Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/macmye53

A RARE CASE OF A YOUNG MALE WITH A COMPLICATED INGUINAL HERNIA WITH INTESTINAL OBSTRUCTION AND ALSO CONGENITAL UNDESCENDED TESTIS PRESENT AS THE CONTENT OF SAC OF HERNIA.

Dr Kiran Prabhakar Rebello[1*], Dr A.k singh[2]

[1*]Associate professor department of general surgery,Autonomous State medical college Sultanpur
[2]Professor department of general surgery, Autonomous State medical college Sultanpur

***Corresponding Author:** Dr Kiran Prabhakar Rebello
[*]Associate professor department of general surgery,Autonomous State medical college Sultanpur

Abstract
Inguinal hernias are common surgical pathology, particularly in men, but the rate of complications like intestinal obstruction and the presence of an undescended testis within the hernia sac is relatively low. This paper describes a case of a young male with an inguinal hernia with bowel obstruction and an undescended testis in the hernia sac. Bowel obstruction and the undescended testis necessitated emergency surgery to correct the problems. Incarcerated bowel loops were gently mobilized and reduced without having to perform bowel resection, while the healthy testis was then relocated to the scrotum through orchiopexy. Further, the Lichtenstein mesh repair was done to treat the hernia and avoid its reappearance without tension. The postoperative progress was also uneventful, and no complications like sepsis or reemergence of the hernia, together with the following examination and scrotal Doppler ultrasound were normal. This case describes the likely problems that are going to be faced while managing inguinal hernias especially when other comorbidities like bowel obstruction, cryptorchidism, etc are also present. Anyway, any such cases need to be diagnosed early and the patient needs to be operated on to minimize the risks that may be associated with such cases.

Keywords: Inguinal hernia, bowel obstruction, undescended testis, orchiopexy, Lichtenstein mesh repair, pediatric surgery.

1. Introduction

Inguinal hernias are the most common type of hernias, contributing to about 75% of all abdominal wall hernias, and are more common in males (Abebe *et al.*, 2022). Characterized by the protrusion of abdominal contents through the inguinal canal, inguinal hernias can be classified into two main types: indirect and direct. Inguinal hernias result from a patent processus vaginalis through which abdominal structures can migrate into the inguinal canal and the scrotum. On the other hand, direct hernias are caused by a weakness of the posterior layer of the inguinal canal. An inguinal hernia is identified in about 27% of men and 3% of women during their lifetime and surgical repair is the preferred approach to prevent complications (Shakil & Fornari, 2020). Inguinal hernias are not uncommon but risk factors such as intestinal obstruction and an undescended testis within the hernia sac are extremely rare. If bowel loops are incarcerated in the hernia, it will cause intestinal obstruction and if blood supply is compromised there will be ischemia if the hernia is not repaired. This complication may

manifest as acute abdomen, vomiting, inability to pass flatus or stool and will need surgical management (Brunicardi *et al.*, 2019). In the case of a pediatric patient, an extra consideration is an undescended testis or cryptorchidism. Cryptorchidism is observed in 2-4% of full-term male neonates and is associated with an increased risk of hernia formation, infertility, and testicular malignancy (La Vignera *et al*., 2009). Inguinal hernia associated with bowel obstruction and undescended testis is rare and presents a diagnostic and therapeutic challenge because of the complex etiology of the pathological process.

This condition is rare because few patients have been reported to present with bowel obstruction and undescended testis within an inguinal hernia. Most of the reported cases are frequently an isolated hernia or cryptorchidism without intestinal obstruction (Sameshima *et al*., 2017). The issue of such cases is complex, it is hard to foresee all potential issues, related to the bowl's sustainability, tests, and potential relapse. Besides the management of the hernia, according to the Rwandan policy on surgical procedures; the undescended testis should be moved and checked in order to avoid any complications in future (Maine *et al*., 2017). In this report, we present a young male patient with inguinal hernia with intestinal obstruction and an undescended testis in the hernia sac. This case shows some of the many managerial challenges that such a complex clinical disease presents; thus, timely diagnosing and management of the illness are important to prevent other diseases, including bowel ischemia and testicular atrophy. In this paper, the authors have attempted to contribute to the existing literature and provide a comprehension of the management strategies that may be adopted when faced with such clinical scenarios.

2. Case presentation

Patient Demographics:

A 25 years old male patient was presented to emergency department with the complaint of severe abdominal pain for the last 12 hours. Other than the pain, he had been vomiting and had a huge hernia in the right inguinal region. He had congenital undescended testis which had not been operated for. It is mentioned that due to past condition he could not present well in the past, there was also a potential concern about the client's condition of cryptorchidism.

Clinical History and Symptoms:

This patient had a combination of symptoms that pointed more towards intestinal obstruction. He said that as an assessment he suffered from severe cramping abdominal pain and it was localized in the lower quadrant region and had worsened over time. This pain was related to vomiting which was not bilious in nature and it recurred. Further, the patient complained of abdominal distension, no bowel movement and no flatulence for the past 24hours. These symptoms coupled with history of cryptorchidism raised a high index of suspicion of an obstructed inguinal hernia that includes bowel loops and the undescended testis.

Physical Examination:

On examination, the patient was visibly distressed and uncomfortable because of his abdominal pain. On examination of the right inguinal region, a firm, non-reducible mass was found, which was painful on touch. This mass raised immediate concern for an incarcerated or strangulated hernia. Moreover, there was no sound heard in the abdomen, which is another sign of intestinal obstruction. The patient's abdomen was mildly swollen, and it was possible to palpate the abdomen throughout with pain being most severe in the right lower quadrant. These led to emergent diagnostic studies to evaluate the degree of obstruction and the condition of the incarcerated contents.

Imaging and Diagnosis:

Since the clinical presentation of the patient raised suspicion of a complicated inguinal hernia, the initial imaging modality employed in the management was an abdominal ultrasound. The ultrasound showed a right-sided large inguinal hernia with features of bowel loops within the hernia sac. The

ultrasound also indicated the presence of an obstruction although the exact involvement of the herniated contents could not be well defined. Hence, confirmatory investigations were undergone in the form of a contrast-enhanced CT scan of the abdomen and pelvis in an attempt to have a better picture of the patient's condition.

The CT scan showed a large inguinal hernia on the right side which included small bowel loops and the patient's undescended testicles. The bowel loops were dilated proximally to the level of the hernia, thus indicating the presence of an obstruction. Fortunately, there was no evidence of bowel ischemia or perforation at this time, which would have indicated that the obstruction had been diagnosed early. The CT images also revealed that the undescended testis, previously identified in the patient's medical history, had herniated into the inguinal sac, complicating the case further. These imaging findings supported the clinical diagnosis of a complicated inguinal hernia with bowel obstruction and an undescended testis. The extraction of the testicular abnormality was deemed therapeutic, and the emergency resection operation was considered appropriate.

3. Surgical Procedure

Intraoperative Findings:

The patient had an incarcerated inguinal hernia with bowel obstruction and an undescended testis; surgery was inevitable. Dissection of the hernia sac via an inguinal approach revealed incarcerated small bowel loops within the hernia sac which was consistent with the obstruction seen in imaging. Unfortunately, for these weeks of obstruction, there was no evidence of ischemia, gangrene or perforation of the bowel. A safe manual reduction of the bowel into the abdominal cavity was performed. In addition, the undescended testis present in the hernia sac was healthy without signs of torsion, ischemia or atrophy. This agreed with the fact that the hernia and the testis should be handled carefully during surgery in order to avoid some of these damages. Two key intraoperative images were captured during the procedure to document the findings:

Figure 1: Undescended testies present as one of the content of sac

Figure 2: Depicts the hernia sac is opened, revealing the entrapped bowel loops inside.

Surgical Management:

The surgical team was able to deal with the bowel obstruction and the undescended testis during the same operation. First, the bowel loops were gently returned into the abdominal cavity without resection because the bowel was viable. The risk of ischemia or necrosis was thus avoided. They then shifted attention towards the right side of the cryptorchid testis which was NHS normal. The testis was surgically relocated to a scrotum via orchiopexy so that it does not twist herniate or undergo torsion in the future. Lastly, the hernia was repaired using a standard Lichtenstein mesh repair. This tension-free mesh technique is said to minimize the risk of recurrence, and the patient benefits in the long run since the abdominal wall is reinforced and there is no possibility of the bowel or any other content protruding through the inguinal canal again.

Postoperative Care:

After that, the patient was admitted to the surgical ward for an assessment post-operation. The first week after the surgery was also without complications such as infection, bleeding, or recurrence of the hernia. To reduce the risk of infection, prophylactic antibiotics were administered but, to avoid the formation of blood clots and promote wound healing the patient was encouraged to sit and stand. The patient was started on a clear liquid diet and later advanced to a regular diet depending on bowel movement. The testis was observed for signs of ischemia or atrophy after orchiopexy and no such changes were seen during follow-up. The patient had a good recovery due to the favorable outcome of bowel obstruction status and proper implantation of the testes. The patient was advised to come for a follow-up examination because she was at risk for any recurrence of the hernia or other related complications but in this procedure, the Lichtenstein mesh repair technique was deployed hence the risk was negligible.

3. Discussion

This study presents an interesting and complicated case of an inguinal hernia associated with intestinal obstruction and undescended testis within the hernia sac. The pathophysiology involves the interplay between two distinct but interrelated conditions: Cryptorchidism and inguinal hernia. Cryptorchidism can be defined as a defect that affects 1-4% of male newborns at the full term, it occurs when the testes do not descend into the scrotum where they are supposed to be (Goel *et al.*, 2015). This condition is generally treated surgically in childhood but in some cases, as in this patient, surgical treatment is not done or delayed (Penson *et al.,* 2013). An undescended testis located within the inguinal canal, as was the case with this patient, weakens the inguinal area and renders the person susceptible to developing a hernia.

Inguinal hernias are a condition whereby structures in the abdominal cavity, most often the intestines, push through a weak area in the abdominal muscles. In men, it is often the inguinal canal where the hernia occurs. The association of the undescended testis and the bowel loops in the hernia sac is rare

but poses a diagnostic and management dilemma. This hernia probably was not an acute process but rather a chronic one, although the acute manifestation occurred due to the incarceration of the intestinal loops, which caused obstruction. This could have easily progressed to strangulation where the blood supply to the bowel is compromised, and the bowel becomes ischemic and necrotic. The clinical features of this patient – cramping abdominal pain, vomiting, inability to pass stool, and palpable inguinal mass pointed to this dangerous development. A literature review shows that this is a rare case. Although inguinal hernias are frequent in adult male patients, especially those with a history of cryptorchidism, the presence of both intestinal loops and an undescended testis within the hernia sac is rare. Another work showed that cryptorchidism contributes to the development of inguinal hernia because the changes in the topography of the undescended testis affect the formation of the inguinal canal and the strength of the abdominal wall (Hadziselimovisc, 1982). Furthermore, the literature indicates that the incorporation of the testis in a hernia sac poses a challenge to surgical repair because both the bowel and testis require intervention to avoid future complications. If the testis is not relocated, orchiopexy, testicular torsion, ischemia, and atrophy occur, which have been associated with future infertility (Radmayr, 2017). Management of such cases involves an emergency surgical solution that seeks to correct the hernia as well as the undescended testicle. In this patient, the surgery was done early enough to prevent life-threatening complications like bowel ischemia or gangrene. In the course of the procedure, the bowel loops were confirmed to be viable, and manual reduction was done without resection. Also, the testis, although was located in an abnormal position, was healthy and was relocated to the scrotum via orchiopexy. Lichtenstein mesh was used in this case to give support to avoid recurrence which is the standard practice in inguinal hernia surgeries (Chen & Morrison, 2019). Mesh has been found to have a lower recurrence rate compared to primary tissue repair and is therefore preferred in many cases especially if there is a doubt as to the integrity of the abdominal wall after surgery (Alabi *et al.,* 2022). It is therefore even more advisable that complicated inguinal hernia should be diagnosed and treated at an early stage to avoid fatal results. In this case, the early clinical suspicion coupled with ultrasound and computed tomography (CT scans) helped in the early diagnosis of the case. Groin masses are initially investigated using ultrasound, especially in patients with known cryptorchidism since it is non-invasive and can quickly rule out herniated bowel loops (Revzin *et al.,* 2016). However, the CT scan in this particular case was important in arriving at the definitive diagnosis because bowel ischemia or perforation was an undescended testis that was better visualized in the CT scan than in the endoscopic examination. The importance of early diagnosis is further emphasized by the potential complications that can arise from delayed intervention. If the bowel had become strangulated, it would have led to ischemia, followed by necrosis, and could have been fatal. Bowel resection in such cases is complicated by higher morbidity and mortality especially if sepsis occurs (Surek *et al.,* 2017). Further, if the undescended testis had not been treated early it would have led to testicular atrophy which is irreversible and, in the future, increases the risks of infertility and testicular cancer (Radmayr *et al.,* 2022). Hence, this case is more biased towards early diagnosis and management of the long-standing complicated inguinal hernias particularly, in patients with risk factors including cryptorchidism. Cryptorchidism with bowel obstruction posed the following problem in this case, which required optimum management to avoid a fatal end due to the presence of two different complications. Literature on similar cases suggests that a multidisciplinary approach involving both hernia repair and orchiopexy is essential to ensure long-term outcomes, including the prevention of hernia recurrence and preservation of testicular function. The successful outcome of this case is being facilitated by early diagnosis, correct imaging, and adequate surgical management, which emphasizes early intervention in such kind of presentation.

4. Conclusion

The purpose of this case report is to discuss the treatment of an inguinal hernia in a patient with intestinal obstruction and an undescended testis in the hernia sac. This is a testimony that the successful surgical intervention which involved the reduction of incarcerated bowel loops, orchiopexy of the viable testis and tension-free Lichtenstein mesh repair in such complications needs

a team effort. This case underscores the need for identification of risky complications in patients with inguinal hernias because the initiation of correct approach may depend on early identification of the problem or side effects like bowel ischemia, necrosis, or reduced testicular size. Moreover, it underlines the importance of individual anatomic-pathological approach to the surgery based on observations made during the surgery. The absence of postoperative complications and the confirmation of normal testicular perfusion justify the application of proper surgical techniques in the management of complicated inguinal hernias. In conclusion, this type of symptoms is of importance in that it should lead the clinician forward to search for such a patient in order to do all of them to obtain the best outcome for the patient.

References

1. Abebe, M. S., Tareke, A. A., Alem, A., Debebe, W., & Beyene, A. (2022). The worldwide magnitude of inguinal hernia: Systematic review and meta-analysis of population-based studies. *SAGE Open Medicine*, *10*, 20503121221139150.
2. Alabi, A., Haladu, N. U., Scott, N. W., Imamura, M., Ahmed, I., Ramsay, G., & Brazzelli, M. (2022). Mesh fixation techniques for inguinal hernia repair: an overview of systematic reviews of randomised controlled trials. *Hernia*, 1-15.
3. Brunicardi, F. C., Andersen, D. K., & Billiar, T. R. (2019). Soft tissue sarcomas. *Schwartz's Principles of Surgery. Tenth Edition. New York: McGraw-Hill Education*, 1465-2015.
4. Chen, D. C., & Morrison, J. (2019). State of the art: open mesh-based inguinal hernia repair. *Hernia*, *23*(3), 485-492.
5. Goel, P., Rawat, J. D., Wakhlu, A., & Kureel, S. N. (2015). Undescended testicle: an update on fertility in cryptorchid men. *Indian Journal of Medical Research*, *141*(2), 163-171.
6. Hadžiselimović, F. (1982). Pathogenesis and treatment of undescended testes. *European journal of pediatrics*, *139*, 255-265.
7. La Vignera, S., Calogero, A. E., Condorelli, R., Marziani, A., Cannizzaro, M. A., Lanzafame, F., & Vicari, E. (2009). Cryptorchidism and its long-term complications. *Eur Rev Med Pharmacol Sci*, *13*(5), 351-6.
8. Maine, R. G., Linden, A. F., Riviello, R., Kamanzi, E., Mody, G. N., Ntakiyiruta, G., ... & Hedt-Gauthier, B. L. (2017). Prevalence of untreated surgical conditions in rural Rwanda: a population-based cross-sectional study in Burera District. *JAMA surgery*, *152*(12), e174013-e174013.
9. Penson, D., Krishnaswami, S., Jules, A., & McPheeters, M. L. (2013). Effectiveness of hormonal and surgical therapies for cryptorchidism: a systematic review. *Pediatrics*, *131*(6), e1897-e1907.
10. Radmayr, C. (2017). Management of undescended testes: European association of Urology/European society for paediatric urology guidelines. *Journal of Pediatric Urology*, *13*(5), 550.
11. Revzin, M. V., Ersahin, D., Israel, G. M., Kirsch, J. D., Mathur, M., Bokhari, J., & Scoutt, L. M. (2016). US of the inguinal canal: comprehensive review of pathologic processes with CT and MR imaging correlation. *Radiographics*, *36*(7), 2028-2048.
12. Sameshima, Y. T., Yamanari, M. G., Silva, M. A., Neto, M. J. F., & Funari, M. B. (2017). The challenging sonographic inguinal canal evaluation in neonates and children: an update of differential diagnoses. *Pediatric radiology*, *47*, 461-472.
13. Shakil, A., Aparicio, K., Barta, E., & Munez, K. (2020). Inguinal hernias: diagnosis and management. *American Family Physician*, *102*(8), 487-492.
14. Surek, A., Gemici, E., Ferahman, S., Karli, M., Bozkurt, M. A., Dural, A. C., ... & Alis, H. (2021). Emergency surgery of the abdominal wall hernias: risk factors that increase morbidity and mortality—a single-center experience. *Hernia*, *25*, 679-688.