

### A Case Report of a Giant Inguinoscrotal Hernia

Wai-Hun Cheah\*, Norhasiza Mat Jusoh, Husbani Mohd Amin Rebuhan

Faculty of Medicine, Universiti Sultan Zainal Abidin,  
Jalan Sultan Mahmud, 20040 Kuala Terengganu, Malaysia

[cheahwhun@unisza.edu.my](mailto:cheahwhun@unisza.edu.my)

#### Abstract

Inguinal hernia is a common surgical disease. However, giant inguinoscrotal hernia is a rare clinical condition and impose morbidity to patient[1]. This type of hernia imposes significant impact on quality of life including difficulty with mobility, scrotal skin ulceration and bowel obstruction. Besides, it is more challenging in terms of surgical management. Diagnosis of giant inguinoscrotal hernia is straight forward on clinical examination. Nevertheless, with the advent of CT scan, pre-operative contrast-enhanced CT scan is useful for ascertaining the hernia contents, its configuration and measuring the neck of hernia[2]. We report a case of a patient with extremely huge irreducible right giant inguinoscrotal hernias.

**Keywords:** Hernia, Multiplanar reformat, Computed tomography, intra-abdominal hypertension, Abdominal compartment syndrome

\*Author for Correspondence:

Received (June 16<sup>th</sup>, 2020), Accepted (Nov 10<sup>th</sup>, 2020) & Published (April 30<sup>th</sup>, 2021)

**Cite as:** Wai Hun, C. (2021). A Case Report of a Giant Inguinoscrotal Hernia, *Asian Journal of Medicine and Biomedicine*, 5(1), 45-50. doi:<https://doi.org/10.37231/ajmb.2021.5.1.413>

**DOI:** <https://doi.org/10.37231/ajmb.2021.5.1.413>

## Background

A 75-year old male came to hospital for complaining of huge left inguinal swelling. He claimed the swelling has been there for the past 30 years and had gradually increase in size, becoming irreducible since the last 20 years. Due to the huge swelling, patient is unable to perform activity of daily living. Sometimes he feels discomfort over the swelling as well as the abdomen especially after walking long distant. He felt uncomfortable especially after a long-distance walking. The swelling has imposed psychological effect to him as he felt he felt embarrassed and depressed whenever he goes out from home. Patient was a religious person and he explained that he did not seek medical treatment earlier because of religious reason.

On physical examination when the patient was on standing position, there was a large irreducible right inguinoscrotal hernia, in which it extended to the midpoint of inner thigh (Figure 1a). The scrotal skin appears not inflamed, smooth surface, and non-tender. No ulceration, or induration of the skin noted. Bowel sounds were heard within the hernia and in the scrotum. Left testicle was not palpable.

Figure 1b showed an abdominal radiograph in which there was scanty bowel gas seen in the right side of the abdomen. Most of the bowels were displaced to the left side of the abdomen. No dilatation of the bowel noted to suggest for bowel obstruction. Minimal lucency seen beyond pelvic region may suggest for bowels that has been pushed into the inguinal region. Subsequently contrast-enhanced CT (Fig. 2-4) was performed for further evaluation and pre-operative assessment. CT confirmed the diagnosis of right giant inguinoscrotal hernia measuring 14.6cm (AP) x 8.2cm (W) x 22.9cm (CC). The neck of the hernia measured 2.5 cm (AP) x 5.2 cm (width). Most of the small bowel, caecum and proximal ascending colon had been pushed down into the lower part of the abdomen and into the hernial orifice (Figure 2-4). The right testis was displaced posteriorly by the herniated bowel loops. Left testis was located in its normal position within the left scrotum. Figure 5 showed the hernia is of direct type as it passed medial to the inferior epigastric artery. In this case, patient was under surgical follow-up before the type of surgery had been decided. However patient defaulted follow-up.

## Discussion

### *Etiology & Demographics*

Hernia is one of the most common surgical diseases. It is defined as the protrusion of any structure beyond its normal anatomic boundaries. There are many types of

hernia i.e. inguinal, incisional, umbilical, internal and femoral etc. The lifetime risk of spontaneous abdominal hernias is quite significant in the general population, at approximately 5%.<sup>[3]</sup> The vast majority of these hernias are inguinal hernias (80% of cases), while femoral hernias make up 5%; the remaining 15% include umbilical, epigastric, incisional, and other types of hernias. In United States, approximately 770,000 inguinal hernia repairs were performed in 2003<sup>[4]</sup>. The lifetime risk of undergoing inguinal hernia repair is up to 42.5% for men and 5.8% for women<sup>[5]</sup>. Another study stated that the most common affected age group was 46-60 years followed by 30-45 years.<sup>[6]</sup>

An article postulates that both the incidence and prevalence of inguinal hernia is increasing globally as a result of aging population, but possibly also due to increasing prevalence of obesity.<sup>[4]</sup>

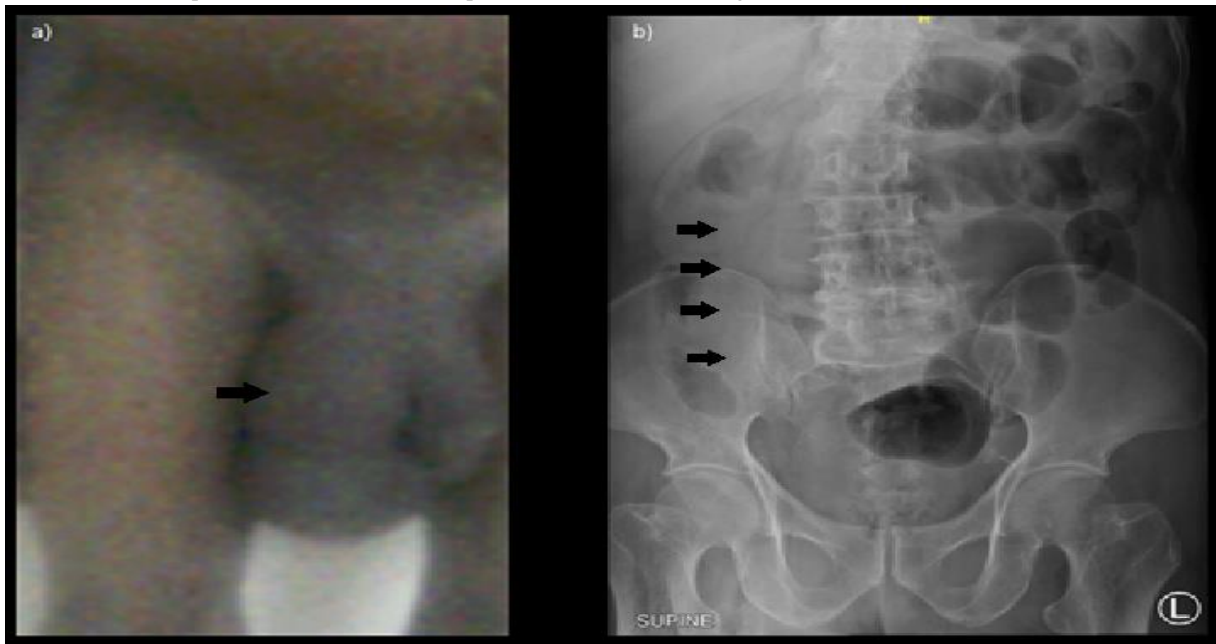
### *Clinical & imaging findings*

Giant inguinal hernia is uncommon and significantly challenging in terms of surgical management. It is defined as inguinal hernia extends below the midpoint of inner thigh when the patient is in standing position<sup>[7]</sup>. They usually present with significant impacts to patients' quality of life, including difficulties with mobility, retention of urine, bowel obstruction, intercourse failure and scrotal skin ulceration or dermatitis.

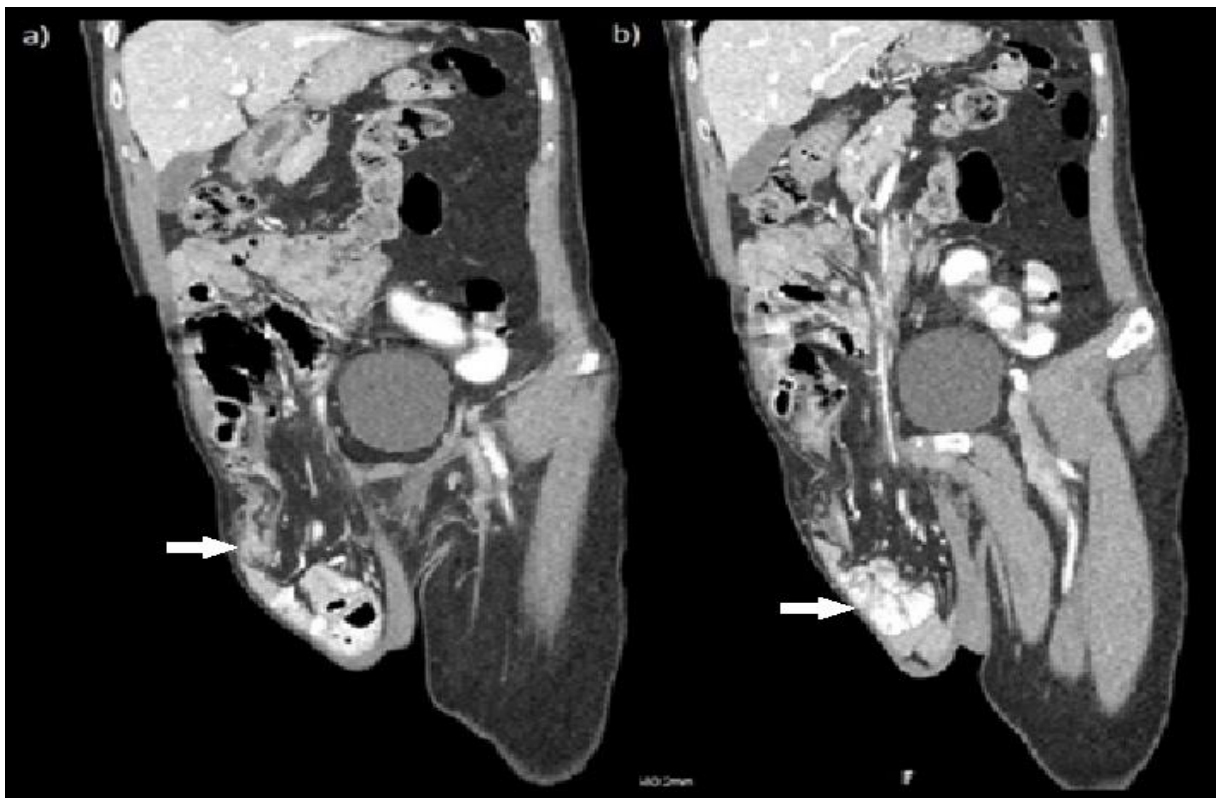
Abdominal radiograph is the initial imaging method for evaluation of the hernia, particularly to rule out any feature of obstruction or mass effect. Sometime radiograph will shows evidence of protruding bowel loops below the inguinal region.

The advent of multidetector CT has greatly aided the pre-operative evaluation of hernia<sup>[8]</sup>, particularly in giant inguinoscrotal hernia. CT scan with thin slice can show detailed evaluation of the structures within the hernia and all informations needed by a surgeon pre-operatively such as hernia contents, its configuration and measuring the neck of hernia<sup>[9]</sup>. Awareness of all the possible contents prior to surgery is important in avoiding disastrous complications. It can be used to differentiate direct versus indirect hernia by identifying the inferior epigastric vessels. A direct inguinal hernia arises from protrusion of abdominal viscera through a weakness of the posterior wall of the inguinal canal medial to the inferior epigastric vessels, specifically through Hesselbach's triangle. Whereas, the indirect arise through the deep ring and enter the inguinal canal. Figures 5 demonstrate the identified inferior epigastric vessels and the hernia is predominantly situated medial to it.

Most of the times patients with giant inguinal hernia present with irreducible hernia and dull abdominal pain. These presenting complaints are often confused with symptoms of complications such as strangulation, incarceration and obstruction. Therefore, CT scan is often requested to rule out these complications in the acute setting.



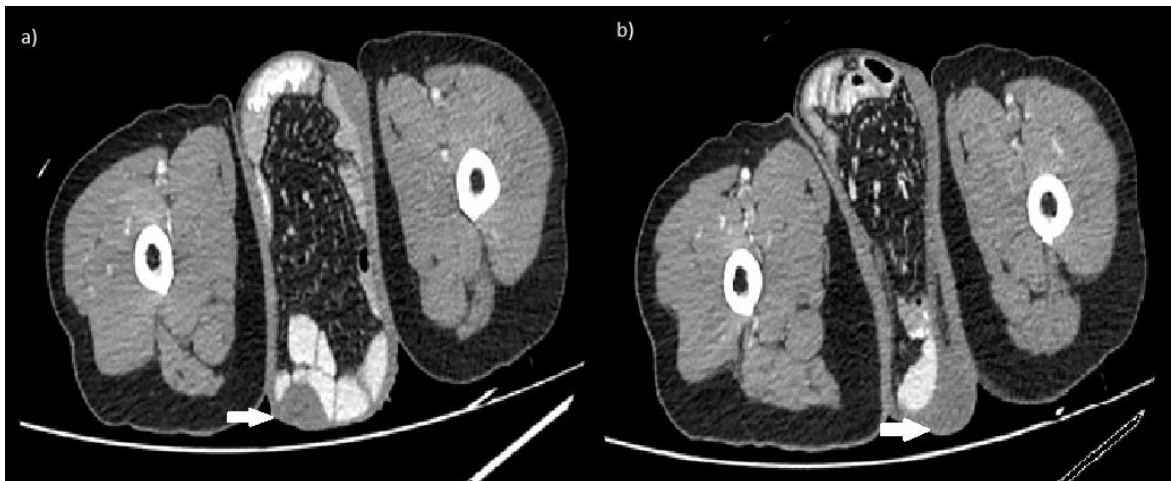
**Figure 1:** (a) Huge right inguinal hernia extending to mid-thigh level (arrow). (b) Supine abdominal radiograph demonstrates relatively paucity of bowel loops over right side of abdomen (arrow). The left sided colon was mildly dilated. Incidentally, patient also had scoliosis to the right side and degenerative changes of the lumbar spine.



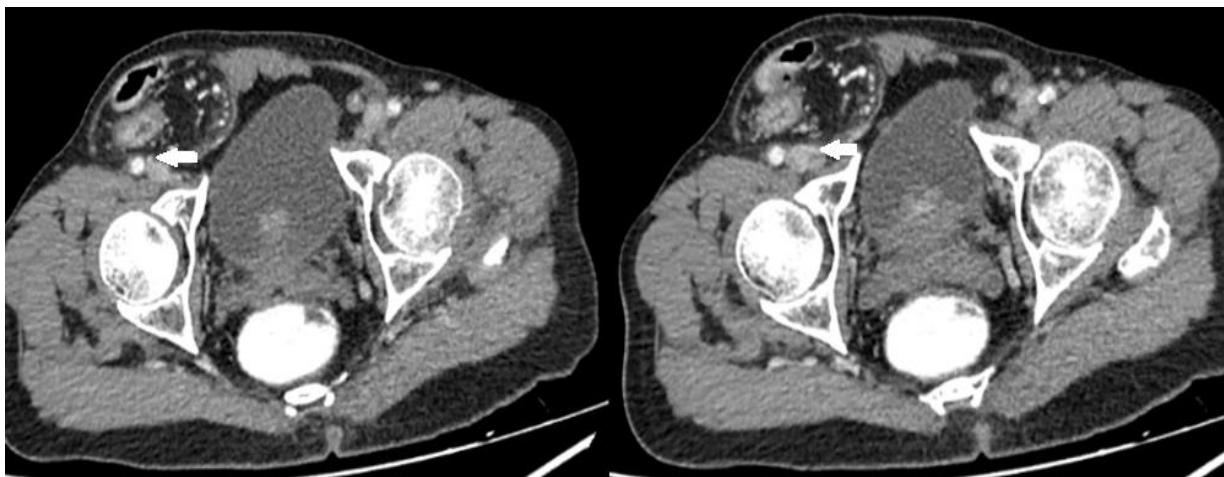
**Figure 2:** 50-year-old male with right giant inguinoscrotal hernia. Findings: Contiguous coronal images (a,b) shows right inguinal hernia extending into the right scrotum, containing mesenteric vessels [arrow in (a)], small bowel loops [(arrow in (b)) and omental fat.



**Figure 3:** Sagittal image shows the inguinal hernia containing small bowel loops, omental fat (long arrow) and mesenteric vessels. The short arrow shows the neck of the hernia (highlight as red line) in anteroposterior diameter. Overall, correlating with the axial and coronal view, the neck of the hernia measured 2.5 cm (AP) x 5.2 cm (width). Small bowel is not dilated and there is no mural edema to suggest obstruction or strangulation.



**Figure 4:** Serial images of CT scan pelvic in axial view show small bowel content within right inguinoscrotal hernia. It shows that right testis (arrow in a) had been displaced posteriorly by the herniated bowel loops and left testis (arrow in b) is not displaced and remain within the left scrotum.



**Figure 5:** Contiguous axial images (a,b) show the inferior epigastric artery (arrow) and the hernia is pass medial and inferior to the vessels. This indicates that the hernia is direct type.

#### *Differential Diagnosis*

##### *Inguinal lymphadenopathy*

Inguinal lymphadenopathy is not uncommonly mistaken as inguinal hernia especially when there is difficulty in eliciting cough impulse. This happens especially in elderly. Consistency of the swelling can aid in differentiation. For example, a non-complicated hernia is soft and fluctuant in palpation as compared to lymph node which is firm in consistency. Nevertheless, diagnostic difficulty occurred if the hernia contains bowel loops which has obstructed or strangulated. In this situation, an ultrasound or CT scan may helpful for further evaluation.

#### *Prognosis and Treatment*

Intra-abdominal hypertension (IAH) is a peculiar and important complication during surgical repair of giant inguinoscrotal hernia. The herniated small bowels loops are chronically situated outside the abdomen and get adapted to the sac. Reduction of hernial contents may produce an increase in intraabdominal and intrathoracic pressures, a condition known as intra-abdominal hypertension (IAH). This will precipitate cardiorespiratory failure and abdominal compartment syndrome (ACS) [10]. Besides, this situation occurs particularly in hernia complicated with obstruction. In giant inguinoscrotal hernia, the risk of wound dehiscence and hernia recurrence is also higher and the recurrence rate can be up to 30% [11].

**Table 1:** Summary table for giant inguinoscrotal hernia.

Etiology	Weakness of abdominal wall muscle
Incidence	Giant inguinoscrotal hernia is a rare occurrence and usually the result of neglect or fear of surgical procedures and are prevalent in the rural population [1].
Gender ratio	Male
Age predilection	46-60 years, mean age - 50 years
Risk factors	Heavy lifting
Complication	i) Complication of the hernia such as strangulation, incarceration and bowel obstruction. ii) Complication intra- and post-operatively include intra-abdominal hypertension, abdominal compartment syndrome and wound breakdown
Prognosis	Recurrence is much higher in giant inguinoscrotal hernias than other inguinoscrotal hernias.
Differential diagnosis	Inguinal lymphadenopathy

Several surgical techniques have been described to prevent this disastrous issue including extensive bowel resection, debulking of abdominal contents or enlarging the abdominal cavity.

### Conclusion

Giant inguinoscrotal hernias are uncommon and impose significant impact on quality of life. Pre-operative CT scan assessment is very important as axial and multiplanar reformat (MPR) images are able to improve visualization of the hernia defect, accurate assessment of size and content and to rule out any bowel-related complications. Surgical repair of giant inguinoscrotal hernias remains a challenge to the surgeons due to the peculiar and important complication, i.e. intra-abdominal hypertension.

### References

1. Karthikeyan VS, Sistla SC, Ram D, Ali SM, Rajkumar N: Giant Inguinoscrotal Hernia—Report of a Rare Case With Literature Review. *International Surgery* 2014, 99(5):560-564.
2. Burkhardt JH, Arshanskiy Y, Munson JL, Scholz FJ: Diagnosis of Inguinal Region Hernias with Axial CT: The Lateral Crescent Sign and Other Key Findings. *RadioGraphics* 2011, 31(2):E1-E12.
3. Greenfield L, Lillemoe K, Mulholland M, Oldham K, Zelenock G: Review for Surgery: Scientific Principles and Practice. *British Journal of Surgery* 2002, 89(7):941-941.
4. de Goede B, Timmermans L, van Kempen BJ, van Rooij FJ, Kazemier G, Lange JF, Hofman A, Jeekel J: Risk factors for inguinal hernia in middle-aged and elderly men: results from the Rotterdam Study. *Surgery* 2015, 157(3):540-546.
5. Zendejas B, Ramirez T, Jones T, Kuchena A, Ali SM, Hernandez-Irizarry R, Lohse CM, Farley DR: Incidence of inguinal hernia repairs in Olmsted County, MN: a population-based study. *Annals of surgery* 2013, 257(3):520.
6. Balamaddaiah G, Reddy S: Prevalence and risk factors of inguinal hernia: a study in a semi-urban area in Rayalaseema, Andhra Pradesh, India; 2016.
7. Hodgkinson DJ, McIlrath DC: Scrotal reconstruction for giant inguinal hernias. *The Surgical clinics of North America* 1984, 64(2):307-313.
8. Ianora AS, Midiri M, Vinci R, Rotoedo A, Angelelli G: Abdominal wall hernias: imaging with spiral CT. *European radiology* 2000, 10(6):914-919.
9. Aguirre DA, Santosa AC, Casola G, Sirlin CB: Abdominal wall hernias: imaging features, complications, and diagnostic pitfalls at multi-detector row CT. *Radiographics* 2005, 25(6):1501-1520.
10. Hamad A, Marimuthu K, Mothe B, Hanafy M: Repair of massive inguinal hernia with loss of abdominal domain using laparoscopic component separation technique. *Journal of surgical case reports* 2013, 2013(3).
11. Stoppa RE: The treatment of complicated groin and incisional hernias. *World journal of surgery* 1989, 13(5):545-554.