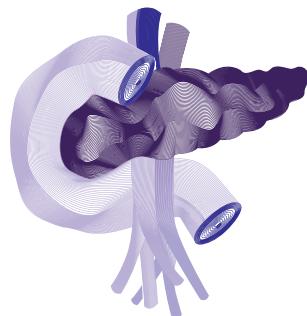


Bölüm 18

Benign Pankreas Hastalıklarının Tanısında Görüntüleme



Zeynep AYVAT ÖCAL¹

GİRİŞ

Pankreas batın orta hatta aorta gibi ana vasküler yapıların anteriorunda, kapsülü bulunmayan, retroperitoneal bölgede yerleşimli bir organdır. Retroperitoneal yerleşimi, kontur özellikleri ve komşuluğundaki önemli vasküler yapıların varlığı nedeniyle bu bölgede oluşan lezyonların radyolojik olarak doğru ve eksiksiz tanımlanması operatif tedavi seçeneğinde oldukça yol göstericidir.

Günümüzde rutin uygulamada abdomen ultrasonografi (USG) ilk seçenek olup kısıtlılıkları nedeni ile tanıda yetersiz kalmaktadır, bilgisayarlı tomografi (BT) hem lezyonu tanımlamak hem de uygun fazda dinamik kontrastlı inceleme ile lezyonun komşu vasküler yapılarla ilişkilerini ortaya koymak adına oldukça yol göstericidir, manyetik rezonans görüntüleme (MRG) ve manyetik rezonans kolanjiopankreatografi (MRKP) bilier anatomiyi, pankreas kitlelerinin ayırcı tanısını ve peripankreatik yumuşak dokuyu aynı anda değerlendirmeye olanak sağlama nedeniyle tek başına problem çözmede rutin kullanımda yeri almıştır.

¹ Uzm. Dr., Bakırçay Üniveristesı Çiğli Eğitim Ve Araştırma Hastanesi, Radyoloji Kliniği
zeynepocal32@hotmail.com

KAYNAKLAR

1. Chao HC ,Lin SJ, Kong MS et al. Sonographic evaluation of the pancreatic duct in normal children and children with pancreatitis J Ultrasound Med 2000; 19: 757-63
2. Mortelé KJ, Rocha TC, Streeter JL, et al. Multimodality imaging of pancreatic and biliary congenital anomalies. Radiographics 2006; 26: 715-31.
3. Siegel MJ, Martin KW, Worthington JL, et al. Normal and abnormal pancreas in children: US studies. Radiology 1987; 165: 15-8.
4. Martínez-Noguera A, D'Onofrio M. Ultrasonography of the pancreas. 1. Conventional imaging. Abdom Imaging 2007; 32: 136-49
5. Sirli R, Sporea I. Ultrasound examination of the normal pancreas. Med Ultrason 2010; 12: 62-5.
6. Zamboni GA, Ambrosetti MC, D'Onofrio M, et al. Ultrasonography of the pancreas. Radiol Clin North America 2012; 50: 395-406.
7. Martínez-Noguera A, Montserrat E, Torrubia S, et al. Ultrasound of the pancreas: update and controversies. Eur Radiol 2001; 11: 1594- 606.
8. Quencer K, Kambadakone A, Sahani D, et al. ASR. Imaging of the pancreas: Part 1. Appl Radiol 2013; 14 20.
9. Granata V, Fusco R, Catalano O et al. Multidetector computer tomography in the pancreatic adenocarcinoma assessment: an update. Infect Agent Cancer 2016; 11: 57
10. Al-Hawary MM , Francis IR, Chari ST, et al. Pancreatic ductal adenocarcinoma radiology reporting template: consensus statement of the society of abdominal radiology and the american pancreatic association. Gastroenterology 2014; 146: 291-304.
11. Stuber T, Brambs HJ, Freund W, et al. Sixty-four MDCT achieves higher contrast in pancreas with optimization of scan time delay. World Radiol 2012; 4: 324-7.
12. Patel BN. Routine MR Imaging for Pancreas Magnetic Resonance Imaging Clinical 2018; 26: 315-22.
13. Nijs E, Callahan MJ, Taylor GA. Disorders of the pediatric pancreas: imaging features Pediatr Radiol 2005; 35: 358-73.
14. Borghei P, Sokhandom F, Shirkhoda A, et al. Anomalies, anatomic variants, and sources of diagnostic pitfalls in pancreatic imaging. Radiology 2013; 266: 28-36.
15. Yu J, Turner MA, Fulcher AS, et al. Congenital anomalies and normal variants of the pancreaticobiliary tract and the pancreas in adults: part 2, Pancreatic duct and pancreas. AJR Am J Roentgenol 2006; 187:1544-53.
16. Soto JA, Lucey BC, Stuhlfaut JW. Pancreas divisum: depiction with multi-detector row CT. Radiology 2005;235: 503-8.
17. Kamisawa T, Yoshiike M, Egawa N, et al. Pancreatic tumor associated with pancreas divisum. J Gastroenterol Hepatol 2005; 20: 915-8.
18. Alexander LF. Congenital pancreatic anomalies, variants, and conditions. Radiol Clin North Am 2012; 50: 487-98.
19. Shahzad R, Shahid AB, Mirza ZR, et al. Isolated Dorsal Pancreatic Agenesis. J Coll Physicians Surg Pak. 2016; 26: 924-5.
20. Karcaaltincaba M. CT differentiation of distal pancreas fat replacement and distal pancreas agenesis. Surg Radiol Anat 2006; 28: 637-41

21. Yadav D, Lowenfels AB. The epidemiology of pancreatitis and pancreatic cancer. *Gastroenterology* 2013; 144: 1252-61.
22. Porter KK, Cason DE, Morgan DE. Acute Pancreatitis: How Can MR Imaging Help. *Magn Reson Imaging Clin N Am* 2018; 26: 439-50.
23. Frossard JL, Steer ML, Pastor CM. Acute pancreatitis. *Lancet* 2008; 371: 143-52.
24. Thoeni RF. The revised Atlanta classification of acute pancreatitis: its importance for the radiologist and its effect on treatment. *Radiology* 2012; 262: 751- 64.
25. Zhao K, Adam SZ, Keswani RN, et al. Acute Pancreatitis: Revised Atlanta Classification and the Role of Cross-Sectional Imaging. *AJR Am J Roentgenol* 2015; 205: W32-41
26. Lenhart DK, Balthazar EJ. MDCT of acute mild(nonnecrotizing) pancreatitis: abdominal complications and fate of fluid collections. *AJR Am J Roentgenol* 2008; 190: 643-9
27. Bollen TL. Imaging of acute pancreatitis: update of the revised Atlanta classification. *Radiol Clin North Am* 2012; 50: 429-45.
28. Sakorafas GH, Tsiotos GG, Sarr MG. Extrapancreatic necrotizing pancreatitis with viable pancreas: a previously under-appreciated entity. *J Am Coll Surg* 1999; 188: 643-8.
29. Balthazar EJ, Robinson DL, Megibow AJ, et al. Acute pancreatitis: value of CT in establishing prognosis. *Radiology* 1990; 174: 331-6.
30. Easler J, Papachristou GI. The morphologic evolution of necrotic pancreatic fluid collections and their management. Asymptomatic: delay, defer and don't panic! *Ann Gastroenterol* 2014; 27: 191-2.
31. Conwell DL, Lee LS, Yadav D, et al. American Pancreatic Association Practice Guidelines in Chronic Pancreatitis Evidence-Based Report on Diagnostic Guidelines. *Pancreas* 2014; 43: 1143-62.
32. Tirkes T, Shah ZK, Takahashi N, et al. Reporting Standards for Chronic Pancreatitis by Using CT, MR and MR cholangiopancreatography: The Consortium for Study of Chronic Pancreatitis, Diabetes and Pancreatic Cancer. *Radiology* 2019; 290: 207-15.
33. Graziani R, Tapparelli M, Malagò R, et al. The various imaging aspects of chronic pancreatitis. *JOP* 2005; 6: 73-88.
34. Tirkes T. Chronic pancreatitis: What the clinician wants to know from MR imaging. *Magn Reson Imaging Clin N Am* 2018; 26: 451-61
35. Balci NC, Perman WH, Saglam S, et al. Diffusion-weighted magnetic resonance imaging of the pancreas. *Top Magn Reson Imaging* 2009; 20: 43-7.
36. Lankisch PG. Pancreatic ductal abnormalities documented by secretin-enhanced MRCP in asymptomatic subjects with chronic pancreatic hyperenzymemia. *Am J Gastroenterol* 2010; 105: 703-5
37. Kawamoto S, Siegelman SS, Hruban RH, et al. Lymphoplasmacytic sclerosing pancreatitis (autoimmun pancreatitis): Evaluation with multidetector CT. *Radiographics* 2008; 28: 157-70.
38. Hafezi-Nejad N, Singh VK, Fung C, et al. MR imaging of autoimmun pancreatitis. *Magn Reson Imaging Clin N Am* 2018; 26: 463-78.
39. Raman SP, Salaria SN, Hruban RH, et al. Groove pancreatitis: Spectrum of imaging findings and radiology-pathology correlation. *AJR Am J Roentgenol* 2013; 201: W29-39

40. Zerbini G, Signoretti M, Crippa S, et al. Systematic review and meta-analysis: Prevalence of incidentally detected pancreatic cystic lesions in asymptomatic individuals. *Pancreatology* 2019; 19: 2-9.
41. Kalb B, Sarmiento JM, Kooby DA, Adsay NV, et al. MR imaging of cystic lesions of the pancreas. *Radiographics* 2009; 29: 1749-65.
42. Burk KS, Knipp D, Sahani DV. Cystic Pancreatic Tumors. *Magn Reson Imaging Clin N Am* 2018; 26: 405- 20.
43. Dewhurst CE, Mortele KJ. Cystic tumors of the pancreas: imaging and management. *Radiol Clin North Am* 2012; 50: 467-86.
44. Huo L, Feng F, Liao Q, et al. Intraductal papillary mucinous neoplasm of the pancreas with high malignant potential on FDG PET/MRI. *Clin Nucl Med* 2016; 41: 989-90.
45. European Study Group on Cystic Tumours of the Pancreas. European evidence-based guidelines on pancreatic cystic neoplasms. *Gut* 2018; 67: 789-804
46. Belsley NA, Pitman MB, Lauwers GY, et al. Serous cystadenoma of the pancreas: limitations and pitfalls of endoscopic ultrasound-guided fine-needle aspiration biopsy. *Cancer* 2008; 114: 102- 10.
47. Jais B, Rebours V, Malleo G, et al. Serous cystic neoplasm of the pancreas: a multinational study of 2622 patients under the auspices of the International Association of Pancreatology and European Pancreatic Club (European Study Group on Cystic Tumors of the Pancreas). *Gut* 2016; 65: 305-12
48. Buetow PC, Rao P, Thompson LD. From the archives of the AFIP. Mucinous cystic neoplasms of the pancreas: radiologic-pathologic correlation. *Radiographics* 1998; 18: 433-49.
49. Buetow PC, Buck JL, Pantongrag-Brown L, et al. Solid and papillary epithelial neoplasm of the pancreas: imaging-pathologic correlation on 56 cases. *Radiology* 1996; 199: 707-11.
50. De Casadei R, Santini D, Calzulli L, et al. Pancreatic solid-cystic papillary tumor: clinical features, imaging findings and operative management. *JOP* 2006; 7: 137-44.