Case 10593

Tail gut duplication cyst
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Section: Abdominal imaging
Area of Interest: Pelvis
Procedure: Education
Technique: MR
Technique: CT
Technique: Ultrasound
Special Focus: Pathology Case Type: Clinical Cases
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Patient: 40 years, female

Clinical History:
A 40-year-old female patient was referred with longstanding symptoms of incomplete defecation. Digital rectal examination revealed a slight boggy mass-like sensation towards the posterior rectal wall. Proctoscopy did not reveal a mucosal region but suggested a bulge in her posterior rectal wall.

Imaging Findings:
Initial contrast CT images demonstrate a well defined rounded fluid (HU 10-20) attenuating lesion in the retro-rectal region (figures 1a-c). The lesion appears intimately related to, but does not breach the posterior-rectal wall. Subsequent evaluation with transrectal ultrasound (figure 2) confirms a rounded anechoic lesion (figure 2) corresponding in position, shape and size to the CT abnormality. Further evaluation with MRI confirms a fluid signal lesion which has uniform low T1 and high T2 signal (figures 3a-f) within. The T2 images further demonstrate a multiloculated nature to the lesion but no associated solid components are seen. There is no communication with either the sacrum or neural canal posteriorly.

Discussion:
A tail gut duplication cyst or a retro-rectal cystic hamartoma [6] is a rare congenital lesion which arises from embryonic hind-gut vestigial remnants. They are almost exclusively found in the retro-rectal or pre-sacral region but occasionally occur in other exotic locations [7]. While they can potentially involve both genders and present at any age, most cases present in middle aged women [2, 4].

On gross pathological examination, a tail gut cyst has an appearance of a multiloculated, thin-walled cystic mass with a glistening lining. The cysts are usually filled with mucoid material and can be lined by a variety of epithelial types [9]. While there can be considerable variation in size, typical cysts measure a few centimetres across. With large cysts, there can be anterior displacement of the ureters, uterus and / or rectum [8]. A loss of discrete margins and / or involvement of contiguous structures can occur with concurrent infection or with malignant transformation (which is a rare but concerning complication [1, 10]).

On trans-rectal ultrasound, a tail gut cyst is usually seen as a multi-locular, retro-rectal hypo to anechoic cystic lesion. Internal echoes may be seen due to gelatinous material or inflammatory debris within the cyst as well as due to its multi-cystic nature.

On CT, a tail gut cyst is commonly seen as a discrete, well-margined, presacral-retrorectal mass. Depending on
cyst content, density can range from water to soft-tissue attenuation. Cyst wall calcification may be occasionally seen.

On MRI, they can have either a unilocular or multilocular cystic appearance. In uncomplicated cases the cyst is of low T1 and high T2 signal. Some consider a multilocular appearance in a retro-rectal cyst with internal septae on T2-weighted images as being a unique feature for a tail-gut cyst [12]. Under certain circumstances, cyst contents may show high T1 signal due to the presence of mucinous material, high protein content, or associated intracystic haemorrhage. The presence of haemorrhage or associated Keratin may also give rise to regions of low T2 signal [3]. In addition, any malignant change or fibrous tissue within a cyst may manifest as irregular wall thickening or as a polypoid intracystic mass with intermediate signal intensity on both T1 and T2 weighted images and with post contrast enhancement.

Surgical excision (as was the outcome in this case) is the recommended treatment of choice even in asymptomatic cases and this is especially to avoid complications [5-6, 11].

**Differential Diagnosis List:** Tail gut duplication cyst / retro-rectal cystic hamartoma, Retro-rectal lymphovascular malformation, Subperitoneal retro-rectal adenomucinosis, Cystic rectal neoplasm, Retro-rectal neurenteric cyst

**Final Diagnosis:** Tail gut duplication cyst / retro-rectal cystic hamartoma

**References:**


Description: Axial CT image demonstrates a fluid attenuating (HU 10-20) rounded cystic lesion posterior to the rectum but closely related with the rectal wall. Origin: SCGH, Perth.
Description: Coronal CT image demonstrates a fluid attenuating (HU 10-20) rounded cystic lesion posterior to the rectum but closely related with the rectal wall. Origin: SCGH, Perth
Description: Sagittal CT image demonstrates a fluid attenuating (HU 10-20) rounded cystic lesion posterior to the rectum but closely related with the rectal wall. (arrowed) Origin: SCGH, Perth
Description: Transrectal ultrasound scan confirms an anechoic cystic lesion corresponding to the position of the CT abnormality. Origin: SCGH, Perth
Figure 3

a
Description: Sagittal T2 MRI image showing a lobulated cystic conglomeration in the retrorectal region
Origin: SCGH, Perth

b
Description: Oblique coronal T2 MRI image showing a lobulated cystic conglomeration in the retrorectal region Origin: SCGH, Perth
Description: Axial T2 MRI image showing a lobulated cystic conglomeration (high T2 signal lesion) in the retrorectal region

Origin: SCGH, Perth
**Description:** Axial T2 MRI image showing a lobulated cystic conglomeration (high T2 signal lesion) in the retrorectal region. **Origin:** SCGH, Perth

**Description:** Axial T2 MRI image showing a lobulated cystic conglomeration (high T2 signal lesion) in the retrorectal region (arrowed). **Origin:** SCGH, Perth
Figure 4

a

Description: Oblique coronal T1 MRI image showing a rounded low signal lesion in the retro-rectal region
Origin: SCGH, Perth

b

Description: Sagittal T1 MRI image showing a rounded low signal lesion in the retro-rectal region
Origin: SCGH, Perth