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GİRİŞ

Benign biliyer hastalıklar , konjenital ya da edin- sel etyolojilere bağlı gelişebilir. İntrahepatik ve/ veya ekstrahepatik safra yollarının etkilendiği ;akut ya da kronik seyirli ,karaciğer parankim hasarına sebep olabilen ve bazı durumlarda ma- lignite ile sonuçlanabilecek hastalıkları kapsa- maktadır (1,2).

Olgularda başvuru semptomu sağ üst kadrın ağrısı , ateş, sarılık ya da her üç semptomun bir arada görüldüğü kolanjit tablosudur.Asemptomatik hastalarda başka hastalıklar nedeniyle yapılan labaratuvar tetkikleri ya da görüntüleme yöntem- lerinde insidental olarak saptanabilir (1,2).

Safra yolları benign hastalıklarını teşhis et- mede hasta öyküsü , fizik muayene , radyolojik görüntüleme ve ERCP (Endoskopik Retrograd Kolanjiyopankreatikografi) önemli yer teşkil eder (1,2).

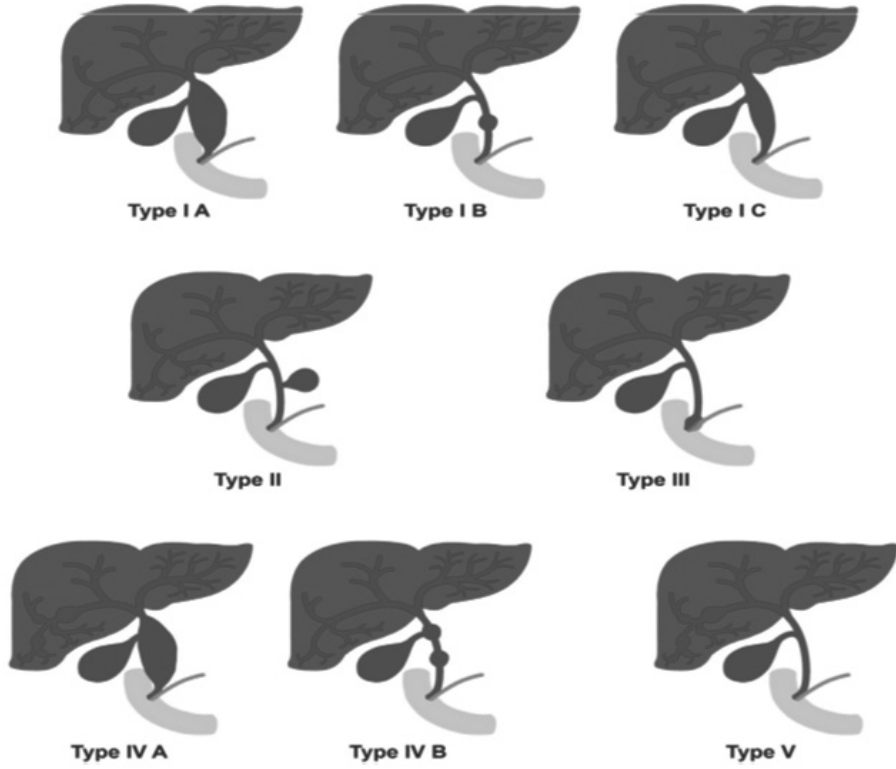
Koledokolitiazis

Koledok taşı insidansı literatürde yakla- şık olarak % 7-20 arasında bildirilmiştir (3-6) . Semptomatik kolelitiazis olgularında %3-15 oranında koledok kanalında taş görülme riskin- den dolayı bu olgular koledokolitiazis yönünden mutlaka değerlendirilmelidir. Koledokolitiazis safra yolu tıkanıklığına sebep olarak kolanjit, sa- rılık ,biliyer strüktür ve biliyer pankreatite sebep olabilir (4-7).

Semptomlar sağ üst kadrın ağrısı, bulantı, kusma ,iştahsızlık , sarılık , ateş ,idrar renginde koyulaşma ve gayta renginde açılmadır. Kole- dokta taşın oluşturduğu tıkanıklığa bağlı olarak direkt billurubin yüksekliği , Alkalen Fosfataz (ALP) , Gama Glutamil Transferaz (GGT) , As- partat Aminotransferaz (AST) , Alanin Transa- minaz (ALT) yüksekliği görülür. Koledokoli- tiazisi teşhis etmede labaratuvar değerlendirme ile birlikte Ultrasonografi (USG) ve Bilgisayarlı Tomografi (BT) önemli bir yer teşkil etmesine rağmen ; Manyetik Rezonans Kolanjiyopank- reatikografi (MRCP) ve Endoskopik Ultraso- nografi (EUS) koledokolitiazisi görüntülemeye spesifik metodlardandır. Pahalı metodlar olduğu için seçili olgularda kullanılmalıdır (6-10) . IV Kolanjiyografi son zamanlarda nadiren kulla- nılmaktadır (6) . Kolesistektomi öncesi koledo- kolitiazis varlığında ERCP , maliyet yüksekliği ,invaziv bir işlem olması ve pankreatit riskinin % 1-13,5 olması nedeniyle rutin olarak değil , seçil- miş hastalarda kullanılmalıdır (11-14) . Koledok taşı olan hastalarda operasyon öncesi ERCP ya- pılması kolanjit , akut pankreatit , hepatik abse gibi komplikasyonları önlemede yararlıdır (15). ERCP nin başarısız olduğu durumlarda;kolesis- tektomi ile birlikte koledoktan taş ekstraksiyo- nu uygulanmalıdır.Taş ekstraksiyonunu takiben primer onarım, T-Tüp , Kolodokoduodenostomi veya Hepatikojejunostomi ile safra yolu devam- lılığı sağlanabilir (4-15).

Koledokolitiazis varlığında kolesistektomi uygulanır ise postoperatif dönemde sistik kanal-

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Şekil 1. Koledok kistlerinde Tadoni sınıflaması. Canella R.ve ark. (120)

Koledok kistlerinin tedavisi kist tipine, eşlik eden komplikasyon durumuna göre belirlenmelidir. Parsiyel kist eksizyonu ve kistoenterostomi gibi yaklaşımlar uzun dönem komplikasyon risklerinden dolayı yerini total kist eksizyonunu içeren yaklaşımlara bırakmıştır. Özellikle ekstrahepatik safra yolunu içeren kistlerde ekstrahepatik safra yolu rezeksiyonu ve Roux-N-Y anastomoz standart cerrahi prosedürlerden birisidir. İntrahepatik biliyer lokalizasyonlu kistlerin tedavisinde segmentektomi, diffüz karaciğer segment tutulumu olan olgularda ise karaciğer transplantasyonu uygulanabilir (116-122).

Sonuç

Benign biliyer hastalıklar teşhis edilmesi güç olabilen, benzer klinik ve radyolojik görünüm nedeniyle malign hastalıklardan ayırıcı tanısının iyi yapılması gereken ve tedavi süreci olgu bazlı düşünülmesi gereken hastalıklardır.

KAYNAKLAR

1. M.A. Bali, Martina Pezzullo, Erika Pace et al. Benign biliary diseases, European Journal of Radiology . 2017 (93) 217–228.
2. European Association for the Study of the Liver EASL Clinical Practice Guidelines: Management of cholestatic liver diseases, J. Hepatol. 51 (2009) 237–267.
3. Lacaine F, Corlette MB, Bismuth H. Preoperative evaluation of the risk of common bile duct stones. Arch Surg. 1980;115:1114–6.
4. Mitchell SA, Jacyna MR, Chadwick S. Common bile duct stones: a controversy revisited. Br J Surg . 1993;80:759–60.
5. National Institutes of Health Consensus. Development panel on gallstones and laparoscopic cholecystectomy. J Am Med Assoc . 1993;269:1018–24.
6. Sarli L, Pietra N, Franze A et al. Routine intravenous cholangiography, selective endoscopic retrograde cholangiography and endoscopic treatment of common bile duct stones before laparoscopic cholecystectomy. Gastrointest Endosc . 1999;50:200–8.
7. Winder JS, Pauli EM. Common bile duct stones: health care problem and incidence. In Multidisciplinary Management of Common Bile Duct Stones. Springer: Cham. 2016, 5–15.

8. Reinhold C, Taourel P, Bret PM et al. Choledocholithiasis evaluation of MR cholangiography for diagnosis. *Radiology*. 1998;209:435–42.
9. Adamek HE, Albert J, Weitz M. A et al. Prospective evaluation of magnetic resonance cholangiopancreatography in patients with suspected bile duct obstruction. *Gut*. 1998;43:680–3.
10. Canto MI, Chak A, Stellato T et al. Endoscopic ultrasonography versus cholangiography for the diagnosis of choledocholithiasis. *Gastrointest Endosc*. 1998;47:439–48.
11. Andriulli A, Leandro G, Niro G et al. Pharmacologic treatment can prevent pancreatic injury after ERCP: a meta-analysis. *Gastrointest Endosc*. 2000;51:1–7.
12. Dickinson RJ, Davies S. Post-ERCP pancreatitis and hyperamylasaemia: the role of operative and patient factors. *Eur J Gastroenterol Hepatol*. 1998;10: 423–8.
13. Poon RT, Yeung C, Lo CM et al. Prophylactic effect of somatostatin on post-ERCP pancreatitis: a randomized controlled trial. *Gastrointest Endosc*. 1999;49:593–8.
14. Sherman S, Hawes RH, Rathgaber SW et al. Post-ERCP pancreatitis: randomized, prospective study comparing a low- and high-osmolality contrast agent. *Gastrointest Endosc*. 1994;40:422–7.
15. Working Party of the British Society of Gastroenterology; Association of Surgeons of Great Britain and Ireland; Pancreatic Society of Great Britain and Ireland; Association of Upper GI Surgeons of Great Britain and Ireland. UK guidelines for the management of acute pancreatitis. *Gut*. 2005; 54(Suppl 3): iii1–iii9.
16. Yang T, Lau WY, Lai EC et al. Hepatectomy for bilateral primary hepatolithiasis: a cohort study. *Ann. Surg*. 251 (2010) 84e90.
17. Harris HW, Kumwenda ZL, Sheen-Chen SM et al. Recurrent pyogenic cholangitis. *Am J Surg*. 1998 -176:34–37
18. Cheung KL, Lai EC. The management of intrahepatic stones. *Adv Surg*. 1996- 29:111–129
19. Lee SE, Jang JY, Lee JM. Selection of appropriate liver resection in left hepatolithiasis based on anatomic and clinical study. *World J. Surg*. 32 (2008) 413e418.
20. Doshi B, Yasuda I, Ryozaawa S et al. Current endoscopic strategies for managing large bile duct stones. *Dig Endosc*. 2018;30:59–66.
21. Trikudanathan G. Endoscopic management of difficult common bile duct stones. *World J Gastroenterol*. 2013;19:165.
22. Uchiyama K, Onishi H, Tani M et al. Indication and procedure for treatment of hepatolithiasis. *Arch Surg*. 2002- 137: 149–153
23. Sun WB, Han BL, Cai JX. The surgical treatment of isolated left-sided hepatolithiasis: a 22-year experience. *Arch Surg*. 2002 137: 149–153
24. Otani K, Shimizu S, Chijiwa K et al. Comparison of treatments for hepatolithiasis: hepatic resection versus cholangioscopic lithotomy. *J Am Coll Surg*. 1999-189: 177–182
25. Wigham A, Alexander Grant L. Radiologic assessment of hepatobiliary surgical complications, *Semin Ultrasound CT MRI* 34 (2013) 18–31.
26. Melamed K, LeBedis CA, Anderson SW et al. Biliary imaging: multimodality approach to imaging of biliary injuries and their complications, *Radiographics* 34 (2014) 613–623.
27. Dumonceau JM, Tringali A, Papanikolaou IS et al. Endoscopic biliary stenting: indications, choice of stents, and results: European Society of Gastrointestinal Endoscopy (ESGE) Clinical Guideline – updated October 2017. *Endoscopy*. 2018; 50: 910–930.
28. Desai NS, Khandelwal A, Virmani V et al. Imaging in laparoscopic cholecystectomy — what a radiologist needs to know, *Eur. J. Radiol*. 83 (2014) 867–879.
29. Zimmitti G, Roses RE, Andreou A et al. Greater complexity of liver surgery is not associated with an increased incidence of liver-related complications except for bile leak: an experience with 2,628 consecutive resections, *J. Gastrointest. Surg*. 17 (2013) 57–65.
30. Memeo R, Piardi T, Sangiuolo F et al. Management of biliary complications after liver transplantation, *World J. Hepatol*. 7 (2015) 2890–2895.
31. Kapoor S, Nundy S. Bile duct leaks from the intrahepatic biliary tree: a review of its etiology, incidence, and management, *HPB Surg*. (2012) 1–9.
32. Kantarcı M, Pirimoglu B, Karabulut N et al. Non-invasive detection of biliary leaks using Gd-EOB-DTPA-enhanced MR cholangiography: comparison with T2-weighted MR cholangiography, *Eur. Radiol*. 23 (2013) 2713–2722.
33. Tewani SK, Turner BG, Chuttani R et al. Location of bile leak predicts the success of ERCP performed for postoperative bile leaks, *Gastrointest. Endosc*. 77 (2013) 601–608.,
34. Weber A, Feussner H, Winkelmann F et al. Long-term outcome of endoscopic therapy in patients with bile duct injury after cholecystectomy, *J. Gastroenterol. Hepatol*. 24 (2009) 762–769.
35. Thompson CM, Saad NE, Quazi RR et al. Management of iatrogenic bile duct injuries: role of the interventional radiologist, *Radiographics* 33 (2013) 117–134
36. Arthur JK. Management of Benign Biliary Strictures: current status and perspective. *J Hepatobiliary Pancreat Sci* (2015) 22:657
37. Strasberg SM, Hertl M, Soper NJ. An analysis of the problem of biliary injury during laparoscopic cholecystectomy, *J. Am. Coll. Surg*. 180 (1995) 101–125.
38. Boraschi P, Donati F. Biliary-enteric anastomoses: spectrum of findings on GdEOB-DTPA-enhanced MR cholangiography, *Abdom. Imaging* 38 (2013) 1351–1359
39. Adler DG, Papachristou GI, Taylor LJ et al. Clinical outcomes in patients with bile leaks treated via ERCP with regard to the timing of ERCP: a large multicenter study. *Gastrointest Endosc*. 2017; 85: 766–772.

40. Sokal A , Sauvanet A , Fantin B et al. Acute cholangitis: Diagnosis and management, *Journal of Visceral Surgery*, 2019, 10.1016/j.jviscsurg.2019.05.007,.
41. Krokidis M , Orgera G , Rossi M , Interventional radiology in the management of benign biliary stenoses, biliary leaks and fistulas: a pictorial review, *Insights Imaging* 4 (2013) 77–84.
42. Seo N , Kim SY , Lee SS . Sclerosing cholangitis: clinicopathologic features, imaging spectrum and systemic approach to differential diagnosis, *Korean J. Radiol.* 17 (2016) 25–38.
43. Lee YM, Kaplan MM. Primary sclerosing cholangitis. *N Engl J Med.* 1995;332:924.
44. Kidist KY, Christopher LB . Diagnosis and classification of primary sclerosing cholangitis, *Autoimmunity Reviews.* 13 (2014) 445–450
45. Bambha K, KimWR, Talwalkar J. Incidence, clinical spectrum, and outcomes of primary sclerosing cholangitis in a United States community. *Gastroenterology.*2003;125:1364.
46. Broomé U, Bergquist A. Primary sclerosing cholangitis, inflammatory bowel disease, and colon cancer. *Semin Liver Dis* Feb. 2006;26(1):31–41.
47. Loftus Jr EV, Harewood GC, Loftus CG et al. PSC-IBD: a unique form of inflammatory bowel disease associated with primary sclerosing cholangitis. *Gut* Jan. 2005;54(1):91–6.
48. Bergquist A, Broomé U. Clinical features in primary sclerosing cholangitis. *Clin Liver Dis* May. 1998;2(2):283–301 [viii].
49. Silveira MG, Lindor KD. Clinical features and management of primary sclerosing cholangitis. *World J Gastroenterol* Jun. 7 2008;14(21):3338–49.
50. Chapman R, Fevery J, Kalloo A et al. American Association for the Study of Liver Diseases. Diagnosis and management of primary sclerosing cholangitis. *Hepatology* 2010;51(2):660.
51. Talwalkar JA, Lindor KD. Primary sclerosing cholangitis. *Inflamm Bowel Dis* . 2005;11:62–72.
52. Björnsson E, Chari S, Silveira M et al. Primary sclerosing cholangitis associated with elevated immunoglobulin G4: clinical characteristics and response to therapy. *Am J Ther* May. 2011;18(3):198205. <http://dx.doi.org/10.1097/MJT.0b013e3181c9dac6>
53. Charatcharoenwitthaya P, Lindor KD. Primary sclerosing cholangitis: diagnosis and management. *Curr Gastroenterol Rep* Feb. 2006;8(1):75–82.
54. Dave M, Elmunzer BJ, Dwamena BA et al. Primary sclerosing cholangitis: meta-analysis of diagnostic performance of MR cholangiopancreatography. *Radiology* Aug. 2010;256(2):387–96. <http://dx.doi.org/10.1148/radiol.10091953>.
55. Weber C, Kuhlencordt R, Grotelueschen R et al. Magnetic resonance cholangiopancreatography in the diagnosis of primary sclerosing cholangitis. *Endoscopy* Sep. 2008;40(9):739–45. <http://dx.doi.org/10.1055/s-2008-1077509> [Epub 2008 Aug 12].
56. Freeman ML, Nelson DB, Sherman S et al. Complications of endoscopic biliary sphincterotomy. *N Engl J Med* Sep. 26 1996;335(13):909–18.
57. Bilbao MK, Dotter CT, Lee TG et al. Complications of endoscopic retrograde cholangiopancreatography (ERCP). A study of 10,000 cases. *Gastroenterology* Mar. 1976;70(3):314–20.
58. Lindor KD. Ursodiol for primary sclerosing cholangitis. Mayo Primary Sclerosing Cholangitis-Ursodeoxycholic Acid Study Group. *N Engl J Med* Mar. 6 1997;336(10):691–5.
59. Talal AH, Feron-Rigodon M, Madere J et al. An anti-fibrotic monoclonal antibody against lysyl oxidase-like 2 (LOXL2) enzyme, appears safe and well tolerated in patients with liver disease of diverse etiology. *J Hepatol.* April 2013;58(supplement 1):S532.
60. Cholongitas E, Shusang V, Papatheodoridis GV et al. Risk factors for recurrence of primary sclerosing cholangitis after liver transplantation. *Liver Transpl* Feb. 2008;14(2):138–43. <http://dx.doi.org/10.1002/lt.21260>.
61. Campsen J, Zimmerman MA, Trotter JF et al. Clinically recurrent primary sclerosing cholangitis following liver transplantation: a time course. *Liver Transpl* Feb. 2008;14(2):181–5. <http://dx.doi.org/10.1002/lt.21313>.
62. Alexander J, Lord JD, Yeh MM, et al. Risk factors for recurrence of primary sclerosing cholangitis after liver transplantation. *Liver Transpl* Feb. 2008;14(2):245–51. <http://dx.doi.org/10.1002/lt.21394>.
63. Tamura S, Sugawara Y, Kaneko J et al. Recurrence of primary sclerosing cholangitis after living donor liver transplantation. *Liver Int* Feb. 2007;27(1):86–94.
64. Ołdakowska-Jedynak U, Nowak M, Mucha K et al. Recurrence of primary sclerosing cholangitis in patients after liver transplantation. *Transplant Proc* Jan.–Feb. 2006;38(1):240–3.
65. Brandsaeter B, Schruppf E, Bentdal O et al. Recurrent primary sclerosing cholangitis after liver transplantation: a magnetic resonance cholangiography study with analyses of predictive factors. *Liver Transpl* Nov. 2005;11(11):1361–9.
66. Graziadei IW. Recurrence of primary sclerosing cholangitis after liver transplantation. *Liver Transpl* Jul. 2002;8(7):575–81.
67. Hamano H, Kawa S, Horiuchi A et al. High serum IgG4 concentrations in patients with sclerosing pancreatitis. *N. Engl. J. Med.* 2001; 344: 732–8.
68. Pannala R, Chari ST. Autoimmune pancreatitis. *Curr Opin. Gastroenterol.* 2008; 24: 591–6.
69. Kawaguchi K, Koike M, Tsuruta K et al. Lymphoplasmacytic sclerosing pancreatitis with cholangitis: a variant of primary sclerosing cholangitis extensively involving pancreas. *Hum. Pathol.* 1991; 22: 387–95.
70. Notohara K, Burgart LJ, Yadav D et al. Idiopathic chronic pancreatitis with periductal lymphoplasmacytic infiltration: clinicopathologic features of 35 cases. *Am. J. Surg. Pathol.* 2003; 27: 1119–27.
71. Deshpande V, Chicano S, Finkelberg D et al. Autoimmune pancreatitis: a systemic immune complex mediated disease. *Am. J. Surg. Pathol.* 2006; 30: 1537–45.

72. Zen Y, Harada K, Sasaki M et al. IgG4-related sclerosing cholangitis with and without hepatic inflammatory pseudotumor, and sclerosing pancreatitis-associated sclerosing cholangitis: do they belong to a spectrum of sclerosing pancreatitis? *Am. J. Surg. Pathol.* 2004; 28: 1193–203.
73. Ghazale A, Chari ST, Zhang L et al. Immunoglobulin G4-associated cholangitis: clinical profile and response to therapy. *Gastroenterology* 2008; 134: 706–15.
74. Chari ST, Takahashi N, Levy MJ et al. A diagnostic strategy to distinguish autoimmune pancreatitis from pancreatic cancer. *Clin. Gastroenterol. Hepatol.* 2009; 7: 1097–103.
75. Hamano H, Kawa S, Uehara T et al. Immunoglobulin G4-related lymphoplasmacytic sclerosing cholangitis that mimics infiltrating hilar cholangiocarcinoma: part of a spectrum of autoimmune pancreatitis? *Gastrointest. Endosc.* 2005; 62: 152–7.
76. Nakazawa T, Ohara H, Sano H et al. Cholangiography can discriminate sclerosing cholangitis with autoimmune pancreatitis from primary sclerosing cholangitis. *Gastrointest. Endosc.* 2004; 60: 937–44.
77. Ito T, Nishimori I, Inoue N et al. Treatment for autoimmune pancreatitis: consensus on the treatment for patients with autoimmune pancreatitis in Japan. *J. Gastroenterol.* 2007; 42: S50–8.
78. Ghazale A, Chari ST, Zhang L et al. Immunoglobulin G4-associated cholangitis: clinical profile and response to therapy. *Gastroenterology* 134 (2008) 706–715.
79. Ohara H, Okazaki K, Tsubouchi H et al. Clinical diagnostic criteria IgG4-related sclerosing cholangitis 2012. *J. Hepatobiliary Pancreat Sci.* 19 (2012) 536–542.
80. Delterne P, Valla DC. Ischemic cholangiopathy. *Semin. Liver Dis.* 28 (2008) 235–246.
81. Jiang T, Li C, Duan B et al. Risk factors for and management of ischemic-type biliary lesions following orthotopic liver transplantation: a single center experience. *Ann. Hepatol.* 15 (2016) 41–46.
82. Miura F, Asano T, Amano H et al. Resected case of eosinophilic cholangiopathy presenting with secondary sclerosing cholangitis. *World J. Gastroenterol.* 15 (2009) 1394–1397.
83. Cahn HN, Harada K. Adult bile duct strictures: differentiating benign biliary stenosis from cholangiocarcinoma. *Med. Mol. Morphol.* 49 (2016) 189–202.
84. Kim HJ, Kim JS, Joo MK et al. Hepatolithiasis and intrahepatic cholangiocarcinoma: a review. *World J. Gastroenterol.* 21 (2015) 13418–13431.
85. Seo N, Kim SY, Lee SS et al. Sclerosing cholangitis: clinicopathologic features, imaging spectrum and systemic approach to differential diagnosis. *Korean J. Radiol.* 17 (2016) 25–38.
86. Caroli J, Soupault R, Kossakowski J et al. Congenital polycystic dilation of the intrahepatic bile ducts, attempt at classification. *Sem Hop.* 1958; 34: 488–495.
87. Guy F, Cognet F, Dransart M et al. D. Caroli's disease: magnetic resonance imaging features. *Eur Radiol.* 2002; 12: 2730–2736.
88. Levy AD, Rohrmann, CA, Murakata LA et al. Caroli's disease: radiologic spectrum with pathologic correlation. *AJR Am J Roentgenol.* 2002; 179: 1053–1057.
89. Miller WJ, Sechtin AG, Campbell WL et al. Imaging findings in Caroli's disease. *AJR Am J Roentgenol.* 1995; 165: 333–337.
90. Fulcher AS, Turner MA, Sanyal AJ. Case 38: Caroli disease and renal tubular ectasia. *Radiology.* 2001; 220: 720–723.
91. Caroli J. Diseases of the intrahepatic biliary tree. *Clin Gastroenterol.* 1973; 2: 147–161.
92. Karim AS. Caroli's disease. *Indian Pediatr.* 2004; 41: 848–850.
93. Taylor AC, Palmer KR. Caroli's disease. *Eur J Gastroenterol Hepatol.* 1998; 10: 105–108.
94. BI Choi, KM Yeon, SH Kim et al. Caroli disease: central dot sign in CT. *Radiology* 174 (1990) 161–163.
95. Santiago I, Loureiro R, Curvo-Semedo L et al. Congenital cystic lesions of the biliary tree. *AJR Am. J. Roentgenol.* 198 (2012) 825–835.
96. Lai Q, Lerut J. Proposal for an algorithm for liver transplantation in Caroli's disease and syndrome: putting an uncommon effort into a common task. *Clin. Transplant.* 30 (2016) 3–9.
97. Ward CJ, Hogan MC, Rossetti S et al. The gene mutated in autosomal recessive polycystic kidney disease encodes a large, receptor-like protein. *Nat Genet.* 2002;30:259–69.
98. Desmet VJ. Congenital diseases of intrahepatic bile ducts: variations on the theme "ductal plate malformation". *Hepatology.* 1992;16:106–83.
99. Gunay-Aygun M, Font-Montgomery E, Lukose L et al. Characteristics of congenital hepatic fibrosis in a large cohort of patients with autosomal recessive polycystic kidney disease. *Gastroenterology.* 2013 Jan; 144(1):112-121.e2.
100. Yönm O, Ozkayar N, Balkanci F et al. Is congenital hepatic fibrosis a pure liver disease? *Am J Gastroenterol.* 2006 Jun; 101(6):1253-9.
101. Zeitoun D, Brancatelli G, Colombat M et al. Congenital hepatic fibrosis: CT findings in 18 adults. *Radiology* 2004;231:109–16.
102. Akhan O, Karaosmanoğlu AD, Ergen B. Imaging findings in congenital hepatic fibrosis. *Eur. J. Radiol.* 61 (2007) 18–24.
103. Meral Gunay-Aygun M, Gahl WA, Heller T. Congenital Hepatic Fibrosis Overview. *GeneReviews*®. Seattle, WA: University of Washington; 2008. Updated April 24, 2014.
104. Redston MS, Wanless IR. The hepatic von Meyenburg complex: prevalence and association with hepatic and renal cysts among 2843 autopsies [corrected]. *Mod Pathol.* 1996;9:233–237.
105. Horton KM, Bluemke DA, Hruban RH et al. CT and MR imaging of benign hepatic and biliary tumors. *Radiographics.* 1999;19: 431–451.
106. Lev-Toaff AS, Bach AM, Wechsler RJ et al. The radiologic and pathologic spectrum of biliary hamartomas. *AJR Am J Roentgenol.* 1995;165:309–313.

107. Tohmé-Noun C, Cazals D, Noun R et al. Multiple biliary hamartomas: magnetic resonance features with histopathologic correlation, *Eur. Radiol.* 18 (2008) 493–499.
108. Pech L , Favelier S , Falcoz MT et al .ImagingofVon Meyenburg complexes, *Diagn. Interventional Imaging* 97 (2016) 401–409.
109. Kim HK, Jin SY. Cholangiocarcinoma arising in von Meyenburg complexes. *Korean J Hepatol.* 2011;17:161–164. doi: 10.3350/kjhep.2011.17.2.16
110. Parekh V, Peker D. Malignant transformation in von-meyenburg complexes: Histologic and immunohistochemical clues with illustrative cases. *Appl Immunohistochem Molecul Morphol:AIMM.* 2015;23:607–614.doi:10.1097/PAI.0000000000000132.
111. Gupta A, Pattnaik B, Das A et al. Von Meyenburg complex and complete ductal plate malformation along with Klatskin tumour: A rare association. *BMJ Case Reports.* 2016 10.1136/bcr-2016-215220, 2016.
112. Chijueva K, Koga A. Surgical management and long-term follow-up of patients with choledochal cysts. *Am J Surg* 1993;163:239–42.
113. Summerfield JA, Nagafuchi Y, Sherlock S et al. Hepatobiliary fibropolycystic diseases.A clinical and histological review of 51 patients. *J Hepatol* 1986;2:141–56.
114. Kim M-J, Han SJ, Yoon CS et al. Using MR cholangio-pancreatography to reveal anomalous pancreaticobiliary ductal union in infants and children with choledochalcysts. *Am J Roentgenol* 2002;179:209–14.
115. Funabiki T, Matsubara T, Miyakawa S et al. Pancreaticobiliary maljunction and carcinogenesis to biliary and pancreatic malignancy. *Langenbeck's Arch Surg* 2009;394:159–69.
116. Edil BH, Cameron JL, Reddy S et al. Choledochal cyst disease in children and adults: a 30-year single-institution experience. *J Am Coll Surg* 2008;206:1000–1005; discussion 5–8.
117. Katabathina VS, Kapalczynski W, Dasyam AK et al. Adult choledochal cysts: current update on classification, pathogenesis, and cross-sectional imaging findings. *Abdom Imaging* 2015;40:1971–81.
118. Lewis VA, Adam SZ, Nikolaidis P et al. Imaging of choledochal cysts. *Abdom Imaging* 2015;40:1567–80.
119. Todani T, Watanabe Y, Narusue M et al. Congenital bile duct cysts: Classification, operative procedures, and review of thirty-seven cases including cancer arising from choledochal cyst. *Am J Surg* 1977;134:263–9.
120. Cannella R , Giambelluca D , Diamarco M et al ,Congenital Cystic Lesions of the Bile Ducts: Imaging-Based Diagnosis Current Problems in Diagnostic Radiology 000 (2019) 1-9
121. Banks JS, Saigal G, D'Alonzo JM et al. Choledochal malformations: Surgical implications of radiologic findings. *Am J Roentgenol* 2018;210:748–60.
122. Venkatanarasimha N, Thomas R, Armstrong EM et al. Imaging features of ductal plate malformations in adults. *Clin Radiol* 2011;66:1086–93.