

## Management of Complex Paramedian and Lumbar Hernias – An Experience of 10 Difficult Cases

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**Abstract:** Lumbar Hernias have always been difficult to manage because of nonavailability of anchoring points and poor fascial support. Every surgeon gets many such complicated cases in his career and if one is not versed with the complexities of lost fascial planes & severely scarred abdomen then management of hernias in such a deranged anatomy becomes very difficult. We have had a vast experience in managing complex ventral and lumbar hernias over the last 2 decades, we have decided to review 10 recently operated cases of complex paramedian and lumbar hernias in surgical ward 6 & 7 of Guru Nanak Dev Hospital, Amritsar in the last one year. Midline and inguinal hernias were excluded and so were the defects smaller than the 6cms. What prompted us to share our experience of managing such cases was that the cases that we dealt with had extra ordinary presentation and almost all the cases were refused at other centers. Fortunately, the results of all the 10 cases were satisfactory and all the patients have returned to their daily activities so far. The repair of such large defects was made possible by applying the simple dynamics of the body tissues and their anatomical disposition in relation to the defect.

**Keywords:** management; complex; lumbar hernia; paramedian hernia

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### I. Introduction

What's a complex lumbar hernia (CLH)?

A complex lumbar hernia is very difficult to define. Keeping in mind our previous experience with Complex Ventral Hernias (CVH), we decided to put its definition in the right perspective. A lumbar hernia is defined as complex if

1. The size of the defect is > 6 cms
2. The defects are more than one.
3. The lumbar region is badly scarred with thinning of skin.
4. The abdomen is badly traumatised with loss of anatomical landmarks.
5. The hernia occurs in a previously pedicle grafted or grafted area.
6. The hernia is recurred or re-recurred.

Lumbar hernias are relatively rare.

Lumbar hernias can occur anywhere within the lumbar region but are more common through the superior lumbar triangle (of Grynfeltt-Lesshaft), an inverted triangle bounded by 12th rib, erector spinae and the posterior border of the internal oblique muscle. The inferior lumbar triangle (of Petit), bounded by iliac crest, posterior border of external oblique and the anterior border of latissimusdorsi is the next most frequent site. The management of such patients constitutes a surgical challenge. Clinical diagnosis of this entity is difficult due to non-specific symptoms. The diagnosis is particularly elusive in obese individuals or in post-surgical patients. Lumbar hernias were traditionally defined as defects in the lumbar region either after surgery or trauma but complex hernias have now been defined as a separate entity because the dynamics of management of all such patients is different. The lumbar region is broadly bounded by the costal margin superiorly, iliac crest inferiorly, lateral border of erector spinae posteriorly and lateral border of rectus sheath anteriorly. This area is conspicuous by the absence of any fascial tissue of strength like the rectus sheath and median raphe in the midline and the only support to this region is by the strong muscles and their flimsy sheaths. Due to this indigenous weakness coupled with traumatic disruption of the support mechanism in this region, it becomes a challenge to manage defects in this region especially when no areas of strength and integrity are available in immediate vicinity. The lost anatomical landmarks and intensive scarring makes the dissection and definition of planes virtually

impossible. The advent of prosthetic material like polypropylene mesh has been a boon in the management of such seemingly unmanageable defects and in lumbar region

**THREE POINT FIXATION** of this mesh has to be emphasized. That means after defining the defect and reducing the contents, the mesh has to be fixed to atleast three out of four vantage points defined as the boundaries of lumbar area. The whole idea of sharing this experience of 10 cases is to emphasize on the sheer evasive approach of many surgeons just because the surgeries are less rewarding and time consuming.

#### **PATIENT AND METHODS:**

##### **PATIENT SELECTION:**

In this study 10 cases of complex paramedian and lumbar hernias were retrospectively reviewed irrespective of age and sex who had been operated in the year 2015-2016 in Govt. Medical College Amritsar in Surgical ward-6 and 7. Inguinal hernia, umbilical hernia or any other type of congenital hernia were not included in the study. Divarification of rectus muscle was excluded from the study. All the patients had some sort of surgery in the past after which they developed hernia at the incisional site. Hernial defects less than 6 cm were excluded.

##### **IMAGING:**

All the patients were subjected to preoperative USG/CT scan to rule out strangulation, incarceration or bowel adhesion.

##### **MATERIALS USED:**

In all the patients prolene mesh and prolene sutures were used.

##### **POST OP MANAGEMENT:**

All the patients were given post op antibiotics in the form of 3rd generation cephalosporins and linezolid for 7 days.

Stitch removal was done on 14th post operative day.

##### **FOLLOW UP:**

Minimum follow up period was of 6 months.

Maximum follow up period will be of 1 year.

##### **OBSERVATIONS:**

Lumbar hernias occur more commonly in males and are twice common on the left than on the right side. Patients are usually between 50 to 70 years old. About 25% of all lumbar hernias have a traumatic etiology. This may be post-surgical or following blunt injuries associated with intra-abdominal injuries. Though rare defects, lumbar hernias are prone to incarceration and strangulation in only 25% of the cases.

Table 1 shows the size of the defect in cms noted in the study. Out of 10 patients, 2 patients had multiple defects, 1 had defect more than 10cms, 1 had a defect more than 20 cms and rest had defect in the range of 6-10 cms. Table 2 shows the site of the lumbar hernias. Out of the 10 patients, 3 patients had a defect in paramedian region, 3 in lumbar region, 2 in right upper quadrant and 1 in right lower quadrant and one large defect in posterior region where a pedicledmyocutaneous flap was used to cover a defect. Table 3 shows the patients who had seroma formation in their wound and partial removal of the mesh. Out of 10 patients, 3 had significant seroma formation which is understandable because of the extent of subcutaneous or subfascial dissection. In one of the cases, mesh had to be removed partially because of an open wound and persistent discharge. As the mesh was removed in bits and pieces, there was enough fibrotic reaction around to stabilize the defect. Table 4 shows the size of the mesh used in cms. Out of the 10 patients, the size of the mesh used was >15 cms in 6 cases and of <15cms in 4 cases. Fig 3 and 4 shows preoperative and intraoperative pictures of management of lumbar hernia left side.

## **II. Discussion**

Hernias and their management have evolved over the centuries ever since the advent of Surgery. The turn of century has seen all kind of innovations in the management of this age old malady starting from the simple guillotine of the bulge to ultramodern and minimal invasive sealing of the defect by ever changing prostheses. The principles of management of hernia are being defined and redefined in light of the modern day availability of minimal invasive equipment. The emphasis of this study is to bring to light the difficulties in the management of impossible looking defects in a lost anatomy. Lumbar hernias were recognized as an entity more than 3 centuries ago. P. Barbette in 1672 was the first to suggest the existence of lumbar hernias<sup>7</sup> but since these were not associated with complications, not much was researched for their management. It took the over half a century for anything to be published with regards to lumbar hernias. It was R.J.C. Garangeot in 1731 who took

the lead to publish lumbar hernias. Although a rare complication, H. Ravaton in 1750 performed the first surgical treatment of a strangulated lumbar hernia in a pregnant woman. Lumbar hernias usually follow an anatomical pattern and two definitive triangles of weakness were identified. Petit in 1783 described the anatomical limits of inferior lumbar space. Grynfeldt in 1866 described the superior lumbar space. Goodman in 1916 pointed out the predominance of the inferior space as the most common site of lumbar hernias. Watson stated that superior or grynfelt triangle has an inconsistent morphology[1] but significant landmark for weakness in the integrity of lumbar area. Till late nineties, Hernia repairs were done by an open method until Heniford et al used laproscopic repair for a primary lumbar hernia in 1997[2]. Burick et al first described laparoscopic repair of an acute lumbar hernia secondary to trauma[3]. It was Meinke 2003[4] who advocated extra peritoneal repair of lumbar hernias while Moreno et al[5] published controversies in relation to the definition and management of lumbar hernias. In 2008, Armstrong et al described the anatomy of the two orifices of the abdominal posterior wall where lumbar hernia could appear i.e. Petit's and Grynfeldt's triangle[6] (Fig. 1 and Fig.2). Although laparoscopy is the mainstay of treatment in surgery today but it must be emphasized here that its better to practice an open technique in a badly scarred abdomen with loss of anatomy rather than courting complications due to constraints of laparoscopy (Fig.3). Lumbar hernias have been classified as congenital (20%) or acquired (80%). If acquired, they may be primary (55%) or secondary following trauma, surgery or inflammation (25%). Patients are usually asymptomatic but may complain of backache, flank pain or a dragging sensation. These hernias have a natural history of a gradual increase in size over time and may assume large proportions[7]. The differential considerations at this stage include lipoma, soft tissue tumors, hematoma or abscess. The hernia may contain retroperitoneal fat, kidney, colon or less commonly small bowel, omentum, ovary, spleen or appendix. On auscultation, bowel sounds may be audible over the swelling if the hernia contains bowel loops. In obese patients detection of a mass is particularly difficult. Bowel incarceration occurs in 25% but strangulation is rare because of wide hernial neck.[8] Currently, the Rives Stoppa approach appears to be the most promising open technique, with comparatively low recurrence rates. However, this technique performed in tissue that is already of poor quality has led to a complication rate of up to 20% involving the wound, exposure and infection of the mesh, fistula formation, and other problems.[9,10] Repairing a large hernia defect is difficult, because: (1) The viscera in the sac stick to its wall, and in freeing them you may damage gut. (2) There are usually several loculi, divided by fibrous septa. (3) The sac often extends to the skin. (4) You have to raise flaps, under which blood and exudate can collect and become infected postoperatively. Minimize this risk by closing the dead spaces under any flaps you make, as best you can. The goal of hernia repair is to eliminate the defect and to construct an elastic and firm abdominal wall that will withstand the stress of daily physical activities. A lumbar hernia should be repaired surgically, as it is prone to both obstruction and strangulation. A wide variety of techniques have been described for repair of lumbar hernias. These include anatomical closure, overlapping of the aponeuroses, use of musculofascial flaps, prosthetic meshes and laparoscopic mesh repair in case of uncomplicated lumbar hernias.

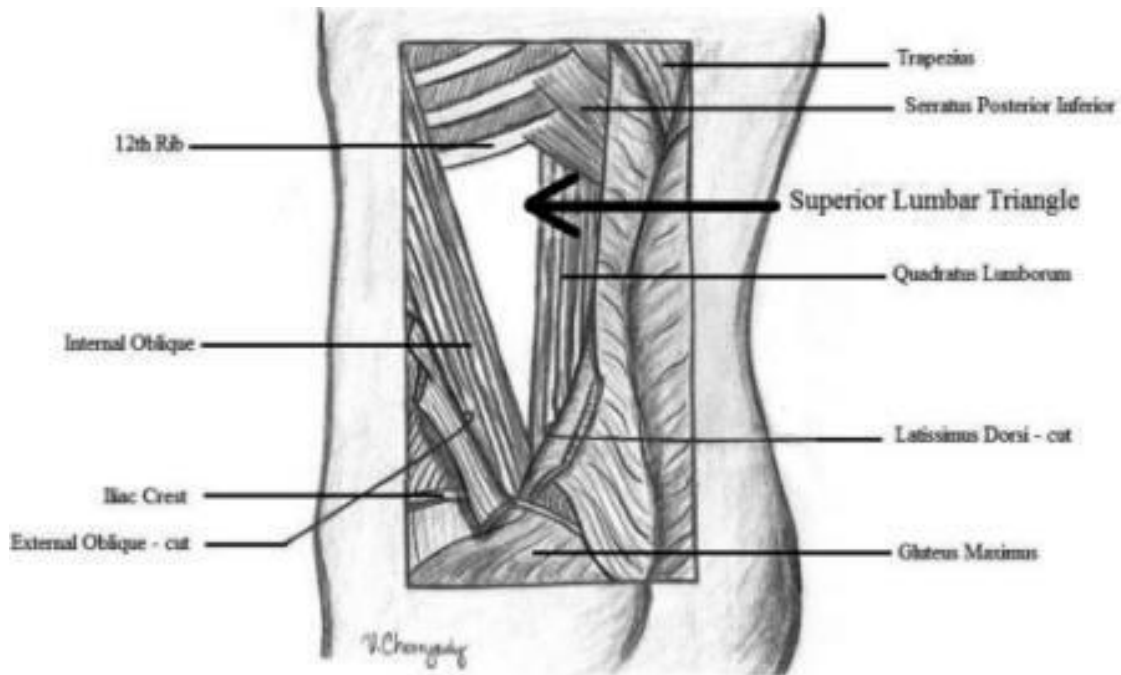
### **III. Conclusion**

The management of Complex lumbar hernias (CLH) just like complex ventral hernias (CVH) is a time consuming process with a chance of recurrence or inadequate repair. All the 10 cases under the study were treated with the standard 3 POINT FIXATION of mesh and it was only in one case that the mesh had to be removed partially in bits and pieces but this patient recovered well, without any recurrence 6 months down the line. So it can be safely concluded that Complex Lumbar Hernias are manageable if we keep the anatomy of the areas of strength in mind. The 4 boundaries of lumbar region have been defined as the anatomical areas of strength and depending upon the sight of hernia, the mesh can be fixed to three out of 4 points so that adequate mobility of the patient is not compromised. All the potential sites of collection should be adequately drained and kept in situ till rendered dry. Needless to say that utmost asepsis needs to be practiced while managing postoperative wound care.

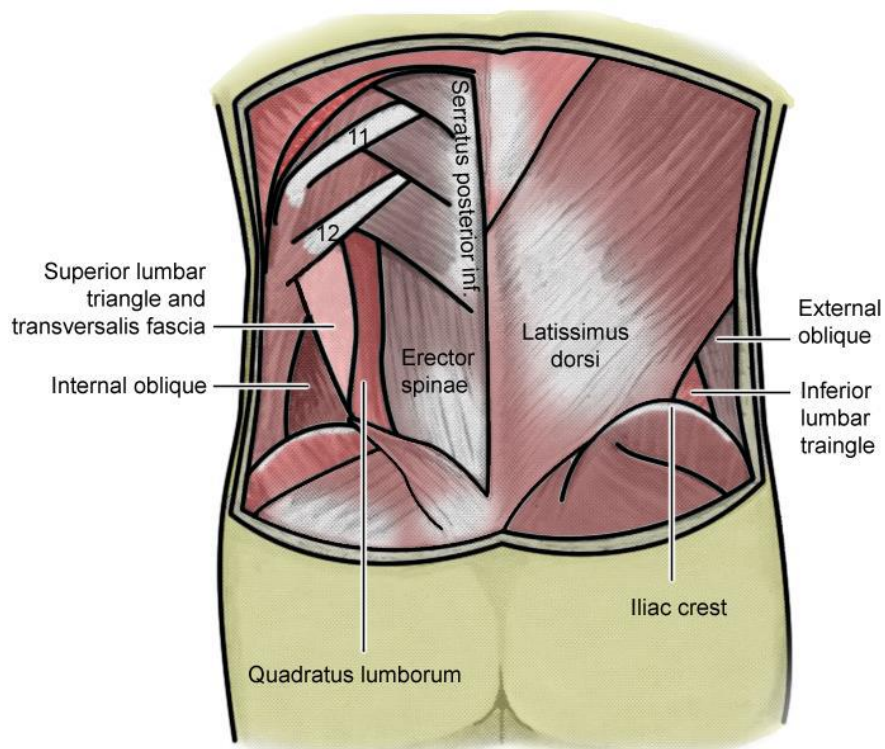
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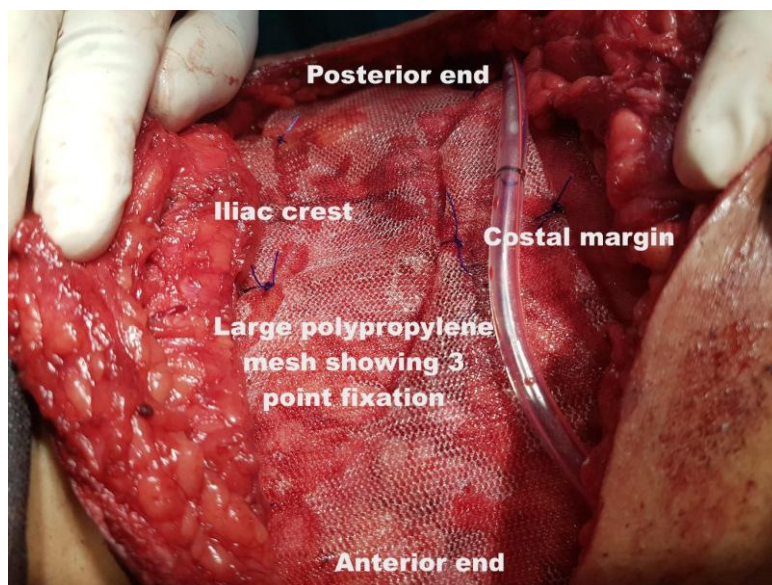
**Fig 1 – Petit triangle**



**Fig.2 Grynfeldt and Petit's triangle**



**Fig. 3** showing a case of large lumbar hernia (left side)



**Fig 4** operative picture showing 3 point fixation

**Table 1:** Showing Size Of Defect

Size of defect (cm)	No. of cases	%age
6-10	6	60
11-20	1	10
>20	1	10
Multiple	2	20
Total	10	100

**Table 2:** Showing Site Of Defect

Site of defect	No. of cases	%age
Paramedian	3	30
Lumbar	3	30
Posterior	1	10
Right upper quadrant	2	20
Right lower quadrant	1	10
Total	10	100

**TABLE 3** (Showing complications)

Seroma	positive	negative
	3	7
Partial mesh removal	yes	no
	1	9

**Table 4:** Size Of Mesh Used (cm)

Size of mesh	No.	%age
<15 cm	4	40
>15 cm	6	60
Total	10	100

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