

# Radiologic Features of a Tailgut Cyst in a Neonate: A Case Report<sup>1</sup>

Kum Rae Kim, M.D., Won Kyu Park, M.D.

A tailgut cyst is a rare congenital abnormality located in the retrorectal space and is usually manifested during childhood or adulthood. We report the MR, CT and ultrasound findings of a tailgut cyst in a 23-day-old neonate.

**Index words :** Infant, newborn, diseases  
Congenital abnormalities  
Sacrococcygeal region

A tailgut cyst, also known as retrorectal cystic hamartoma, is a rare congenital lesion which develops in the retrorectal or presacral space. For the most part, tailgut cysts are found in adult females, but also occur extremely rarely in neonates. To the best of our knowledge, only three cases have been reported to date (1 - 3). We report the radiologic findings of a tailgut cyst in a neonate, including the MR, CT and ultrasound results.

## Case Report

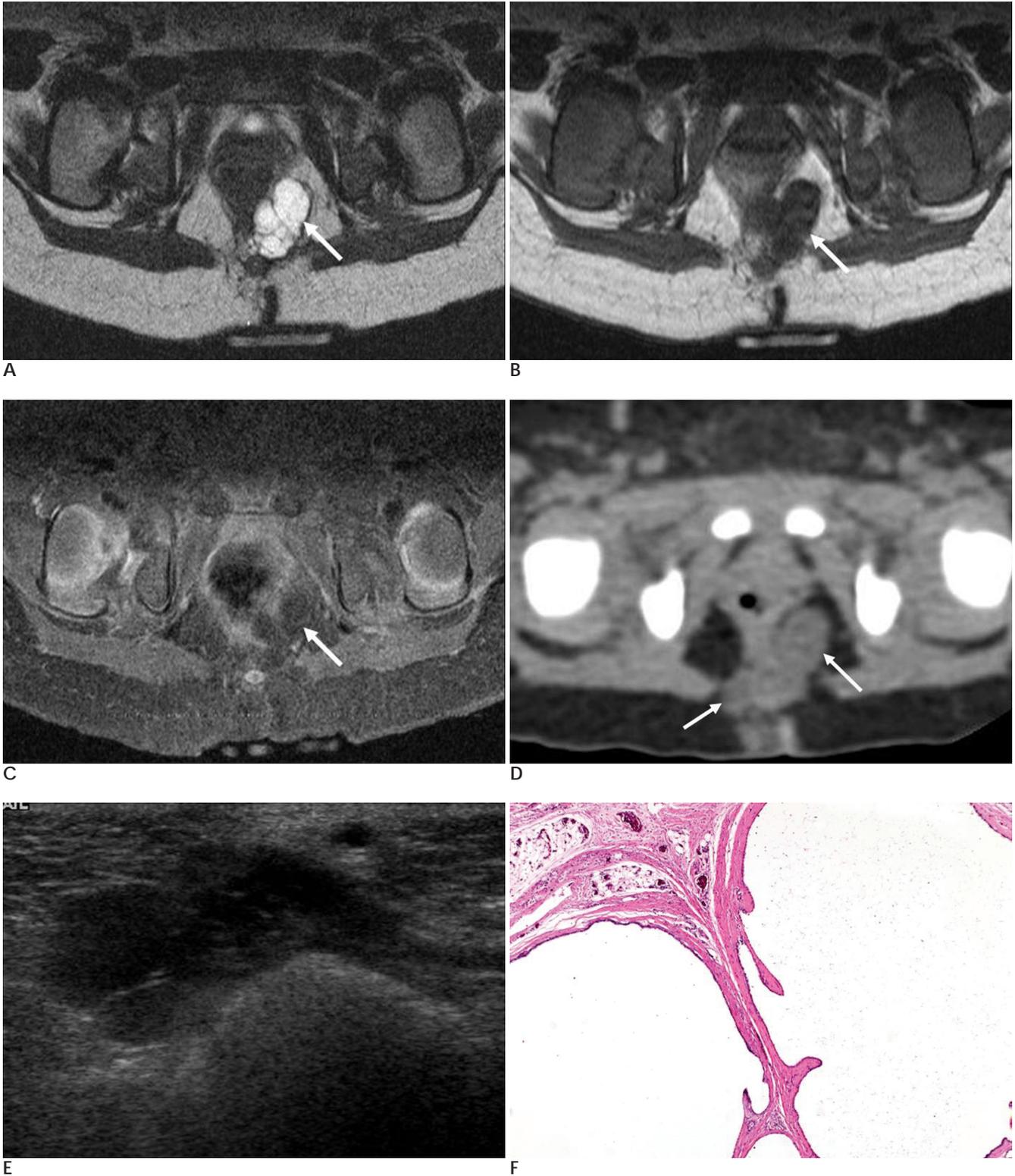
A 23-day-old female infant was referred for an evaluation due to a palpable coccygeal mass which was present since birth. The infant developed to full-term and was delivered by a cesarean section without birth injury. Upon a physical examination, a movable, non-tender, round mass, measuring 1 × 2 cm, was palpable cephalad to the anus. An MRI of the spine showed a well-defined, multiloculated cystic mass between the rectum and coccyx, measuring 12 × 23 mm. The lesion was markedly hyperintense on T2-weighted images (Fig. 1A) and hypointense on T1-weighted images (Fig.

1B). The Gd-enhanced T1-weighted images revealed thin-enhancing septa without a solid component (Fig. 1C). The adjacent fat planes and sacrum were normal and there was no communication between the multiloculated cyst and the thecal sac. A non-enhanced CT revealed a lobulating mass of mild hypoattenuation in the retrorectal space (Fig. 1D). Furthermore, no calcification was noted and an ultrasound revealed a lobulating multiseptated cystic mass anterior to the coccyx (Fig. 1E). The cyst was surgically removed by means of an excision via the posterior sagittal approach. Though the lesion was attached to the rectum, a complete excision was achieved. The gross specimen consisted of a translucent cystic structure containing a clear aqueous fluid. The microscopic findings revealed that the cystic spaces were lined by ciliated columnar, transitional and squamous cells (Fig. 1F). Also, randomly situated smooth muscles and nerve fibers were present in the adjacent cysts and no inflammatory reaction was found.

## Discussion

A tailgut cyst arises in the retrorectal space, which is an area bounded by the rectum anteriorly, the sacrum and coccyx posteriorly, the peritoneal reflections superiorly, the levator ani and coccygeus muscles inferiorly and finally the iliac vessels and ureters laterally (4, 5).

<sup>1</sup>Department of Radiology, College of Medicine, Yeungnam University  
Received October 29, 2007 ; Accepted December 20, 2007  
Address reprint requests to : Won Kyu Park, M.D., Department of Radiology, College of Medicine, Yeungnam University, 317-1, Daemyungdong, Namgu, Daegu 705-717, Korea.  
Tel. 82-53-620-3048 Fax. 82-53-653-5484 E-mail: wkpark@ynu.ac.kr



**Fig. 1.** A 23-day-old neonate with a tailgut cyst.  
**A, B.** Axial MR images show a multiloculated cystic mass (arrow) in the retrorectal space which is markedly hyperintense on T2-weighted images (**A**), and hypointense on T1-weighted images (**B**), respectively.  
**C.** Gd-enhanced T1-weighted image reveals the thin enhancing septa (arrow).  
**D.** A non-enhanced CT scan shows a lobulating mass (arrows) of mild hypoattenuation with well defined borders in the retrorectal space. No calcification is noted.  
**E.** An ultrasound reveals a multiseptated cystic mass (asterisk) abutting the coccyx (Co).  
**F.** The microscopic pathologic finding shows multiloculated cysts (Cy), which are lined by ciliated columnar, transitional and squamous cells (Hematoxylin-eosin,  $\times 40$ ).

Early in its development, the embryo possesses a true tail, which develops maximally the 8-mm stage (35 days -gestational age) and usually completely regresses by the 35-mm stage (56 days - gestational age). The anus is formed cephalad to the tail. Because the primitive gut extends into the tail beyond the point at which the anus develops, it is called the tailgut. When the tailgut fails to regress normally, congenital cysts tend to occur in this region (4, 6, 7).

Though reported with respect to a tailgut cyst, the radiologic findings of barium enema examination, US, CT and MRI have been primarily described in adults. A barium enema examination shows an extrinsic retrorectal mass (7), whereas the sonographic appearance of this lesion is a complex retrorectal mass, which is uncharacteristic of a simple cyst (6). The internal echoes of the cyst are due to the multicystic nature of the mass and the presence of gelatinous material or inflammatory debris within the lumen of the lesion. Upon a CT examination, the lesion appeared as a well-marginated presacral low attenuation mass without calcification (6, 8). However, the focal high attenuation was reported within tailgut cyst due to hemorrhaging (8). When a loss of marginal sharpness or invasion to adjacent structures occurs, infection or malignancy should be suspected. Upon an MRI examination, the tailgut cyst is hypo and markedly hyperintense on T1 and T2-weighted images, respectively (2, 8). The signal characteristics of a tailgut cyst on T1-weighted images may vary depending on the contents of the cyst (8). A hyperintense appearance from T1-weighted images may be caused by either high protein content or hemorrhaging into the cyst.

Upon review of the three cases of previously reported neonatal tailgut cysts, the radiologic findings are similar to the adult cases without complications such as infection, hemorrhaging or malignant transformation. The radiologic findings of our case study are also similar to those of previously reported neonatal tailgut cysts.

Tailgut cysts in neonates should be distinguished from other lesions occurring in the retrorectal space and in the

perianal area. These include teratoma, epidermoid cysts, duplication cysts of rectum and anterior meningoceles (2, 4, 6). The classification of these masses in the retrorectal region is dependent upon the type of epithelium present. However, diverse imaging modalities including MRI, CT and US can help differentiate tailgut cysts from other cystic masses, in terms of the presence of calcification, fat, hemorrhaging and communication with other structures such as thecal sac.

It is well known that the significance of tailgut cysts is due to morbidity which occurs in unrecognized and incompletely treated lesions. They are prone to infection, recurring formation of fistula and malignant transformations (adenocarcinoma and carcinoid) (5). Thus, complete excision is the treatment of choice. Incisional biopsies are contraindicated because they can lead to fistula formation (2, 4, 5)

In conclusion, tailgut cysts are congenital cysts which develop in the retrorectal space and can cause various morbidities. If a multilocular cystic mass is discovered in the retrorectal space of neonates, tailgut cysts should be included in the differential diagnoses.

## References

1. Antao B, Lee AC, Gannon C, Arthur R, Sugarman ID. Tailgut cyst in a neonate with anal stenosis. *Eur J Pediatr Surg* 2004;14:212-214
2. Oh JT, Son SW, Kim MJ, Kim L, Kim H, Hwang EH. Tailgut cyst in a neonate. *J Pediatr Surg* 2000;35:1833-1835
3. Rafindadi AH, Shehu SM, Ameh EA. Retrorectal cystic hamartoma (tailgut cyst) in an infant: case report. *East Afr Med J* 1998;75:726-727
4. Hjermsstad BM, Helwig E. Tailgut cysts: report of 53 cases. *Am J Clin Pathol* 1988;89:139-147
5. Killingsworth C, Gadacz TR. Tailgut cyst (retrorectal cystic hamartoma): report of a case and review of the literature. *Am J Surg* 2005;71:666-673
6. Jain P, Hawkins S, King A. Tail-gut cyst. *Australas Radiol* 1997;41:207-210
7. Campbell WL, Wolff M. Retrorectal cysts of developmental origin. *Am J Roentgenol Radium Ther Nucl Med* 1973;117:307-313
8. Yang DM, Park CH, Jin W, Chang SK, Kim JE, Choi SJ, et al. Tailgut cyst: MRI evaluation. *AJR Am J Roentgenol* 2005;184:1519-1523

