

## Lumbar hernia: An unusual abdominal hernia: A case report and review of literature (radiological perspective) in a tertiary center in south-south Nigeria

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### Abstract

Lumbar hernias are unusual abdominal wall defects involving the posterolateral abdominal wall: the superior lumbar triangle of Grynfelt, which is the most common site, and the inferior lumbar triangle of Petit. They are located between the muscular layers of the abdominal wall and can be easily ignored because of abdominal obesity. In general, it is difficult to diagnose because of their unclear non-specific symptoms. However, radiographic studies have been valuable in confirming the diagnosis.

The introduction of ultrasonography and computed tomography (CT) has greatly improved the diagnosis of lumbar hernia. Following the establishment of the diagnosis, operative management is indicated due to chance of incarceration.

Our case study is an 80 years old man who presented to the Radiology department for an emergency abdominal ultrasound scan investigation on account of abdominal pain/abdominal swelling on the lateral aspect of the right flank of about 5 days as explained by his relative. The abdominal ultrasound shows a hyperechoic mass in the right flank that extends through a defect in the transversus abdominis muscle. This mass measures 5.3x4.9cm and shows no flow on Doppler interrogation. Note mild fluid collection seen surrounding the mass. Also note marked subcutaneous oedema. Another imaging modality was employed; non contrast computed tomography and shows a lateral abdominal wall defect in the right lower internal oblique with sac containing bowel loop and omental fat. Other visualized bowel loops are normal in caliber and wall thickness.

**Keywords:** Lumbar Hernias; Ultrasonography; Computed tomography.

### 1. Introduction

Lumbar hernias are rare defects involving the two weak areas of the posterolateral abdominal wall: the superior lumbar triangle of Grynfelt, which is the most common site, and the inferior lumbar triangle of Petit.<sup>1-3</sup> This defect allows abdominal contents to protrude through the superior lumbar triangle, a region defined medially by the quadratus lumborum muscle, inferiorly by internal oblique muscle, and superiorly by 12<sup>th</sup> rib. Contents of this upper lumbar hernia may include retroperitoneal organs such as/which include the kidneys, and ascending or descending colon, intraperitoneal organs such as small bowel, stomach, and spleen, and retroperitoneal or omental adipose tissue.<sup>4</sup> It can be congenital or acquired; the popular of these are primary acquired hernias. Advanced age, straining due to prostate enlargement, chronic cough, muscle atrophy, multiple pregnancies or obesity, which are risk factors for increased tension, are consideration to predispose patients to the development of lumbar hernia.<sup>5</sup> Diagnosis of lumbar hernias requires a high index of suspicion, with the most frequent finding on physical examinations being a painful mass at the

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flank. A ultrasonography and /or computed tomography scan of the abdominal is helpful in confirming the diagnosis. Once diagnosed, lumbar hernias require operative repair but it can also reduce spontaneously.

### 1.1. Aim/objective

To report the existence of this rare form of hernia in our environment as well as further consolidate on the already existing knowledge of the invaluable use of computed tomography and ultrasonography in confirming the diagnosis of this rare condition.

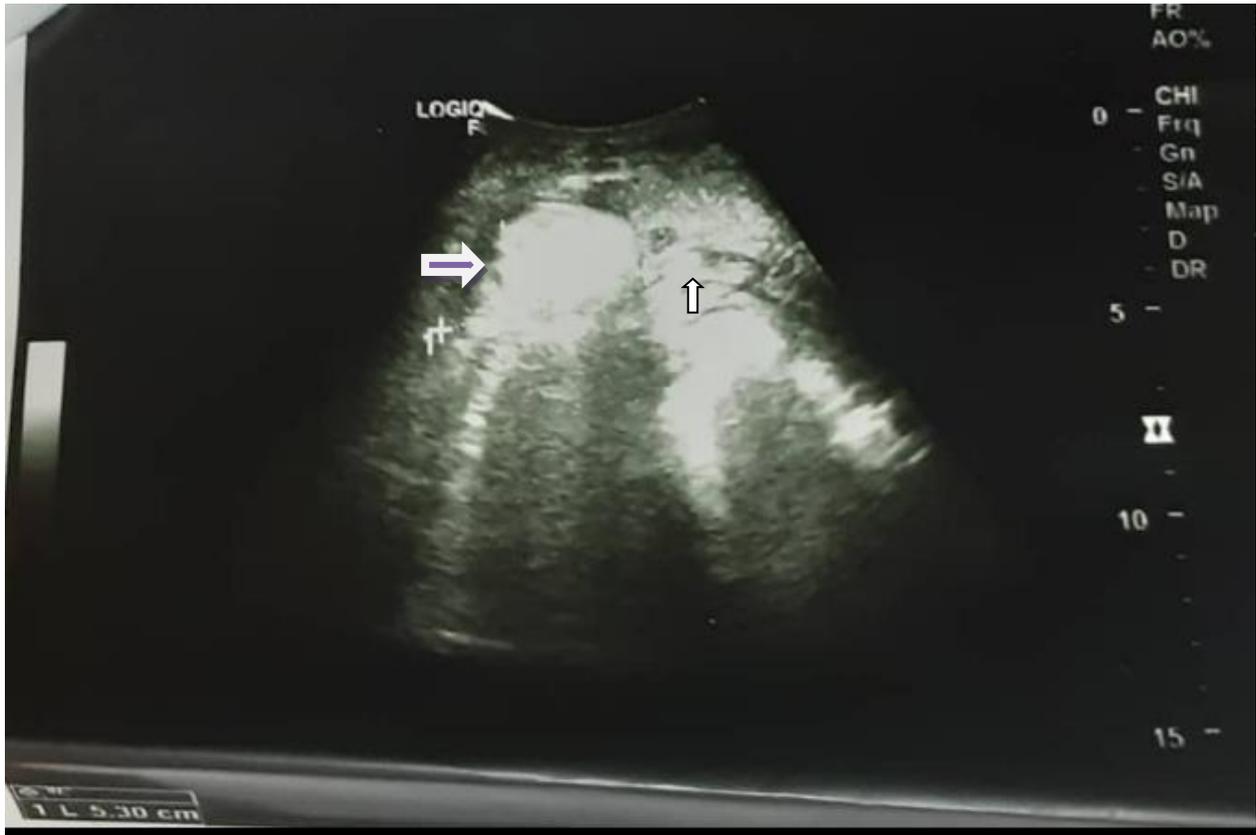
## 2. Case report

Our case study is a 80 years old man who presented to the Radiology department for an emergency abdominal ultrasound scan investigation on account of a abdominal pain/abdominal swelling on the lateral aspect of the right flank of about 5 days as explained by his relative. On physical examination, patient's been in severe pain, vital signs were normal and throughout his stay in the ultrasound/CT suite. Patient also had a prostate scan done which revealed an enlarge prostate with a volume of about 162.97ml. However, its outline and echo characteristics are normal. This could be the predisposing factor in this case study.

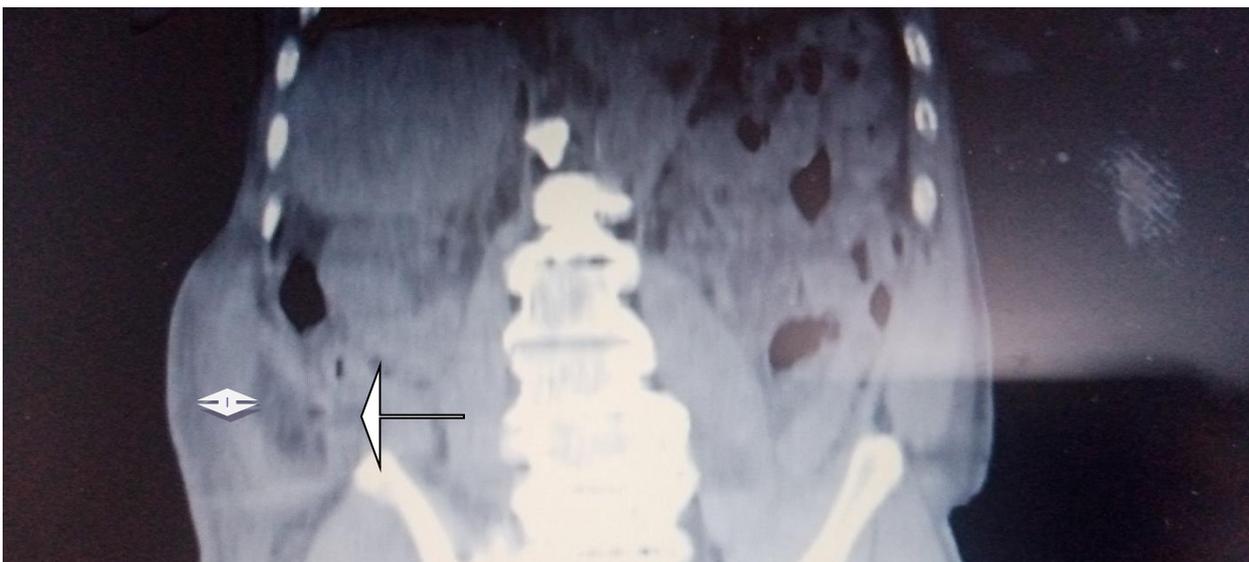
The abdominal ultrasound shows a hyperechoic mass in the right flank that extends through a defect in the transverses abdominis muscle. This mass measures 5.3x4.9cm and shows no flow on Doppler interrogation. Note mild fluid collection seen surrounding the mass. Also note marked subcutaneous oedema. Another imaging modality was employed; non contrast computed tomography and shows a lateral abdominal wall defect in the right lower internal oblique with sac containing bowel loop and omental fat. Other visualized bowel loops are normal in caliber and wall thickness.

The patient hernia reduced spontaneously.





**Figure 1** B-mode ultrasound scan of the abdomen showing the defect through the transverses abdominis muscle(white arrow) with a sac containing the bowel loop and omental fat(purple arrow), subcutaneous oedema and mild surrounding fluid is also noted.



**Figure 2** Coronal reformat non contrast enhanced ct scan of the abdomen showing the abdominal defect (slimmed body arrow) and the herniated sac(doubled edged arrow) containing the bowel loop and omental fat with associated fat stranding seen.



**Figure 3** An axial view of figure 2 image. The defect measures approximately 8.5mm as indicated by the slim arrow.

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### 3. Discussion

It is worthy of note that lumbar hernia is a rare variety of abdominal hernia and a recent review reported approximately 300 cases.<sup>5</sup> Neither the two types or forms of the lumbar hernia is the foremost diagnosis that comes to mind when a patient presents with a back mass.<sup>6</sup> Good clinical acumen is required for diagnosis which is in turn confirmed with radiological investigations especially CT scan. In its most primitive state it is simply a protrusion of preperitoneal fat through the defect. The aponeurosis of external oblique muscle anteriorly and by the transverses abdominis muscle is muscular almost to the midline in the upper abdomen posteriorly. This support prevents herniation and thus very unusual above the umbilicus. This is in supports of our case report which is located in the aforementioned location. The hernia can also be part of an extra peritoneal organ, although a peritoneal sac is found in the majority cases. If the peritoneal sac has content, it is more often than not greater omentum, small intestine, or part of colon. This agrees with our case report which contains the bowel loop and greater omentum which is hyperechoic on ultrasound and a non contrast computed tomography shows a lateral abdominal wall defect in the right lower internal oblique with sac containing bowel loop and omental fat. Other visualized bowel loops are normal in caliber and wall thickness.

Ultrasonography is a non-ionizing imaging modality and is carried out real time, scanning of the region of interest should be undertaken in all patients with obscure abdominal pain associated with bulging of the belly in the standing position

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### 4. Conclusion

This case report has shown that radiological investigations are pivotal in the management of suspicious lumbar hernias. In which ultrasonography, computed tomography (CT) can be used to confirm the diagnosis. Also magnetic resonance imaging (MRI) has a role too, however, not all centers have MRI.

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### Compliance with ethical standards

#### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

#### *Statement of informed consent*

Verbal/written consent was obtained.

*Authors contribution*

VNA- Manuscript conceptualization, reviewed the manuscript, performed and interpreted the radiological studies, CW- Reviewed and edited the manuscript, also assisted with the interpretation of the radiological studies, OI and FO- Clerk, scanned and interpreted images, reviewed and edited the manuscript.

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