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Congenital Lumbar Hernia Associated with Lumbocostovertebral Syndrome

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Abstract

Background: Congenital lumbar hernia, a rare type of hernia, can present in association with lumbocostovertebral syndrome, involving multiple congenital anomalies such as rib anomalies, scoliosis, and hemivertebrae. These hernias, which protrude through either the superior or inferior lumbar triangles, can pose significant diagnostic and therapeutic challenges. *Case Report*: A one and a half-month-old baby boy presented with a progressively enlarging mass in the right flank region since birth, becoming more pronounced during crying. Surgical repair involved reducing the hernial sac contents, defining the defect edges, and reinforcing the area with a 5×4 cm polypropylene mesh. The post-operative period was uneventful, and the patient was discharged on post-operative day 4. *Conclusion*: Congenital lumbar hernia with lumbocostovertebral syndrome is a rare but critical condition in pediatric patients. Early diagnosis and prompt surgical intervention are imperative to prevent complications. Open prosthetic repair remains the preferred method, providing reliable and effective results. Awareness of associated congenital anomalies is crucial for comprehensive patient management.

Keywords: Congenital Defects, Hernia, Prosthesis Repair, Ultrasound, X-ray.

Introduction

Lumbar hernias are protrusion of abdominal viscus or part of viscus through a defect in lumbar triangle. Congenital lumbar hernia is a rare entity of which one third are isolated and two third are associated with other congenital anomalies including vertebrae, ribs, caudal regression syndrome, ureter pelvic junction obstruction, renal agenesis where lumbocostovertebral syndrome are the most common [1]. It may be asymptomatic at birth or presents as a visible swelling more pronounced on crying. Here we are reporting a case of congenital lumbar hernia with lumbocostovertebral syndrome which is a rare entity with only 60 cases reported so far [2].

Case Report

A one and a half-month-old baby boy presented to the Pediatric Surgery OPD with a mass in the right flank region, present since birth **[Fig.1]**. The mass had been gradually increasing in size and became more pronounced when the baby cried. The baby was born at 39 weeks to a 22-year-old mother following an uncomplicated pregnancy and a normal vaginal delivery. No resuscitation was required at birth. He is the second child of non-consanguineous parents, with an elder brother who is currently 3 years old and has met all developmental milestones.

Fig.1: *Right sided congenital lumbar hernia.*

On physical examination, there was a visible swelling in the right lumbar region, approximately 8×6 cm in size, soft in consistency with intact overlying skin, and reducible. The swelling appeared more prominent when the baby cried. The rest of the systemic examination was within normal limits. Chest and abdominal X-rays revealed an abdominal wall defect in the right lumbar region with herniation of bowel loops, rib anomalies, scoliosis, and hemivertebra **[Fig.2]**. An ultrasound of the abdomen and pelvis revealed a focal defect of approximately 25 mm in the right lumbar region through which bowel loops were herniating. Other solid organs were normal.

For surgery, the patient was positioned in the left lateral position. An incision was made transversely over the hernia site in the right lumbar region. The hernial sac contained bowel loops, which were reduced **[Fig.3]**. After defining the edges of the defect, the final size was measured to be approximately 3×2 cm. A space was created between the peritoneum and the muscle layer, and a 5×4 cm polypropylene mesh was placed **[Fig.4]**. The muscle layer was then sutured in two layers, followed by the subcutaneous tissue and skin. The post-operative period was uneventful, and the patient was discharged on post-operative day 4.

Discussion

Lumbar hernias, first reported by Dr. Garangeot in 1731 and further elaborated by Petit in 1783 and Grynfeltt in 1866, are rare anatomical defects characterized by the protrusion of abdominal contents through the lumbar triangle [3]. These hernias are classified based on their anatomical location: the superior lumbar triangle of Grynfeltt or the inferior lumbar triangle of Petit. The superior triangle is bounded laterally by the posterior border of the internal oblique muscle, medially by the quadratus lumborum and erector spinae muscles, and superiorly by the 12th rib. The inferior triangle is bordered anteriorly by the external oblique muscle, posteriorly by the latissimus dorsi, and inferiorly by the iliac crest [4].

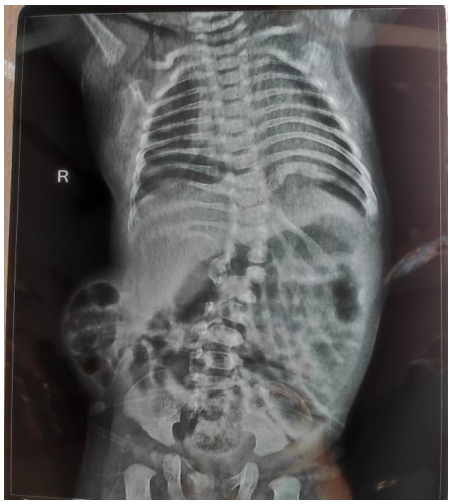

Fig.2: *X-ray showing abdominal wall defect in the right lumbar region with herniation of bowel loops associated with rib anomalies, scoliosis with lateral curvature towards the left and multilevel vertebral anomalies in the form of hemivertebra.*

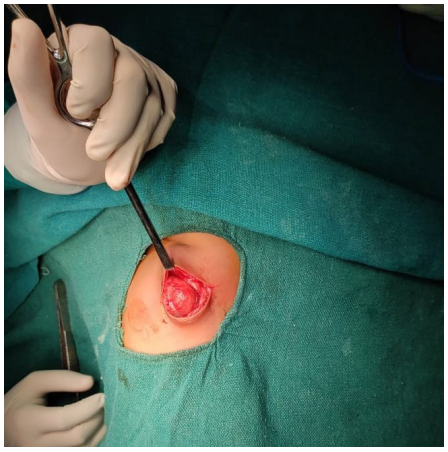

Fig.3: *Lumbar hernia with bowel loop as content.*

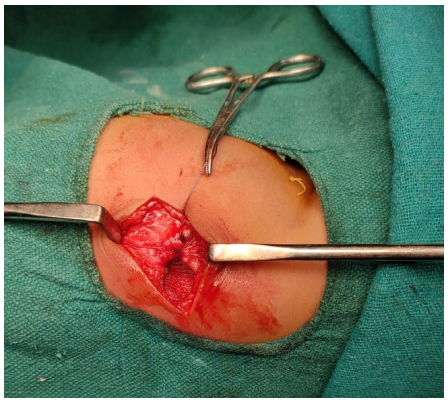

Fig.4: *Prosthetic mesh placed extraperitoneal.*

Etiologically, lumbar hernias can be congenital or acquired. Congenital lumbar hernias, comprising about 20% of cases, result from developmental defects in the musculoskeletal system, potentially due to transient anoxia during gestational weeks 3-5 or congenital weak points in the superior lumbar triangle. Acquired hernias, which make up 80% of cases, often arise secondary to trauma, surgery, or inflammation [5,6].

Diagnostically, a computed tomography (CT) scan of the abdomen and pelvis is the gold standard for identifying lumbar hernias, offering detailed imaging of the herniated contents and associated structural anomalies [7]. In our case, imaging revealed a right lumbar region defect with herniation of bowel loops, rib anomalies, scoliosis, and hemivertebrae, consistent with lumbocostovertebral syndrome.

Surgical intervention is crucial for lumbar hernias due to the high risk of complications such as incarceration (25%) and strangulation (10%). The primary goals of surgery are to reduce the hernial sac, repair the defect, and reinforce the posterior abdominal wall. Techniques vary from simple anatomical closure to more complex repairs using musculofascial flaps or prosthetic mesh. Evidence suggests that the use of extraperitoneal prosthetic mesh is particularly effective, as it avoids the need for bony anchorage and reduces the risk of injury to underlying structures. While laparoscopic approaches offer technical advantages, the open method remains the preferred technique due to its established efficacy [8-11].

Conclusion

Congenital lumbar hernia with lumbocostovertebral syndrome is a rare but significant condition in pediatric patients. Prompt diagnosis and surgical intervention are essential to prevent complications and address associated anomalies. Open prosthetic repair remains the gold standard, offering a reliable and effective solution for these complex hernias. Surgeons should be vigilant for other congenital anomalies in patients presenting with congenital lumbar hernia, ensuring comprehensive management and optimal outcomes.

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