

Case Report

Bilateral retrorenal colon-a case report

Sanjay M. Khaladkar, Shantanu Singh Tomar*, Akshay Alawadhi, Vipul Sehrawat

Department of Radiodiagnosis, Dr. D. Y. Patil Medical College and Research Center, Pimpri, Pune, Maharashtra, India

Received: 31 December 2016

Revised: 10 January 2017

Accepted: 04 February 2017

***Correspondence:**

Dr. Shantanu Singh Tomar,

E-mail: shantanu445@yahoo.co.in

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Ascending and descending colon normally lie in anterior pararenal space anterior to kidneys. Extension of colon behind kidney is rare. It is more frequently found on the left side behind lower pole of the left kidney. Bilateral retrorenal colon is rare. Its detection is important prior to Retrorenal, Percutaneous nephrolithotomy (PCNL) to avoid complications. We report a case of bilateral retrorenal colon detected incidentally in a case of obstructive jaundice.

Keywords: Computed tomography, PCNL, Retroperitoneum

INTRODUCTION

Ascending and descending colon normally lie in anterior pararenal space anterior to kidneys. Anterior pararenal space is bordered anteriorly by the posterior parietal peritoneum and posteriorly by the Gerota's fascia (anterior renal fascia), and postero-laterally by the latero-conal fascia (which is formed by the fusion of the anterior and posterior renal fascia at their lateral borders).¹ Retrorenal position of colon has been reported in 1-14% of the population.^{2,3} Retrorenal colon is normally seen on left side near inferior pole of left kidney.¹

CASE REPORT

A 50-year-old female patient suspected clinically of obstructive jaundice was referred for CT abdomen. Her bilirubin was raised and LFT's were deranged. Ultrasonography of abdomen showed marked dilatation of intrahepatic biliary radicles in both right and left hepatic lobes with dilated common hepatic duct (14 mm).

Gall bladder was partially distended and showed asymmetric wall thickening with maximum thickness of 10 mm. A soft tissue mass was noted in neck region

which was extending via cystic duct into common hepatic duct (CHD)-common bile duct (CBD) junction with resultant proximal obstructive biliary dilatation. Rest of CBD was not dilated.

CT abdomen with contrast showed marked dilatation of intrahepatic biliary radicles in both hepatic lobes and dilated CBD (14mm). Gall bladder showed asymmetric wall thickening with soft tissue density enhancing mass in neck region extending via cystic duct into CHD-CBD junction. Multiple retroperitoneal lymph nodes of size 1-2 cm were seen in interaortocaval, paraaortic, precaval and retrocaval region with heterogeneous enhancement on contrast with central necrotic areas- likely to be metastatic.

Incidentally detected was extension of right colon behind right kidney and left colon behind lower pole of left kidney suggestive of bilateral retrorenal colon (Figure 1A, 1B).

Right and left colon were wrapping around anterolateral surface of mid and lower pole region of both kidneys with extension behind lower pole of both kidneys (Figure 1 and 2).

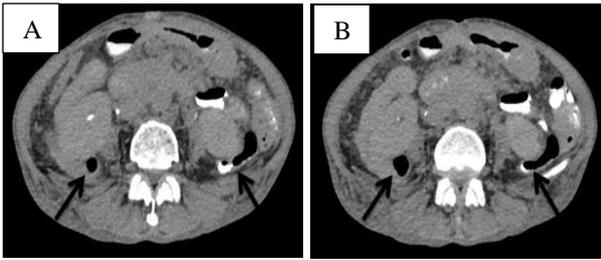


Figure 1A, 1B: Axial contrast enhanced CT abdomen (delayed phase) – showing bilateral retrorenal colon behind lower pole of both kidneys (marked by black arrows).



Figure 2: Sagittal contrast enhanced CT abdomen (delayed phase); 2A: right retrorenal colon behind lower pole of right kidney and 2B: left retrorenal colon behind lower pole of left kidney (marked by black arrows).

DISCUSSION

A retrorenal colon is found in approximately 0.6% of the general population.^{2,4} It is more frequently found on the left side behind lower pole of the left kidney. In another study with 333 participants, retrorenal left colon was found in 16.1% of cases, while retrorenal right colon was found in 9% of the cases at the level of lower pole.⁵ The prevalence of retrorenal colon varies with patient's position with higher incidence in prone position. Hopper et al found retrorenal colon in 1.9% cases in supine position and in 10% of cases in prone abdominal CT scans. Hence, there is high risk of colonic perforation if PCNL is performed in prone position.⁶

In prone position (the favored position for PCNL), the frequency of retrorenal colon is 5 times higher than supine position.⁷ Prone positioning results in a more gas distended colon which can easily displace the renal fascia and may dissect between the laminae of the posterior renal fascia.

Two theories are proposed for the retrorenal colon:

A- Lesser amount of perinephric fat with resultant more posterior and lateral positioning of colon.⁴

B- Either absence of lateroconal fascia or its formation more postero-medially allowing the colon to extend around the posterior margin of the perirenal space.²

As the ascending colon is contained in the anterior pararenal space, its posterior extension is determined by the presence of lateroconal fascia and by the level at which it merges with transversalis fascia. There is variability in the fusion of the anterior and posterior renal fascia and formation of lateroconal fascia. If right lateroconal fascia is formed postero-medial to the normal position or not formed, the ascending colon can extend in retrorenal region beyond the posterior margin of the pararenal space.¹

Identification of retrorenal colon is done by extension of colon posterior to posterior renal line which is drawn as a parallel line through posterior edge of each kidney at three renal levels- upper pole, interpolar region and lower pole. The retrorenal colon can be partial or complete. Retrorenal colon is commonest at lower pole of kidneys. Study conducted on 394 patients with CT images undergoing PCNL showed retrorenal colon in 6.9%, left retrorenal colon in 4.6%, right retrorenal colon in 1% and bilateral retrorenal colon in 1.3%.⁶

Though retrorenal colon is a normal anatomical variant, its identification is extremely important in patients undergoing PCNL. The knowledge of this anatomical variant would reduce iatrogenic risk of colonic perforation during a PCNL.⁶ The path of PCNL is defined by Prassopoulos as passing through the anterolateral margins of the corresponding vertebral body and middle of the renal hilum and posterolateral abdominal wall. If the ascending colon is superimposed on this line or lies behind it, it is considered to be at risk during a PCNL.³

CONCLUSION

Retrorenal position of ascending or descending colon or bilateral colons are anatomical variants. Their identification is extremely important before a patient undergoes PCNL procedure to avoid complications of colonic perforation like peritonitis, colocutaneous fistula, colorenal fistula, abscess and septicemia.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Chan R, Li DK. An extreme case of retrorenal colon. *AJR Am J Roentgenol.* 2006;187(4):W438.
2. Sherman JL, Hopper KD, Green AJ, Johns TT. The retrorenal colon on computed tomography: a normal variant. *J Comput Assist Tomogr.* 1985;9:339-41.
3. Prassopoulos P, Gourtsoyannis N, Cavouras D, Pantelidis N. A study of the variation of colonic positioning in the pararenal space as shown by

- computed tomography. *Eur J Radiol.* 1990;10(1):44-7.
4. Hadar H, Gadoth N. Positional relations of colon and kidney determined by perirenal fat. *AJR Am J Roentgenol.* 1984;143:773-6.
 5. Boon JM, Shinnars B, Meiring JH. Variations of the position of the colon as applied to percutaneous nephrostomy. *Surg Radiol Anat.* 2001;23:421-5.
 6. Balasar M, Kandemir A, Poyraz N, Unal Y, Ozturk A. Incidence of retrorenal colon during percutaneous nephrolithotomy. *Int Braz J Urol.* 2015;41(2):274-8.
 7. Hopper KD, Sherman JL, Luethke JM, Ghaed N. The retrorenal colon in the supine and prone patient. *Radiology.* 1987;162(2):443-6.

Cite this article as: Khaladkar SM, Tomar SS, Alawadhi A, Sehrawat V. Bilateral retrorenal colon - a case report. *Int J Res Med Sci* 2017;5:1145-7.