

General Radiography as Clue for the Working Diagnosis: Sacrospinous Ligament Calcification Leading to Left Ureteric Calculus with Non-Functioning Kidney

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Abstract

General radiography leaves enough clues for the ongoing diagnostic evaluation of the patient. The important clues can save a lot of time lost and other unnecessary investigations in the management of the patient illness. Sacrospinous ligament connects the sacrum with the pelvis. This in fact stabilizes the pelvis as it provides the support. This is important as this is helpful in supporting the vaginal vault in cases of prolapsed uterus in females. We report a 50-year-old male who had come for his intravenous pyelography for left ureteric calculus and was found to be having multiple other associated findings like osteophytosis, bilateral ilial horns and bilateral sacrospinous ligament calcifications. The clue was that of calcification and hardening of left sacrospinous ligament which has led to the formation of left side ureteric calculus. This ureteric calculus has caused great progressive damage to the left kidney by causing gross hydrouretero-nephrosis due to complete obstruction.

Keywords

General Radiography, Sacrospinous Ligament, Osteophytosis, Ilial Horns

1. Introduction

Ureteric colic is one of the medical emergencies frequently encountered in medical practice and the cause is diagnosed after a few radiological investigations. Sometimes rare causes of stone formation can also be high-

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highlighted in routine investigations. Impingement of sacrospinous ligament is one of those causative factors which can cause ureteric stones formation on the affected side. Sacrospinous ligament is triangular in shape with base attached to S2 - S4 and coccyx bone in the midline. This provides support to the pelvic organs. This also forms and divides the greater and lesser sciatic notches which form the greater and lesser sciatic foramina. This ligament prevents the ilium to ride over the sacrum. The ligament always comes under stress while leaning or getting up from the chair.

2. Case Report

50 years old male reported with complaints of pain abdomen and stiff back of two years duration. He also complained of burning micturation. He often felt difficulty in bending with stiffness of the back especially in the morning. These complaints used to get aggravated during winter. On examination he was averagely built person without any relevant previous past history of disease like ankylosis spondylosis or fluorosis or any endocrinological disorder. All the blood parameters were within normal limits. Routine urine examinations done now and earlier had shown recurrent urinary tract infections. He was getting relieved of these infections with appropriate antibiotic medications. He underwent plain radiography and ultrasonography of abdomen. Plain X-ray abdomen has shown a radio opaque shadow on left side at the pelvis inlet with bilateral calcification of sacro-spinous ligaments. Lumbosacral spine had revealed degenerative changes (**Figure 1(a)** and **Figure 1(b)**).

Bilateral iliac horns were also noticed on the iliac crests. Ultrasonography abdomen had shown gross dilation of the left pelvicalyceal system which was compromising the renal cortical thickness. Upper part of left ureter was also dilated. Intravenous excretory urography (IVU) had shown normal functioning of right kidney but no excretion was seen on left side even in delayed films (**Figure 2(a)** and **Figure 2(b)**).

Other biochemical parameters were normal. He had been planned for retrograde endoscopic (ureteroscopy) removal of left ureteric calculus.

3. Discussion

There has not been any case reported in literature in our knowledge like our present case. General radiography has got its own importance as a first tier of investigation module. The availability at affordable cost is another factor which plays its undisputable role. Many patients are advised as simple plain skiagram of specific region with different views at the first stage of investigation. Radiographers play an important role while carrying out this task. The plain radiography is conducted under the proper instructions from the radiologists which help

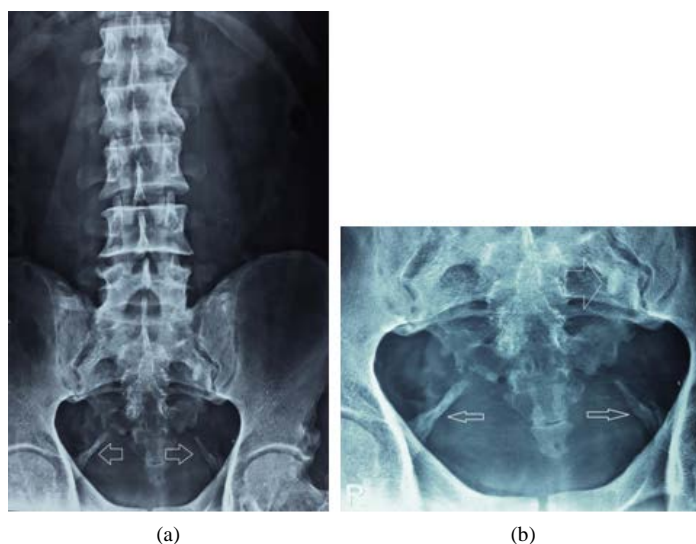


Figure 1. Plain abdomen radiographs. (a) Bilateral calcified sacrospinous ligaments (white horizontal arrows) with degenerative changes in the spine; (b) Magnified view of the pelvis shows the same ossified ligaments projecting obliquely (thin white arrows). A radio opaque shadow is also seen on left side just medial to the inferior margin of sacro iliac joint (wide white arrow).

in assisting the diagnosis by this module. Sacrospinous ligament is of great value for supporting the pelvic organs. The laxity of these ligament leads to a variety of symptomatology. This all depends upon the location and the region being affected by these ligaments. Left side sacro-spinous ligament was responsible for the pathology in our case as is evident from its shape and location in the pelvis region (**Figure 3**).

Similar type of entities had earlier been reported like ovarian vein syndrome where left ovarian vein has caused impingement over the left ureter responsible for obstructive uropathy. This impingement can further complicate in formation of stones [1]. The complications will keep on adding to the existing pathology till the obstructive causative factor is removed. The same had also been treated successfully by robotic surgeries [2]. Similarly the ureter can be pressed or displaced by the normal pelvic ligaments when these present with some abnormal pathology. Ureteric calculi are usually of renal origin and pass down to the ureter. These may cause partial

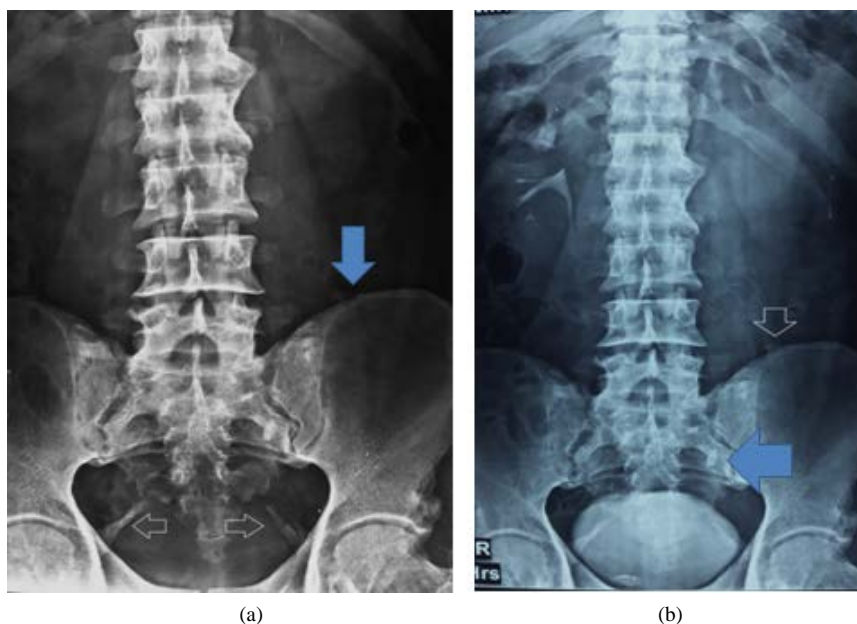


Figure 2. Plain and 1 hour intravenous excretory urography (IVU) abdomen radiographs. (a) Plain abdomen X-ray shows calcified bilateral sacrospinous ligaments (white arrows), radio opaque shadow in pelvis and left side ilial horn (vertical blue arrow); (b) 3 hour excretory urography abdomen radiograph shows normal functioning right kidney and non functioning left side excretory system because of radio opaque left ureteric calculus at the lower end (horizontal blue arrow). Iliac horn is also seen on the left iliac bone (white vertical arrow). Urinary bladder is normal in shape and outline and calcified ligaments are seen through it.

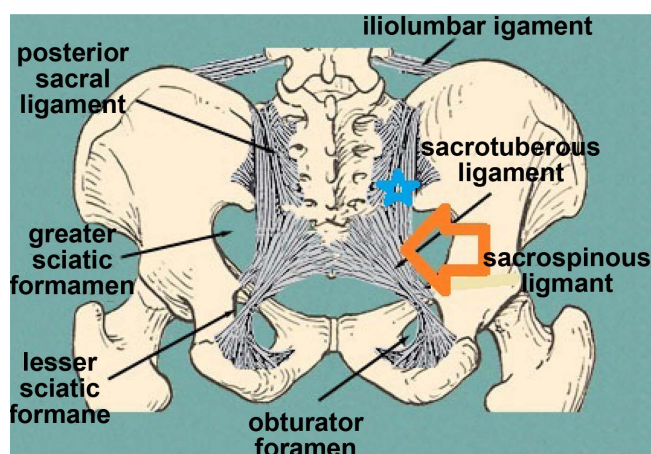


Figure 3. Diagrammatic representation of the ligaments in the pelvis. Sacrospinous ligament is connecting the ischial spine to the sacrum (orange wide arrow). The location of left ureteric calculus formation in our present case has been shown with blue star.

obstruction in the beginning which subsequently leads to total obstruction superadded with infections. These ureteric calculi are usually oblong shaped. 85% stones will be passed down because of various factors and forces in the pushing mechanism. If the size of the calculus is less than 5 mm than no active treatment is required 70% ureteric calculi are found in lower third of the ureters as was in our case. Ureteric calculus presents with classical colicky flank pain associated with either hematuria or infection [3]. Calcium is the main constituent in approximate 80% of ureteric calculi. Other varieties are uric acid, struvite and cystic stone [4]. The stone formation takes place by two mechanisms, either by super saturation of the urine by the constituents or by deposition on the uroepithelium [5]. Though unenhanced computerized tomography is the gold standard for the diagnosis but ultrasonography is the choice of diagnostic modality in emergency. This is also of advantage in pregnant females and children where there is radiation risks involved [6]. American Urological Association (AUA) and European Association of Urology (EAU) have set up the guidelines in 2005 for the management of ureteric calculi as per their size and location. Following three lines of managements were advocated:

- 1) Observation and medical therapy
- 2) Shock-wave Lithotripsy or Ureteroscopy
- 3) Open Surgery, Laproscopic or Percutaneous antegrade ureteroscopy.

Lower third ureteric calculus can either be treated by shock wave lithotripsy or ureteroscopy as is our present case [7].

4. Conclusion

Sacrospinous ligament calcification may be incidental finding but the evaluation for other pathologies has to be ruled out when present. General radiography plays a great role in localizing the pathology. The role of radiographers is of great importance, as the proper exposure and region covered will unveil the hidden diagnosis. The outcome of the surgical removal is always encouraging and relieves the symptoms and associated complications.

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