

CASE SERIES

Traumatic Lumbar Hernia - A series of three cases

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ABSTRACT

INTRODUCTION

Lumbar Hernias are quite uncommon as compared to other ventral hernias and constitute less than 1.5% of all abdominal wall hernias. Traumatic Lumbar hernias are still rarer and constitute about 25% of all Lumbar Hernias. Only 66 cases of Traumatic Lumbar Hernias have been reported so far in literature.

The most common cause of Traumatic Lumbar Hernia is blunt abdominal trauma associated with crush injuries or vehicular accidents (71%). Traumatic Lumbar Hernias presents most commonly through the Inferior Lumbar triangle or Triangle of Pettit (70%).

Delayed diagnosis is not uncommon as nearly a quarter of these cases are missed at time of initial presentation. These hernias are best managed surgically whether open or laparoscopic.

AIMS

Being a very rare type of abdominal wall hernia, it is very difficult to diagnose and manage. So, the aim of the study is to study about the incidence, aetiology, symptomatology and management of Traumatic Lumbar Hernia.

METHODS

A study of 3 cases of Traumatic Lumbar hernias operated by a single surgeon in last 10 years is being presented here. All the three cases were diagnosed a bit late, about 4 months - 5 months after the initial injury, during the recovery period. Two of them had vehicular accident while one fell from the roof of her house from 1st story. All the three cases were repaired with open hernioplasty using a soft prolene Mesh.

CONCLUSION

Traumatic Lumbar Hernia is a relatively very rare type of abdominal wall hernia which appears after a severe blunt injury abdomen.

This should always be kept in differential diagnosis of any swelling developing in Lumbar region post blunt trauma abdomen.

CECT abdomen should always be done to confirm the diagnosis, and this also allows the diagnosis of other abdominal organ injuries.

Operative treatment, open or laparoscopic is the treatment of choice.

KEYWORDS

Lumbar hernia; Traumatic lumbar hernia; Superior lumbar hernia; Inferior lumbar hernia; Blunt abdominal trauma

INTRODUCTION

Lumbar Hernias represent rare hernias through defects of the parietal abdominal wall in any area of Lumbar region accounting for <1.5% of all the abdominal wall hernias. Only about 300 cases have been reported so far [1]. This may be congenital (20%) or Acquired (80%) [2].

The congenital hernias are discovered in infancy and are due to defects in the musculoskeletal system. These hernias may be associated with other congenital malformations.

The Acquired hernias may be Primary (55%) or Secondary (25%). Primary Acquired hernias are spontaneous without a causal factor such as infection or trauma. Risk factors for primary lumbar hernias include the age, extremes of body habitus, quick weight loss, chronic diseases, muscular atrophy, chronic bronchitis, wound infection, postoperative wound sepsis and strenuous physical activities.

Secondary Acquired Lumbar hernias may be caused by blunt, penetrating or crushing trauma (most commonly seat belt or handle bar injury [3]), fracture of iliac crest, surgical lesions, hepatic abscess, Infection in pelvic bones, ribs or lumbodorsal fascia, or infected retroperitoneal hematoma. Only about 66 cases of Traumatic Lumbar hernias have been reported so far [2].

Common age group is 50 years - 70 years.

Contents of lumbar hernia sac may includes: Bowel (Stomach, Small gut, Large gut), Omentum, Ovary, Spleen and rarely Kidney

MATERIALS AND METHODS

We are presenting a series of three cases of Traumatic Lumbar Hernias operated by a single surgeon in last 10 years (2012 to 2022). Two of them (one male and one female) had vehicular accident as the primary injury while one female patient fell from the roof of her house (1st story) sustaining multiple visceral and bony injuries for which they were managed accordingly. All the three noticed during their recovery period after about 4 months - 5 months of injury, a gradually increasing swelling in left lumbar region which was later diagnosed as traumatic lumbar hernia.

All lumbar hernias were traumatic, hence classified as secondary acquired lumbar hernias.

All the three cases were managed by Open Lumbar Hernioplasty.

RESULTS

The male: female ratio of the patients was 1:2.

All the patients had left sided hernia

Age group 36 years - 69 years

Average hospital stay was 4 days

Average duration of surgery was one hour and fifty minutes.

No severe postoperative complication was seen. Second patient had developed a seroma which was absorbed gradually in about 3-months' time.

DISCUSSION

Lumbar hernias are quite uncommon as compared to other ventral abdominal wall hernias accounting for <1.5% of all abdominal wall hernias with fewer than 300 cases reported so far over the past 300 years [1]. About 25% of all the Lumbar hernias have a traumatic aetiology [4]. Lumbar hernias are more common in males than females. Common age group is 50 years - 70 years.

Most traumatic lumbar hernias are caused by blunt abdominal trauma, usually seat belt or handlebar injury [3]. Blunt trauma causes a sudden rise in intra-abdominal pressure which can rupture the muscles of the abdominal wall. Traumatic hernia generally occurs in areas that are anatomically weak like Lumbar and Inguinal areas [5].

Acute traumatic hernias usually do not have peritoneal sac and their edges are not limited to the predefined anatomical landmarks [6]. Traumatic hernias are often overlooked because most are asymptomatic, and the physician may be focussed on other serious injuries.

Classification

Based on aetiology, Lumbar hernias may be classified as (a) Congenital 20% and (b) Acquired 80%. Acquired may further be classified into (1) Primary (Spontaneous) 55% and (2) Secondary 25% which most of the time is traumatic. Rarely it may be Post infection or post-surgery.

Based on anatomy Lumbar hernias may be classified into (a) Superior Lumbar hernia (b) Inferior lumbar Hernia and (c) Diffuse Lumbar Hernia.

Superior Lumbar Hernia, usually is Primary Lumbar Hernia and protrudes through superior Lumbar triangle which was first described by Joseph Grynfeldt in 1866 and is bounded anteriorly by posterior border of Internal Oblique, posteriorly by anterior border of Latissimus dorsi and Quadratus Lumborum and base is formed by 12th rib. This. Superior Lumbar hernia is usually more common, larger and deeper than Inferior Lumbar Hernia [7].

Inferior Lumbar hernia is usually secondary (traumatic) and protrudes through inferior lumbar triangle [2] which was first described in 1783 by Jean Louis Petit and is bounded anteriorly by the posterior border of External oblique, posteriorly by Latissimus dorsi and inferiorly by the Iliac crest which is forming the base of the triangle.

Diffuse Lumbar hernias may present through any part of Lumbar region excepting the lumbar triangles.

Based on contents of the hernia sac (Thorek classification) [8] Lumbar hernias can be classified into-

- A. Extraperitoneal - containing no sac i.e. no peritoneum
- B. Paraperitoneal - viscera are passing through the defect with peritoneum adherent
- C. Intraperitoneal - complete peritoneal sac herniating through the defect

Clinical Presentation

The most common clinical manifestation of Lumbar hernia is a palpable mass, gradually increasing in size and becomes prominent on coughing or doing any strenuous activity, is usually reducible and disappears when the patient lies down i.e., minimum intra-abdominal pressure.

Most of the times it remains asymptomatic, but sometimes non-specific symptoms appears like abdominal discomfort, fatigue, back pain along the sciatic nerve distribution areas. If it is associated with bowel obstruction, the nausea, vomiting, distention abdomen, palpable mass may be present. If hernia contents are renal, then urinary symptoms like hematuria, oliguria and colicky pain may appear [9].

Lumbar hernias are prone to incarceration and strangulation [10] but strangulation is rare because of wide neck [11].

Location and size of lumbar hernia have no specific features. For Primary spontaneous hernia, the most common site is superior lumbar triangle whereas for the secondary traumatic lumbar hernia, commonest site is the Inferior Lumbar triangle [2].

Patients with traumatic Lumbar Hernia can present with a variety of symptoms including posterolateral mass, back pain, abdominal colic or pulling sensation along the flank, bowel obstruction (if contents contain bowel), urinary obstruction (if contents contain kidney or ureter).

The range of pathology that may mimic Lumbar Hernia include - Lipoma, soft tissue retroperitoneal tumor, Renal tumor.

Irreducible or strangulated hernia are difficult to diagnose because they mimic with hematomas or abscess.

Diagnosis

Clinical diagnosis of Traumatic Lumbar Hernia is difficult due to its rarity, diversity and non-specificity of symptoms. Besides diagnosis is elusive particularly in obese individuals or in postsurgical patients.

The diagnosis of Lumbar Hernia is initially clinical, however the use of imaging to both diagnose and describe Lumbar Hernia is becoming more common.

Commonest investigation to diagnose Lumbar hernia is CT. The sensitivity of CT scan is approximately 98%. CECT is useful to delineate the herniated bowel segment. CT may accurately distinguish the membranes and the fascial layers, detect the presence of hernia defect in these layers, visualize the herniated fat or viscera and differentiate a hernia from a hematoma or abscess or a soft tissue tumor [12].

MRI is also useful in confirming the hernia defects [13].

Lateral or oblique radiograph of Lumbar region may show gas filled bowel loops lying outside the abdominal wall.

USG may fail to demonstrate the hernia due to low index of suspicion and presence of fat.

Intravenous urogram may be performed to visualize displacement of kidney or ureter into the hernia.

Management

The goal of hernia repair is to eliminate the hernia defect and to construct an elastic and firm abdominal wall that will withstand the stress of daily physical activities.

The treatment of choice of Traumatic Lumbar Hernia is the surgical management – whether open or Laproscopic.

The traumatic Lumbar hernia is always associated with other abdominal/visceral and extra abdominal including bony injuries. So, these injuries are to be managed in emergency at the time of injury. Most of the time this traumatic lumbar hernia is noted by the patient about 3 months - 4 months after injury during their recovery phase and since this is not an emergency, usually repair of hernia is delayed. However, these hernias should be repaired as early as possible as repair in advanced cases is comparatively more difficult [1].

The Laparoscopic repair should be considered in smaller size hernias, whereas open repair should be preferred for larger hernias which are associated with various morbidities such as wound pain or surgical site infection [14]. The laparoscopic approach has the advantages of being minimal invasive. However, it does not allow the parietal reconstruction or repair under controlled tension. [15] and there always remains some lumbar bulge despite of laparoscopic repair which patients do not want and that is why some surgeons have started using hybrid repair. No such bulge remains in open repairs.

Anterior repair is appropriate for repairing recurrent or large hernia defects with a double mesh (sublay and onlay) or a gluteus maximus aponeurosis flap [16]. Laparoscopic repairs have been used successfully in different repairs with less pain, short hospital stay and good cosmetic and functional results. In general, both open and laparoscopic repairs can be used with good results [3].

All existing repairs of lumbar hernia have used the synthetic mesh. Synthetic mesh has been associated with complications including infection, bowel obstruction, fistula formation. Using a synthetic mesh in a contaminated wound is contraindicated secondary to high infection rate and recurrence. Some use biosynthetic mesh to repair traumatic lumbar hernia, which has a higher likelihood of contamination or infection secondary to traumatic etiology.

CONCLUSION

To conclude, Traumatic Lumbar Hernia is relatively very rare. It should always be suspected in cases of patients having high energy injuries to the torso area. CECT whole abdomen including pelvis should always be done in all the suspected cases who are hemodynamically stable. Hernia repair should always use prosthetic mesh to prevent recurrence, although biological mesh may be used in contaminated cases.

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Consent to Publish (Ethics)

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Author Contributions

Corresponding author is the main author but 2nd author has also contributed in surgery and taking care of patient. 3rd and 4th author has contributed in imaging.”

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