



LUMBAR INCISIONAL HERNIA WITH NEPHROCELE (RENAL HERNIATION) - A RARE CASE REPORT.

General Surgery

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KEYWORDS

INTRODUCTION

Hernia is derived from the Latin word for rupture. It is defined as an abnormal protrusion of an organ or tissues through a defect in its surrounding wall.[1] Though there are numerous locations where a hernia can arise, anterior abdominal wall is the most common site for hernias and these hernias are called ventral hernias. The hernias that develop through the posterior abdominal wall are termed dorsal hernias. Hernias can be primary, which develops because of intrinsic weakness, of the abdominal wall or, they can be secondary, due to previous surgical/traumatic process which results in weakness of the wall and are termed as incisional hernias.

Case History

A 22-year-old female came to Surgery department of Government Medical College Jalaun with chief complaints of on and off swelling in the posterolateral aspect of right lower back (lumbar region) for the past 1 year. The swelling was painless, globular, appeared while sitting, coughing, straining, and disappeared while lying down. The patient had mild discomfort over the swelling for the past 2 months. She had no pain, fever, burning micturition, hematuria, weight loss, loss of appetite or any other complaints. 10 years back the patient was assaulted with a sickle in the same region for which she was operated on in a tertiary care center. On examining the patient, there was a horizontal linear scar measuring 8 cm in the Right Renal angle, 3 cm inferior to the 12th rib and medial most point 3 cm lateral to midline. In the sitting position, a visible bulge was seen measuring 4x4 cm just beneath the scar line. It was hemispherical in shape, firm in consistency, reducible with no tenderness or pulsations. Expansile cough impulse was present.

High resolution USG of the lumbar region revealed a thin layer of fluid measuring 2.7mm, in the subcutaneous tissue underlying the above-mentioned incision scar.

Contrast enhanced CT of the abdomen was done in axial, coronal and sagittal views. It revealed a defect of size ~50mm in the right side of posterior abdominal wall near the lumbar region with herniation of the right kidney (Fig-1-3).

Detailed hematological workup was done and the patient was planned for Open Mesh Hernioplasty.

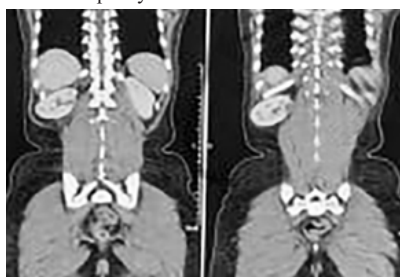


Fig. 1 – Coronal slice of CECT whole abdomen showing the right kidney herniating through a defect in the posterolateral area of abdominal wall just inferior to the 12th rib.

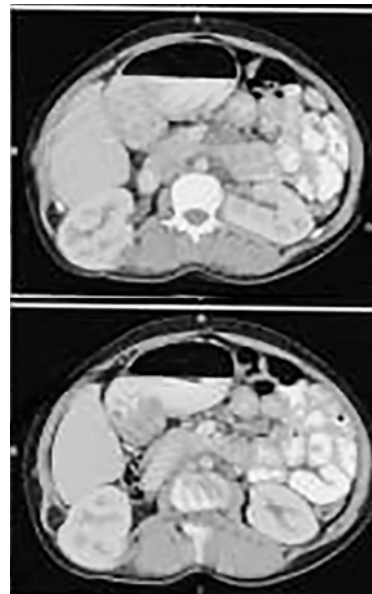


Fig. 2 – Axial Slice of CECT whole abdomen showing right side renal herniation.

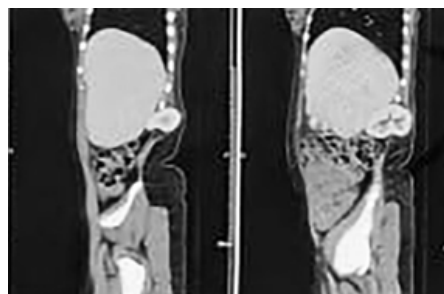


Fig. 3 – Sagittal slice of CECT whole abdomen showing renal herniation.

Operative Findings

A horizontal linear incision measuring ~ 5 cm was made directly over the swelling through the previous scar. The kidney was identified in the subcutaneous plane with the posterior layer of Gerota's fascia and perinephric pad of fat. A defect of size 5cm was noted in the paraspinous muscles. The kidney was then reduced. Following invagination of the

kidney plication of the posterior Gerota's fascia was done with 2-0 PDX interrupted sutures. A Prolene mesh of size 8x15 cm was placed. The muscular layer was approximated using 2-0 PDX simple interrupted sutures (Fig. 4)

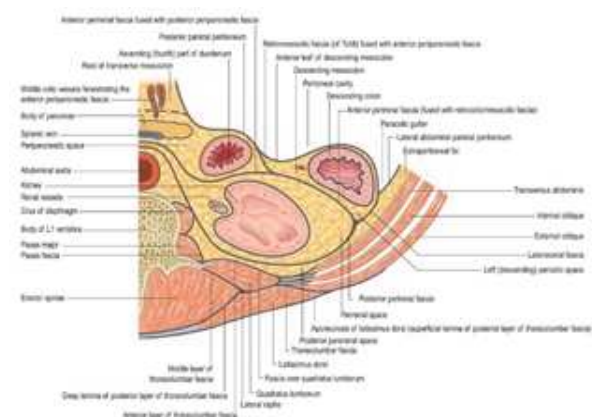


Fig. 4 – Intra-op image showing tension free approximation of the defect with interrupted sutures.

Subcutaneous tissue and Skin were closed. Post-operative period was uneventful, and the patient was discharged after 5 days of hospital stay. Sutures were removed on the 14th day and no recurrence was seen. Follow up of the patient was done at 3rd and 6th month and no signs of recurrence were present.

DISCUSSION

The anatomy of the posterior abdominal wall and the retroperitoneum is of great interest while discussing the incisional hernia of this region. The skeletal framework of the posterior abdominal wall is provided by the 12th rib superiorly, Vertebrae medially and iliac crest inferiorly. The posterior abdominal wall is continuous with the anterolateral abdominal wall laterally, the posterior wall of the pelvis inferiorly, and the posterior thoracic wall at the posterior attachment of the diaphragm.[2] The following components make up the surgical posterior abdominal wall from the outside in. (1) skin (2) Fascial surface (3) superficial layer, which is made up of the external oblique muscle on the anterolateral side and the latissimus dorsi muscle on the posterolateral side. (4) The anterior, middle, and posterior thoracolumbar fascia (5) The intermediate layer of muscles, which includes the serratus posterior inferior, internal oblique, and sacrospinalis (6) Deep muscle layer (psoas muscle, quadratus lumborum) extraperitoneal membranous connective tissue and fat (7) transversalis fascia (8) peritoneum. The sacrospinalis is surrounded by the middle and anterior layers. The quadratus lumborum is encased in the middle and anterior layers. By combining all three layers, the middle layer extends laterally to the transverse abdominis boundary.[2]



Compartments and fasciae of the upper retroperitoneum (left side). A transverse section at approximately the level of the first lumbar vertebra, showing the location and relations of the peripancreatic space.[3]

Two natural defects are present in the posterior abdominal wall. The inferior lumbar triangle of Petit and the superior lumbar triangle of Grynfelt.

The superior triangle is bounded by the medial border of internal oblique laterally, lateral border of Quadratus lumborum medially and lower border of 12th rib superiorly. Inferior triangle bounded by the

lateral margin of Latissimus dorsi medially, medial border of external oblique laterally and the iliac crest inferiorly.

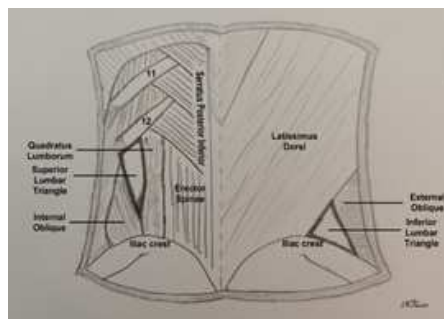


Fig. 6 – Diagram depicting Lumbar triangles [4]

These two triangles are anatomic weak points in the posterior abdominal wall. Because of the strong construct of the posterior abdominal wall dorsal hernias naturally do not occur, except through the above, mentioned triangles.

Lumbar hernias can be acquired (80%) or congenital (20%). There are two types of acquired hernias: primary and secondary. About 25% of acquired hernias are secondary lumbar hernias, which are caused by trauma or surgery (renal surgery, flank incisions, iliac bone harvesting). It has been observed that congenital hernias originate from the inferior triangle and are frequently observed in conjunction with other abnormalities such as renal agenesis and lumbocostovertebral syndrome.[5]

Typically, patients arrive with vague concerns. It has been noted to be more prevalent on the left side and in males. A physical examination is crucial to the diagnosing process. In certain circumstances, lumbar hernias have been misidentified as gluteal abscesses [6] or lipomas [7]. The diagnosis is confirmed by a palpable finding of oedema with a cough impulse that subsides in the prone position. Obese patients provide a clinical diagnosis problem. Imaging examinations are often necessary for confirmation of this disorder, with a CT scan being the preferred study.[5]

Classification system for Incisional Hernias.

“Any abdominal wall gap with or without a bulge in the area of a postoperative scar perceptible or palpable by clinical examination or imaging” - Korenkov et al. [8] Classification of Incisional hernia is much more challenging when compared to primary hernias and groin hernias due to its greater diversity [9]. But classification is essential for standardization as well as ease of comparison. This challenge was finally overcome by the classification technique put forth by the European Hernia Society (EHS) in 2009. The abdomen was divided into medial or midline and lateral zones by the lateral margins of rectus sheath on both sides. The EHS further divided the medial zone into 5M(M1-5) zones. (Fig. 7) [9]

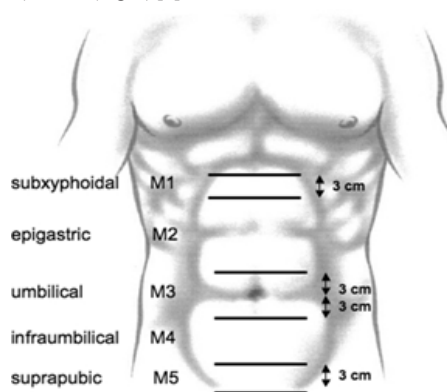


Fig. 7 – M1-M5 zones [9]

The lateral zone is defined by the lateral border of rectus sheath medially, costal margin superiorly, inguinal region inferiorly and lumbar region laterally. This again is divided into 4 zones L1-L4 (Fig. 8) [9]

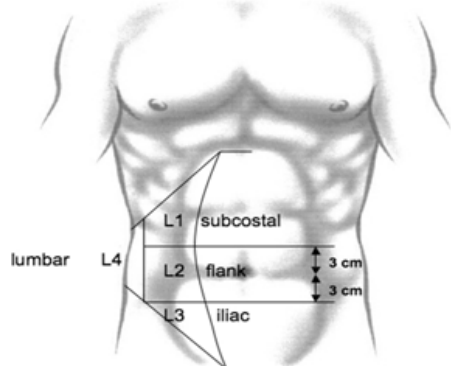


Fig. 8 – L1-L4 zones [9]

A semi-quantitative division has been approved by taking only width as the variable for denoting size of the defect. Instead of using a nominative taxonomy, a coded one was selected (W1 < 4 cm; W2 ≥ 4–10 cm; W3 > 10 cm).[9]

EHS			
Incisional Hernia Classification			
Midline	subxiphoidal	M1	
	epigastric	M2	
	umbilical	M3	
	infraumbilical	M4	
	suprapubic	M5	
Lateral	subcostal	L1	
	flank	L2	
	iliac	L3	
	lumbar	L4	
Recurrent incisional hernia?		Yes O	No
length: 5 cm		width: 5 cm	
Width	W1	W2	W3
	<4cm	≥4-10cm	≥10cm
cm	O		O

Fig. 9 – EHS Incisional hernia classification for the case under discussion.[9]

As per the EHS classification for Incisional hernia, the case that has been discussed above belongs to **L4W2**.

Cases of similar presentation has been seldom reported in the literature.

Presti J. C. et al, in 1998, reported a case of lumbar herniation of a kidney, resulting in intermittent ureteropelvic junction obstruction. Surgical repair of the lumbodorsal fascial defect resulted in resolution of the ureteropelvic junction obstruction.[10]

Willcox et al, in 2016, reported a case of a patient with thoracolumbar epidural abscess, who underwent partial corpectomy and titanium cage reconstruction with autografting, which involved removing a 5-cm-long fragment of bone from her right iliac crest via a posterior vertical incision (Figure 1). Nineteen months later, the patient presented with complaints of spontaneous, progressively painful baseball-sized protrusion in her right lumbar area that had started three days earlier without any history of exertion. On examination, a reducible mass from the prior bone harvest was found deep within the scar at the incision site. Computed CT showed a right incisional herniation which was repaired by open mesh hernioplasty. (Fig. 10) [11]



Fig. 10 – Axial CT demonstrates the extent of kidney herniation.[11]

CONCLUSION

Compared to other ventral abdominal wall hernias, lumbar hernias are relatively rare; less than 300 occurrences have been documented in the last three centuries, making up less than 1.5% of all abdominal hernias.[12] Perhaps once in his career, a general surgeon will encounter a patient that raises a diagnostic conundrum in the absence of strong suspicion. This rarity of presentation and the possible diagnostic dilemmas associated with it makes this case noteworthy.

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