/s00247-003-0865-1
20. Goldman AB, Davidson D, Pavlov H, et al. "Popcorn" calcifications: a prognostic sign in osteogenesis imperfecta. *Radiology.* 1980;136(2):351–358. doi:10.1148/radiology.136.2.7403509

21. Jones D, Hosalkar H, Jones S. The orthopaedic management of osteogenesis imperfecta. *Curr Orthop*. 2002;16:374–88.
22. Zeitlin L, Fassier F, Glorieux FH. Modern approach to children with osteogenesis imperfecta. *J Pediatr Orthop B*. 2003;12(2):77–87. doi:10.1097/01.bpb.000.004.9567.52224.fa
23. Forin V. L'ostéogénèse imparfaite en pédiatrie: traitement médical et de rééducation [Paediatric osteogenesis imperfecta: medical and physical treatment]. *Arch Pediatr*. 2008;15(5):792–793. doi:10.1016/S0929-693X(08)71913-4
24. Hulens Mieke, Bruynincx Frans, Somers Alix, et al. Electromyography and A Review of the Literature Provide Insights into the Role of Sacral Perineural Cysts in Unexplained Chronic Pelvic, Perineal and Leg Pain Syndromes. *International Journal of Physical Medicine & Rehabilitation*. 2017;5:1. doi:10.4172/2329-9096.100.0407
25. Anne Louise Oaklander, M.D., Ph.D.Massachusetts General Hospital Boston, Massachusetts Letter to Editor Neurosurg Focus / Volume 32 / April 2012
26. Roberts AS, Shetty AS, Mellnick VM, et al. Extramedullary hematopoiesis: radiological imaging features. *Clin Radiol*. 2016;71(9):807–814. doi:10.1016/j.crad.2016.05.014
27. Haidar R, Mhaidli H, Taher AT. Paraspinal extramedullary hematopoiesis in patients with thalassemia intermedia. *Eur Spine J*. 2010;19(6):871–878. doi:10.1007/s00586.010.1357-2
28. Chew FS, Huang-Hellinger F. Brown tumor. *AJR Am J Roentgenol*. 1993;160(4):752. doi:10.2214/ajr.160.4.8456657
29. Kattan KR, Campana HA. Case report 232. Brown tumor of the right seventh rib with osteomalacia and secondary hyperparathyroidism. *Skeletal Radiol*. 1983;10(1):47–52. doi:10.1007/bf00355393
30. Hong WS, Sung MS, Chun KA, et al. Emphasis on the MR imaging findings of brown tumor: a report of five cases. *Skeletal Radiol*. 2011;40(2):205–213. doi:10.1007/s00256.010.0979-0
31. Khalil PN, Heining SM, Huss R, et al. Natural history and surgical treatment of brown tumor lesions at various sites in refractory primary hyperparathyroidism. *Eur J Med Res*. 2007;12(5):222–230.
32. Khalatbari MR, Moharamzad Y. Brown tumor of the spine in patients with primary hyperparathyroidism. *Spine (Phila Pa 1976)*. 2014;39(18):E1073–E1079. doi:10.1097/BRS.000.0000000455
33. Sonmez E, Tezcaner T, Coven I, et al. Brown Tumor of the Thoracic Spine: First Manifestation of Primary Hyperparathyroidism. *J Korean Neurosurg Soc*. 2015;58(4):389–392. doi:10.3340/jkns.2015.58.4.389
34. Alfawareh MD, Halawani MM, Attia WI, et al. Brown tumor of the cervical spines: a case report with literature review. *Asian Spine J*. 2015;9(1):110–120. doi:10.4184/asj.2015.9.1.110
35. Statement on sarcoidosis. Joint Statement of the American Thoracic Society (ATS), the European Respiratory Society (ERS) and the World Association of Sarcoidosis and Other Granulomatous Disorders (WASOG) adopted by the ATS Board of Directors and by the ERS Executive Committee, February 1999. *Am J Respir Crit Care Med*. 1999;160(2):736–755. doi:10.1164/ajrccm.160.2.ats4-99
36. Miller BH, Rosado-de-Christenson ML, McAdams HP, Fishback NF. Thoracic sarcoidosis: radiologic-pathologic correlation [published correction appears in Radiographics 1997 Nov-Dec;17(6):1610]. *Radiographics*. 1995;15(2):421–437. doi:10.1148/radiographics.15.2.7761646
37. Collins J, Stern EJ. Chest radiology, the essentials. Lippincott Williams & Wilkins. (2007) ISBN:078.176.3142.
38. Diekhoff T, Hermann KG, Greese J, et al. Comparison of MRI with radiography for detecting structural lesions of the sacroiliac joint using CT as standard of reference: results from the SIMACT study. *Ann Rheum Dis*. 2017;76(9):1502–1508. doi:10.1136/annrheumdis-2016-210640
39. Khmelinskii N, Regel A, Baraliakos X. The Role of Imaging in Diagnosing Axial Spondyloarthritis. *Front Med (Lausanne)*. 2018;5:106. Published 2018 Apr 17. doi:10.3389/fmed.2018.00106
40. Puhakka KB, Jurik AG, Egund N, et al. Imaging of sacroiliitis in early seronegative spondylarthropathy. Assessment of abnormalities by MR in comparison with radiography and CT. *Acta Radiol*. 2003;44(2):218–229. doi:10.1034/j.1600-0455.2003.00034.x
41. Magrey M, Ritchlin C. Measuring outcomes in ankylosing spondylitis: pearls and pitfalls. *Curr Opin Rheumatol*. 2019;31(2):109–117. doi:10.1097/BOR.000.0000000588
42. Sieper J, Poddubny D. Axial spondyloarthritis. *Lancet*. 2017;390(10089):73–84. doi:10.1016/S0140-6736(16)31591-4
43. Molnar C, Scherer A, Baraliakos X, et al. TNF blockers inhibit spinal radiographic progression in ankylosing spondylitis by reducing disease activity: results from the Swiss Clinical Quality Management cohort. *Ann Rheum Dis*. 2018;77(1):63–69. doi:10.1136/annrheumdis-2017-211544
44. Varma R, Lander P, Assaf A. Imaging of pyogenic infectious spondylodiskitis. *Radiol Clin North Am*. 2001;39(2):203–213. doi:10.1016/s0033-8389(05)70273-6
45. Modic MT, Ross JS. Lumbar degenerative disk disease. *Radiology*. 2007;245(1):43–61. doi:10.1148/radiol.245.105.1706

46. Park YH, Taylor JA, Szollar SM, et al. Imaging findings in spinal neuroarthropathy. *Spine* (Phila Pa 1976). 1994;19(13):1499–1504. doi:10.1097/00007632.199407000-00015
47. Nachtigal A, Cardinal E, Bureau NJ, et al. Vertebral involvement in SAPHO syndrome: MRI findings. *Skeletal Radiol.* 1999;28(3):163–168. doi:10.1007/s002560.050494
48. Toussirot E, Dupond JL, Wendling D. Spondylodiscitis in SAPHO syndrome. A series of eight cases. *Ann Rheum Dis.* 1997;56(1):52–58. doi:10.1136/ard.56.1.52
49. Cottle L, Riordan T. Infectious spondylodiscitis. *J Infect.* 2008;56(6):401–412. doi:10.1016/j.jinf.2008.02.005.
50. Kowalski TJ, Layton KF, Berbari EF, et al. Follow-up MR imaging in patients with pyogenic spine infections: lack of correlation with clinical features. *AJNR Am J Neuroradiol.* 2007;28(4):693–699.