Inguinal bladder hernia - an incidental but rare finding

Clinical History:

A 65-year-old male patient who had previously been diagnosed to have prostatomegaly and features of cystitis on ultrasound was referred for a CT abdomen for evaluation of upper abdominal pain. An incidental and rare finding was picked up on CT.

Imaging Findings:

Axial contrast enhanced CT images of the pelvis showed an abnormal orientation of the anterior aspect of the urinary bladder base and a Foley’s catheter within bladder lumen pointing towards the right side. Serial images revealed extension of thickened enhancing urinary bladder wall into the right inguinal canal.

The right inferior epigastric artery was noted medial to the plane of herniation of urinary bladder suggesting an indirect type of inguinal hernia. Displacement of herniated visceral fat anterior to the herniated bladder within the hernia sac suggests a likely paraperitoneal type of bladder hernia where the herniated bladder is located along the medial wall of the hernial sac. An enlarged prostate gland indenting the bladder base was also seen. Minimal free fluid was noted within right inguinal canal beyond the inferior extent of the herniated urinary bladder which likely represents extension of free intraperitoneal fluid. The patient's upper abdominal pain was attributed to gastritis detected on endoscopy.

Discussion:

Herniation of the urinary bladder usually occurs through the inguinal or femoral canal, although herniation through ischiorectal, obturator and abdominal defects has also been described[1]. It has been estimated that 1-3% of inguinal hernias involve the bladder and a right-sided predominance has been described[1, 2]. Only about 10% of the cases of inguinal bladder hernia (IBH) are diagnosed preoperatively with most cases being detected inadvertently during surgery[3]. Factors such as chronic bladder outlet obstruction, obesity and prolonged impingement of bladder against hernial orifices have been described as underlying causes[1].

IBH have been classified as paraperitoneal, the most common, where the bladder herniates along the medial wall of the hernial sac; intraperitoneal, where the herniated bladder is completely encased by peritoneum; and extraperitoneal, where bladder alone herniates with the peritoneum remaining intra-abdominally[1, 2]. Each type requires variations in surgical techniques used for treatment. Anatomically inguinal hernias are classified as direct and indirect types. The direct type herniates medial to the inferior epigastric vessels with the indirect type herniating lateral to it[1].

Various imaging modalities have been used for demonstrating IBH. Retrograde cystography and excretory

urography reveal a protrusion of the urinary bladder which is oriented antero-inferiorly with erect views being regarded as most ideal for demonstrating even smaller hernias[1]. Ultrasonography may detect a fluid-filled structure in the inguinal region which is continuous with the bladder proximally[1]. However, bladder herniation may be missed on ultrasound unless diligent screening of the inguinal region is performed. Characteristic decrease in size of an inguinal fluid-filled structure after voiding may aid diagnosis [1]. Ultrasonography however failed to detect the bladder hernia in our case. On CT and MRI, antero-inferior angulation of bladder base is considered the diagnostic sign of IBH[1, 4]. Antero-lateral wall thickening involving urinary bladder has also been reported[5]. Both the above signs were seen in our case. It is easier to demonstrate the communication between herniated and intra-abdominal portions of the bladder on coronal and sagittal sections readily available on CT and MRI. Additionally contrast enhanced CT and MRI allow visualisation of the inferior epigastric vessels which provide the landmark for differentiation of direct from indirect inguinal hernias[1, 5].

IBH may be encountered incidentally on abdominal CT and MRI performed for other indications. It is thus essential to be familiar with imaging features of inguinal bladder hernia to avoid misinterpretation. Undiagnosed inguinal bladder hernias may be inadvertently injured during surgery. Untreated bladder hernias may also undergo strangulation, infarction or perforation. Rarely malignancy and calculi may be associated with the herniated portion of the bladder[1].

**Differential Diagnosis List:** Right inguinal bladder hernia, Direct or indirect inguinal hernia with bowel as its content, Femoral hernia

**Final Diagnosis:** Right inguinal bladder hernia

**References:**


Description: Anterior aspect of urinary bladder base and tip of a Foley’s catheter within bladder appear oriented towards the right side. Part of a contrast filled ileal loop is incidentally seen ventrolateral to bladder base. Origin: Ramnad MRI and CT Scans, Ramnad, India.
**Description:** The anterior aspect of bladder base shows beaking towards right inguinal region with the right inferior epigastric artery (white arrow) located medial to this beaked portion. Visceral fat is seen ventrolateral to this beaked portion. **Origin:** Ramnad MRI and CT Scans, Ramnad, India.
Description: The anterior aspect of urinary bladder base with thickened walls is seen herniating into the right inguinal canal. Herniated visceral fat is displaced anteriorly within the hernial sac. An enlarged prostate gland is also seen. Origin: Ramnad MRI and CT Scans, Ramnad, India.
Description: The thickened enhancing urinary bladder wall (white arrow) is seen within the right inguinal canal. Origin: Ramnad MRI and CT Scans, Ramnad, India.
Description: The herniated portion of the urinary bladder is noted within the right inguinal canal. Origin: Ramnad MRI and CT Scans, Ramnad, India.
Description: The inferior extent of the herniated urinary bladder (vertical arrow) within the right inguinal canal is seen. Minimal fluid (horizontal arrow) is also seen separate from the bladder within the inguinal canal. Origin: Ramnad MRI and CT Scans, Ramnad, India.
Description: Fluid is seen in the right inguinal canal inferior to the herniated portion of the urinary bladder. Origin: Ramnad MRI and CT Scans, Ramnad, India.