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INFERIOR LUMBAR TRIANGLE HERNIA: CASE REPORT

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SUMMARY

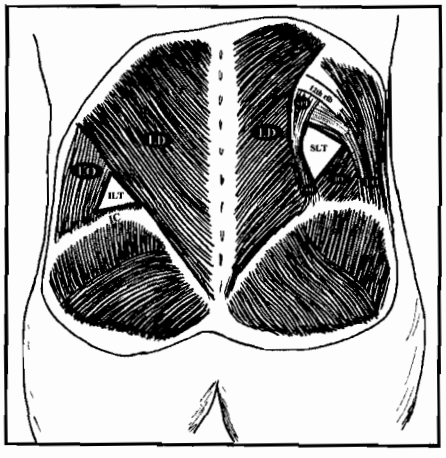
A patient with a spontaneously acquired hernia along the inferior lumbar triangle commonly referred to as lumbar triangle of Petit is presented. This was confirmed on CT scan and successfully treated surgically. A review of the literature relevant to this condition is presented. It is likely that with advances in imaging techniques and a wider clinical usage of these investigative modalities there will be further recognition of this uncommon condition.

INTRODUCTION

Lumbar hernias represent rare herniations through defects of the parietal abdominal wall in any area of the lumbar region. The lumbar region is a broad anatomical area bounded superiorly by the twelfth rib, medially by the vertebral column and the erector spinae muscles, inferiorly by the iliac crest and laterally by the posterior border of the external oblique muscle as it extends from the tip of the twelfth rib to the iliac crest.

Figure 1

Diagrammatic representation of superior and inferior lumbar hernia



Key:
SU – Superior lumbar triangle
SLT – Inferior lumbar triangle
LD – Latissimus dorsi
EO – External oblique
SPI – Serratus posterior inferior
QL – Quadratus lumborum
IO – Internal oblique
IC – Iliac crest

Specifically, the inferior lumbar triangle is formed by the crest of the iliac bone forms the base of the triangle; the lateral and medial borders are formed by the posterior free margin of the external oblique muscle and lateral free border of the latissimus dorsi muscle, respectively. The floor of the triangle is composed of the lumbodorsal fascia, contiguous with the aponeurosis of the internal oblique and transversus abdominus muscles.

These hernias include the hernias of J.L. Petit (along the inferior lumbar triangle), the hernia of Grynfeltt (along the superior lumbar triangle) and diffuse lumbar hernia through musculo-fascial defects following abdominal incisions and blunt trauma to this area(1).

Up to 95% of these hernias occur in either the superior or inferior lumbar triangle with the remaining 5% being described as diffuse(2). In a review of the subject, the superior lumbar triangle represented the more common location of lumbar hernia defects(3). To date, less than 300 cases have been reported in the English literature(4). In this report, we present a patient with a spontaneously acquired hernia along the inferior lumbar triangle commonly referred to as lumbar triangle of Petit.

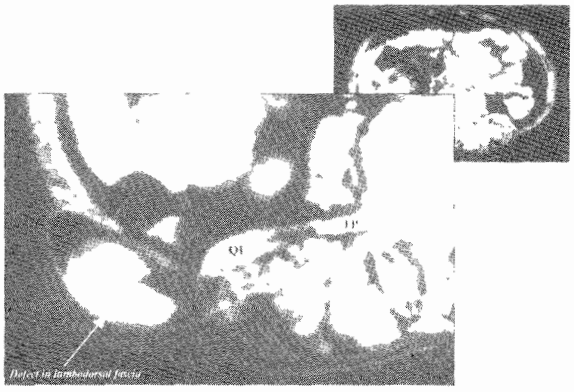
CASE REPORT

A 56-year-old male patient presented with a 3-year history of a swelling in the left lumbar region. The swelling had progressively increased in size and was associated with a dragging pain along the left loin; this had affected his mobility. No alterations in bowel habits were noted. The patient was a known chronic asthmatic. On examination, he was noted to be in a satisfactory general condition. Bronchospasms were noted on auscultation of both lung fields. Examination of the left lumbar region, revealed a cystic, mildly tender lump (10 x 5 cm) that was readily reducible on manipulation, where-upon a defect was palpable

in the postero-superior iliac region. An enhanced computer tomograph of the lumbar region (Figure 2) confirmed the presence of a lumbar hernia. At surgery the diagnosis of the hernial contents were noted to include the descending colon and extra-peritoneal fat (Figures 3 a, b).

Figure 2

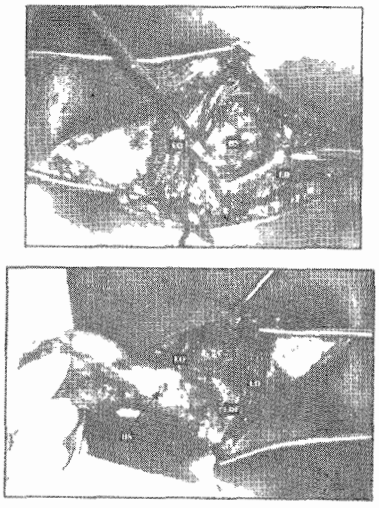
Computerised tomography of lumbar region (Arrow depicts hernial sac containing contrast laden descending colon)



Key:
TP – Transverse process
QL – Quadratus lumborum

Figure 3

Operative findings – inferior lumbar hernia. Note: (a) Lumbodorsal fascia of floor of inferior lumbar triangle flanking aponeuroses of internal oblique and transversus abdominis muscles (b) Hernial contents (arrow)



Key:
EO – External oblique
LD – Latissimus dorsi
HS – Hernial sac
LDF – Lumbodorsal fascia

Table 1

Incidence of inferior lumbar hernia

Author	Sample size	Incidence (%)
Lesshaftt (1870)[15]	143 case reports	143(100)
Owen (1888)[16]	1 case report	–
Bull (1894)[17]	1 case report	–
Raymond and Maisonneuve (1897)[18]	1 case report	–
Jones(1902) [19]	1 case report	–
Lejars (1905)[20]	1 case report	–
Dowd (1907)[21]	1 case report	–
Rishmiller (1917)[22]	1 case report	–
Turner (1917)[23]	1 case report	–
Hancock (1920)[24]	1 case report	–
Sias (1937)[25]	1 case report	–
Pavcovich and Faya(1942)[26]	1 case report	–
Kapinsow (1943)[27]	1 case report	–
Stubenbord (1944)[28]	1 case report	–
Adamson (1958)[29]	1 case report	–
Hafner *et al* (1963)[30]	9 case reports	2(22.2)
Harry and Light (1983)[31]	20 case reports	20(100)
Horovitz *et al.* (1986)[32]	1 case report	–
Lawdahl *et al.* (1986)[14]	1 case report	–
Lichtenstein (1986)[33]	1 case report	–
Heniford *et al.* (1997)[2]	1 case report	–

A prosthetic graft facilitated repair of the hernial defect. The patient made an uneventful postoperative recovery. Five months following surgery, he remains asymptomatic.

DISCUSSION

Clinical Anatomy: The anatomical boundaries of the inferior lumbar triangle, as described by Petit, is an upright triangle, less consistent in size and shape than the superior lumbar triangle. Once this anatomic anomaly became recognised, reports of inferior lumbar triangle hernias began to appear in the literature (Table 1). The inferior lumbar triangle is noted in mainly adults rather than children.

According to Florer and Kiriluk(5), in 108 adults and 35 infant dissections in cadavers, the inferior lumbar triangle was present in 77% of the adults and 25% of the infants. Goodman and Speese(6) found this space evident in 63% of tall and muscular patients; however, the well developed latissimus dorsi on the equally well developed external oblique muscle narrows this defect. Conversely, Light(7) emphasized that women with wider pelvises demonstrated the lateral displacement of the origin of the external oblique muscle; this, with the more medial portion of the latissimus dorsi, predisposes to the development of the inferior lumbar triangle. It is apparent that when the borders of the latissimus dorsi and external oblique muscles are

contiguous, this potential hernial space is obliterated. The lumbosacral fascia, which is contiguous with the aponeuroses of the internal oblique and transversus abdominus muscles, forms the floor of the triangle. In addition to the attenuated internal oblique muscle predisposing to hernia, most authors agree that a weak point (Hartmann's Fissure) is present at the apex of the triangle that expedites the herniation process. Furthermore the blood vessels and the cutaneous branch of the last three lumbar nerves that pierce the floor of the inferior lumbar triangle allow for the development of small apertures that may also potentiate herniation (7,8).

Herniation through this triangle has variously been described by various eponyms in surgical anatomy texts viz. the Petit lumbar hernia, hernia of Petit triangle, suprailiac hernia of Huguier and lumboiliac abdominal hernia(1). However, the first suggestion of an inferior lumbar triangle hernia has been attributed to Budgen(9). Furthermore, Ravaton, in 1750(10), reduced a strangulated inferior lumbar triangle hernia in a pregnant woman. These reports preceded Petit's(11) description of the anatomical boundaries of the inferior lumbar triangle and his report of a patient with a strangulated hernia through this defect. This information confirms the dilemma with the continued use of eponyms.

Classification of lumbar hernia: Given its rarity, it is not possible to provide a simple classification for lumbar hernias; to some extent this has been compounded by the longstanding practice of not distinguishing superior lumbar triangle from inferior lumbar triangle hernias. Prior to Grynfeltt's description(12), the superior lumbar triangle, all posterior abdominal wall hernias were believed to originate from the inferior lumbar triangle. Invariably, the criteria for classification included the site, contents of the hernia and aetiological factors. Thorek(13), whose classification is widely used, proposed three categories (on the basis of hernia contents) i.e.

i) extra-peritoneal i.e. containing no peritoneum (no sac)
ii) para-peritoneal i.e. viscera passing through the defect, with peritoneum adherent.
iii) intra-peritoneal i.e. complete peritoneal sac herniating through the defect.

An alternate classification is based on the aetiology of the hernia; the major categories are congenital and acquired. Acquired hernias may be primary or secondary; primary herniation occurs spontaneously and is predisposed in the elderly, in the overweight and those with chronic lung disease such as bronchitis or asthma. Strenuous physical activity has also been suggested to predispose to herniation. Secondary herniation follows trauma (blunt or penetrating), abscess or a surgical procedure in this region(8). It has been proposed that all lumbar hernias that occur in infants and children, with defects of the musculo-skeletal system in the lumbar area, be classified as congenital hernias.

Clinical Consideration: Because lumbar hernias in general are rare, most masses in this region prove not to be hernias. Typically patients present with a bulge in the superior iliac region, posteriorly, associated with low back pain, abdominal colic or a pulling sensation along the flank. The range of pathology that may mimic a lumbar hernia include lipoma and soft tissue retro-peritoneal tumours, a renal tumour and pannicular lumbosacral hernia (herniation of subfascial fat through lumbodorsal fascial defects). Irreducible or strangulated hernias are particularly difficult to diagnose because they mimic a haematoma or abscess. Unlike the case presented, lumbar hernia may be difficult to diagnose by physical examination; this is particularly so in obese individuals, when the hernias are small or contain only fat. Computerised tomography, is invaluable in making the diagnosis. With the increasing availability of computerised tomography and similar diagnostic modalities, it is conceivable that more cases of lumbar hernia may be diagnosed.

In conclusion an appreciation of the surgical anatomy of the lumbar triangles will alert the surgeon to the correct diagnosis and prompt the appropriate treatment of herniation through these long recognised spaces. In cases of diagnostic ambiguity, computerised tomography will readily confirm the diagnosis.

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