



CASE REPORT

Case Study on Bilateral Cryptorchidism, Inguinal Hernia with Orchiopexy

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Abstract

This case study aims to discuss the clinical presentation, diagnosis, and management of a patient with bilateral cryptorchidism and concurrent inguinal hernia, focusing on the surgical intervention of orchiopexy. A detailed case analysis was conducted on a young male patient presenting with absent testes in the scrotum and a palpable inguinal mass. Diagnostic imaging and physical examination confirmed bilateral cryptorchidism and an inguinal hernia. The patient underwent bilateral orchiopexy and concurrent hernia repair. The surgical intervention involved an inguinal approach, mobilizing the undescended testes and securing them in the scrotum while simultaneously repairing the hernia. The patient had an uneventful postoperative recovery with no immediate complications. Follow-up evaluations showed proper testicular positioning and no recurrence of the hernia. Early surgical intervention for bilateral cryptorchidism and inguinal hernia is essential for optimal outcomes. Orchiopexy, combined with hernia repair, effectively addresses both conditions, reducing the risks of infertility, malignancy, and hernia complications.

Keyword: Cryptorchidism, Inguinal hernia, Orchiopexy, Hernia repair

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Introduction

An orchiopexy is a surgical procedure designed to correct the position of a testicle that has not properly descended into the scrotum. Typically performed in paediatric patients, the surgery involves moving the testicle from the groin (inguinal region) to the scrotum and permanently fixing it there to prevent future retraction. Orchiopexy is primarily indicated for two conditions: undescended testicles and testicular torsion (Lange & Henningsen, 2023).

During fetal development, testicles form in the abdomen and usually descend into the scrotum before birth. In some cases, this descent does not occur, leading to undescended testicles, also known as cryptorchidism.

This condition affects about 3% of full-term newborns and up to 30% of premature infants. If the testicles do not descend within the first few months of life, orchiopexy is typically recommended. The procedure can be unilateral (correcting one undescended testicle) or bilateral (correcting two undescended testicles). Testicular torsion is an acute condition where the spermatic cord twists, cutting off the blood supply to the testicle. This requires immediate surgical intervention to untwist and secure the testicle, preventing further episodes by (Anderson and Bragg 2023).

The prevalence of cryptorchidism in India is comparable to global figures, with an estimated 1-3% of full-term male infants and up to 30% of premature male infants affected by undescended testicles at birth. Studies have shown that around 70% of these cases resolve spontaneously within the first three months of life. However, those that do not resolve require surgical intervention, typically between the ages of 6 to 18 months. The incidence of testicular torsion in India mirrors global statistics, with approximately 1 in 4,000 males under the age of 25 affected (Graft & DeAngelis, 2023). Prompt surgical intervention is critical to preserve testicular function and viability. The epidemiology of orchiopexy in India is shaped by the prevalence of cryptorchidism and testicular torsion, regional variations in healthcare access, and socio-economic factors. Addressing these challenges through public health initiatives, improving healthcare infrastructure, and raising awareness can lead to earlier diagnosis and timely treatment, ultimately improving outcomes for affected individuals. A hernia refers to the protrusion of an organ or tissue through an abnormal opening in the body wall (Rodprasert, W, 2024). It commonly involves a weakness or tear in the muscle or connective tissue that holds the organ in place.

The most common type, occurring in the groin area when a part of the intestine protrudes through a weak spot in the abdominal muscles. Occurs when the upper part of the stomach bulges through the diaphragm into the chest cavity (Bašković M. 2024). Happens when part of the intestine protrudes through the abdominal wall near the belly button. Develops at the site of a surgical scar in the abdomen, where the tissue pushes through the weakened abdominal wall. Occurs when the intestine protrudes into the canal carrying the femoral artery into the upper thigh (Goswami and Desai 2023).

Hernias can be either congenital (present at birth) or acquired due to factors that weaken the abdominal wall. They can vary in size and severity, sometimes necessitating surgical intervention to prevent complications. Weakness in Abdominal Wall Often due to aging, injury, surgery, or congenital defects, increased Pressure in the Abdomen: From obesity, heavy lifting, chronic coughing, or pregnancy (Saylor, S. 2024)). Increased intra-abdominal pressure can push organs or tissues through a weakened area of muscle or connective tissue, resulting in the formation of a hernia. Often the most noticeable symptom, especially when standing or straining. Particularly when lifting, bending over, or coughing, Feeling of Heaviness in the abdomen or groin area, Burning or Aching Sensation at the site of the bulge (Muñoz and Kessler 2022).

If not treated promptly, hernias can lead to serious complications such as bowel obstruction or strangulation, where the blood supply to the herniated tissue is cut off. Maintain a Healthy Weight, Obesity increases the risk of hernias, so maintaining a healthy weight through diet and exercise is beneficial, Avoid Heavy Lifting and Use proper lifting techniques (bend at the knees, not at the waist) and seek assistance if needed. Exercise Regularly. Strengthening core muscles can help support the abdominal wall. Smoking can weaken connective tissues, making hernias more likely. Eat High-Fiber Foods, A diet rich in fibre can prevent constipation, reducing strain on the abdominal muscles. Avoid Prolonged Straining because Straining during bowel movements or urination can increase intra-abdominal pressure, potentially leading to hernias. Wear Supportive Gear for those at higher risk, wearing supportive belts or gear can help reduce strain on the abdominal muscles (Stabile, Rodriguez, & Economopoulos, 2022).

Manage Chronic Cough, treat underlying conditions that cause chronic coughing, as it can strain abdominal muscles to attend Chronic Conditions, treating conditions that weaken the abdominal wall, such as chronic obstructive pulmonary disease (COPD)) or conditions requiring frequent straining, can reduce hernia risk. Routine Physical Examinations, regular check-ups with a healthcare provider can help detect hernias early, especially if you have risk factors. Several risk factors can increase the likelihood of developing hernias. Along with age hernias are more common as people age due to weakening of muscles and connective tissue.

Men are more prone to inguinal hernias due to the structure of their anatomy (Peters and Monga 2022). Family History and genetic Predisposition some families may have a higher incidence of hernias, suggesting a genetic component. Obesity, excess weight puts strain on abdominal muscles and increases intra-abdominal pressure. Smoking, tobacco use can weaken connective tissues, making hernias more likely. Chronic Constipation is straining during bowel movements can contribute to the development of hernias. Chronic Coughing conditions such as COPD or frequent coughing episodes can strain abdominal muscles. Multiple Pregnancies, women who have had multiple pregnancies may be at increased risk of developing hernias, especially umbilical (hernias Jacob and Zeng 2022). Surgical History of previous abdominal surgery can weaken the abdominal wall and increase the risk of incisional hernias. Abdominal Injuries like trauma or injury to the abdomen can weaken muscles and contribute to hernia development. Other Factors like regularly lifting heavy objects without using proper technique or support can strain abdominal muscles. Straining During Urination or Bowel Movements, chronic straining due to constipation or other reasons increases intra-abdominal pressure. Connective Tissue Disorders, certain genetic or autoimmune conditions that affect connective tissue can increase the risk of hernias (The European Association of Urology 2021 & Virtanen, H. 2024).

The aim is to investigate and analyse the clinical presentation, diagnosis, management, and outcomes of a patient with bilateral cryptorchidism and inguinal hernia undergoing orchiopexy.

Materials and Methods

This was the case study collected from the patient who is under the ongoing treatment on Orchiopexy.

Objectives

- To document the symptoms, physical examination findings, and medical history of the patient and identify any associated conditions or complications
- Describe the diagnostic methods used, including imaging and laboratory tests for discuss the differential diagnosis considered during the evaluation

- To outline the treatment plan, including the surgical approach for orchiopexy and inguinal hernia repair and to assess the impact of the treatment on the patient's overall health and quality of life.

Treatment

Watchful Waiting for small hernias may not require immediate treatment but should be monitored. Typically recommended for larger hernias or those causing symptoms. Surgery involves pushing the herniated tissue back into place and repairing the weakened abdominal wall, often with the use of mesh to reinforce the area. A 35-year-old male patient presented with discomfort and a noticeable bulge in the groin area. He is married and has no children. His medical history is unremarkable, with no significant past medical conditions reported. On examination, the vital signs are stable: blood pressure is 110/70 mmHg, pulse is 89 beats per minute, oxygen saturation (SPO2) is 98%, and body temperature is 98.6°F. The primary issue prompting his visit is the visible bulge in the groin, accompanied by discomfort. Given the presentation, a possible diagnosis is an inguinal hernia (Warren et al., 2021). This condition involves a part of the intestine pushing through a weak area in the abdominal wall, resulting in a bulge and potential discomfort. Alternatively, a femoral hernia, which also presents in the groin area, could be a possibility, though it is less common in males.

To confirm the diagnosis and determine the appropriate course of action, a thorough physical examination is essential. This examination would help determine if the bulge is reducible and whether there are other symptoms such as pain, nausea, or changes in bowel habits. Imaging studies, such as an ultrasound or CT scan of the abdomen and pelvis, may be needed to visualize the hernia and rule out other potential causes of the bulge (Simons et al., 2020). If a hernia is confirmed, a surgical consultation would be necessary to discuss potential surgical repair options, especially if the hernia is symptomatic or worsening. Based on the provided information, the patient is a 35-year-old male who presented with discomfort and a visible bulge in the groin area. His vital signs are within normal limits. The primary concern here could be a groin hernia, given the presence of a visible bulge and discomfort.

Inguinal Hernia, this condition occurs when a part of the intestine protrudes through a weak spot in the abdominal muscles, which can cause a bulge in the groin area. Femoral hernia another type of groin hernia, which might present similarly but is less common in males. . Though less common, other conditions such as lymphadenopathy or muscle strain could also present with a groin bulge. A detailed physical examination is necessary to confirm the diagnosis (Corona et al., 2020). This includes checking if the bulge is reducible or if there are any associated symptoms such as pain, nausea, or changes in bowel habits. An ultrasound or CT scan of the abdomen and pelvis may be required to assess the hernia and rule out other conditions. If a hernia is confirmed, a surgical consultation will be essential for potential hernia repair, especially if the hernia is symptomatic or increasing in size. In Clinical Examination, in inguinal Hernia noticeable bulge was observed in the left inguinal region, exacerbated by coughing and physical strain, indicative of an inguinal hernia. Orchiopexy Examination revealed a history of undescended testicle (cryptorchidism) on the left side, previously corrected by orchiopexy (Khera et al., 2020). Diagnostic Workup includes hormonal evaluation, testosterone levels, abnormally low, Follicle-Stimulating Hormone (FSH) 31.02 IU/L, is elevated, Luteinizing Hormone (LH) 16.60 is elevated. These results are indicative of primary hypogonadism. Prolactin 8.23 ng/ml which is normal in range and testosterone levels are 254.4 ng/dl which is lower side of the normal. His MRI Pelvis revealed that Bilateral maldescended testes located in the pelvis. Left testis is mobile during ultrasound examination into the left inguinal canal, Transabdominal Ultrasonography revealed that a 12mm defect noted in the left inguinal region with omentum herniation. Surgical Intervention procedure for the patient underwent surgical repair for the inguinal hernia using mesh placement to reinforce the weakened area (Chan, E, 2014). During surgery, the previously undescended testicle was re-evaluated and no additional intervention was required.

In the Postoperative Course, Recovery and the patient recovered well post-surgery with no immediate complications. For follow-up hormonal therapy, given the abnormal hormone levels, the patient was referred to an endocrinologist for further evaluation and management of hypogonadism. For fertility consultation, the

patient was advised to consult with a fertility specialist to discuss potential options given his interest in having children and the impact of his hormonal imbalance on fertility.

Discussion

A 35-year-old male patient came to the hospital with the complaints of not having children about 8 years and unusual anger. He was examined and investigations were ordered but initially he refused to take laboratory investigations for 8 years but this time he accepted and diagnosed with Inguinal hernia in the year 2022 and also find the bilateral undescended testes. After that they advised to for surgery for both inguinal hernia and orchiopexy. The surgical procedure was performed under spinal anaesthesia and was treated with antibiotics, antacids, NSAIDs, vitamin supplements and all other supportive medication and he got improved and discharged with diet indications to follow for the improving his conditions. This case highlights the intersection of multiple conditions affecting male reproductive health. The presence of an inguinal hernia along with a history of orchiopexy and abnormal hormonal levels presents a complex clinical picture. Primary hypogonadism, as evidenced by the elevated FSH and LH alongside low testosterone, requires careful management to address both the symptomatic and reproductive implications for the patient (Hernia Surge Group 2018). The treatment of bilateral maldescended testes with an associated inguinal hernia primarily involves surgical intervention through orchiopexy and concurrent hernia repair. Hormonal therapy may be an option in select cases, but surgery remains the gold standard. Early diagnosis and timely surgical intervention are crucial to achieving optimal outcomes and minimizing the risk of long-term complications. Regular follow-up is essential to monitor the success of the treatment and address any arising issues (Wang et al., (2018). Testosterone replacement therapy can offer significant benefits to hypogonadal men, improving sexual function, physical health, metabolic profile, and overall quality of life. However, it is not without risks, and careful consideration and monitoring are required to mitigate potential adverse effects.

An individualized approach, regular follow-up, and patient education are key components to successful and safe Testosterone Replacement Therapy (TRT) (Basaria et al., 2018). Further research is necessary to continue elucidating the long-term effects and optimize treatment protocols for hypogonadal men.

This case highlights the importance of timely diagnosis and treatment in patients with these conditions. Regular follow-up is crucial to ensure long-term success and monitor for potential complications. This case study examines the clinical presentation, diagnosis, and management of a patient with bilateral cryptorchidism and concurrent inguinal hernia, focusing on the surgical intervention of orchiopexy. A young male patient was referred with absent testes in the scrotum and a palpable inguinal mass. Physical examination and diagnostic imaging confirmed bilateral cryptorchidism and an inguinal hernia. The patient underwent a combined surgical approach, involving bilateral orchiopexy and hernia repair via an inguinal incision. The undescended testes were mobilized and secured in the scrotum, while the hernia sac was ligated and repaired. Postoperative recovery was uneventful, with no immediate complications. Follow-up evaluations demonstrated proper testicular positioning and no recurrence of the hernia. Early surgical intervention for both conditions is critical to optimize long-term outcomes and minimize the risks of infertility, testicular malignancy, and hernia-related complications. This case underscores the importance of timely diagnosis and intervention in patients, with regular follow-up to ensure continued success and monitor for potential complications. Orchiopexy combined with hernia repair offers a safe and effective solution for managing these concurrent conditions.

Conclusion

Early identification and management of inguinal hernias and cryptorchidism are crucial. Comprehensive hormonal evaluation and appropriate referral to specialists can aid in managing the long-term health and fertility concerns in patients with similar presentations. The patient's prognosis remains favourable with appropriate hormonal therapy and fertility support.

Abbreviations

COPD – Chronic Obstructive Pulmonary Disease; LH – Lutenizing hormone; FSH – Follicle Stimulating Hormone; TRT – Testosterone Replacement Therapy.

Disclosure

Ethics approval and consent to participate

Not Applicable

Consent for publication

Patient consent was taken for the publication

Availability of data and materials

The data will not be shared completely because of confidentiality of the patient.

Competing interests

NIL

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Nil

Authors' contributions

Sreenu Thalla, Shaik. Aneesa collected the patient data, literature review was done by Bhavani Pentela, Clinical Interpretation were performed by Sandeep Kanneganti and Anil Kumar Yerragopu. All authors read and accepted the manuscript for publication.

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