MR evaluation of anovaginal fistula secondary to obstetric trauma
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Section: Genital (female) imaging
Case Type: Clinical Cases
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Patient: 28 years, female

Clinical History:
A 28-year-old lady came with the complaints of passing flatus and feces per vagina for last 4 months.

Imaging Findings:
A 28-year-old lady came with the complaints of passing flatus and feces per vagina for last 4 months. She underwent repair of a third degree perineal laceration at the time of vaginal delivery 5 months back. She had noticed malodorous discharge per vagina 4 weeks after the surgery with occasional passage of flatus per vagina. Her bowel habits were otherwise unchanged. Clinically the patient was obese but otherwise healthy. On per vaginal examination a small area of mild induration was noted along the posterior wall of vagina on the right side of midline. Her systemic examination and routine blood investigations were normal. Urinary infection was confirmed on urine examination and appropriate antibiotics started. She was referred to the imaging department for MR evaluation of the pelvic floor structures. MR study showed an abnormal thin linear tract connecting the anal canal and the vaginal vault on the right side of midline which was best appreciated on axial T2-weighted and fat suppressed STIR images of the pelvic floor. MR defecography confirmed the passage of rectal fluid into the vaginal vault (on real time imaging) and delineated the fistula well.

Discussion:
Anovaginal fistula is an abnormal tract linking the vaginal vault and the anal canal. Ano-or-rectovaginal fistulas most commonly result from obstetric trauma. Prolonged obstructed labor causes pressure necrosis of the perineal body with resultant abnormal fistulous communication between the vagina and the adjacent bowel. Episiotomy infection or failed primary repair of deep perineal lacerations during childbirth can also lead to fistulous communication. Inflammatory bowel disease, such as Crohn's disease is another important cause of anovaginal fistula. Other causes include crypto glandular perianal abscesses, radiation proctitis, anorectal or vaginal malignancy. Women generally present with complaints of passage of flatus or feculent material per vaginum. They may also sometimes present with recurrent vaginal and/or urinary tract infections. Soiling of the undergarments with foul-smelling vaginal discharge has also been frequently reported. These symptoms can be extremely incapacitating for the patient and often causes a lot of psychological distress.

Anovaginal fistula is usually diagnosed on the basis of characteristic symptoms, and clinical findings on gynecologic or surgical examination. The clinical diagnosis or suspicion of an anovaginal fistula is often confirmed with imaging studies, which include conventional fistulography, anal endosonography and MRI. In majority of patients, conventional fistulography is not feasible as the internal opening of the fistula may not be visible at physical examination. Endoanal ultrasonography is not a promising technique, mainly because of poor visualization of these fistulas owing to its inherent low soft-tissue contrast. MRI is the preferred modality. High spatial resolution and multiplanar imaging capability makes MRI ideal for studying the complex pelvic floor anatomy. It is important to
preoperatively define the extent, course and location of the fistula for appropriate surgical management. A meticulous preoperative assessment can help reduce the risk of procedure-dependent morbidity which includes postoperative fecal incontinence and recurrence of fistulas. MR examination using phased-array coil has a relatively higher signal-to-noise ratio compared to a body-coil, thus yielding relatively better images. Use of an endorectal coil further increases the signal-to-noise ratio providing exquisite images of rectum, vagina and adjacent structures. The disadvantage of using an endorectal-coil, however, includes a limited field of view and patient discomfort while introducing the coil. MR defecography, also called "dynamic pelvic-MRI," is a useful technique for the detection and characterization of pelvic floor abnormalities. The anorectal morphology and function can be evaluated in a dynamic fashion, after administration of ultrasound-gel enema. It is primarily indicated in patients having functional disorders of the pelvic floor. It is not routinely performed for the delineation of rectovaginal fistulas; however, it can serve as a useful tool in cases with equivocal findings. The rectal fluid can be seen extending into the vagina on real-time-imaging.

Anovaginal fistulas are lined by a thin fibrous wall, and often contain fluid or air-bubbles. On MRI, anovaginal fistulas appear as linear high signal intensity tracts on the T2-weighted images. These may contain low-signal-intensity bubbles of air. The fibrous walls surrounding the fistula tract demonstrates low signal. Chronic fistulas contain little fluid and more scar tissue demonstrating predominantly low signal intensity.

**Differential Diagnosis List:** Anovaginal fistula

**Final Diagnosis:** Anovaginal fistula

**References:**


Description: Thin linear fluid intensity tract is seen connecting the anal canal and the vagina on the right side of midline. Origin:
**Figure 2**

**a**

Description: A small bubble of air is well visualised in the vaginal lumen on this multi echo GRE sequence. **Origin:**

**b**

Description: **Origin:**
**Figure 3 a**

**Description:** Fluid intensity tract is seen traversing the pelvic floor connecting the vagina and the anal canal with fluid filling the vaginal vault. **Origin:**
Description: Significant amount of rectal fluid has entered the vagina, extending cranially up to the posterior vaginal fornix. Origin: