

Inguinal Dermoid Cyst in a Young Boy with un-descended Testis;

Mohammad Osama, Muhammad Humayun, Noman Ullah, Mahroosha Noor Khan, Musawir Khan, Nawazish Ali

ABSTRACT:

Groin lumps have various differential diagnoses, including hernias and lymphadenopathies. Dermoid cysts, occasionally found on the face or scalp, rarely can occur in the inguinal canal. Dermoid cysts are rare benign lesions in the inguinal canal, though inguinal hernias are more common. Despite their rarity, dermoids should be considered in the differential diagnosis of groin lumps. Ultrasound is the preferred diagnostic tool for dermoid cysts, with 58% sensitivity and 99% specificity. However, misdiagnoses (e.g., intramuscular hematoma) or inconclusive results can occasionally occur. Diagnosing these cysts requires high suspicion due to their rarity in the inguinal region. Clinically, they can mimic common conditions like hernias or lipomas, making diagnosis challenging. Inguinal dermoid cysts are extremely rare, with only 12 documented cases. These congenital cysts contain tissues from at least two germ layers. Timely investigations and preoperative suspicion can prevent intraoperative surprises and help avoid potential complications. Complete excision is essential for treatment. This case report is the first documented instance of an inguinal dermoid cyst from Dera Ismail Khan, Pakistan.

Keywords: Benign skin lesions, dermoid cyst, Inguinal canal, un-descended testis,

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INTRODUCTION:

Groin lumps are frequently seen by general practitioners, emergency departments, and surgeons. Although hernias and lymphadenopathies are the most common causes of groin lumps in all age groups, there exists a wide range of differential diagnoses. Differential diagnoses may include pre-peritoneal lipoma, pectineus bursitis, internal oblique hematoma, varicocele, undescended testis, lymphadenopathy,

and unusual cystic lesions.¹ Cutaneous and subcutaneous dermoid cysts are most commonly found on the face, neck, or scalp; however, they can also occur in less common locations such as the intracranial, intraspinal, perispinal regions, and the anterior abdominal wall. Dermoid cysts as a cause of inguinal canal lumps are extremely rare.² Dermoid cysts, or mature teratomas, in the inguinal canal are uncommon. These congenital cysts contain mature tissues derived from at least two germ layers. While they are typically found in the gonads, they can also occur in areas such as the anterior mediastinum, para-coccygeal zones, pineal region, intracranial regions, neck, and abdominal areas.³ Unusual locations, such as the inguinal canal, pose diagnostic challenges. Notably, dermoid cysts of the inguinal canal or spermatic cord are extremely rare, with only 12 well-documented cases reported in medical literature.⁴ We hereby report a case of Inguinal dermoid cyst with un-descended testis of young patient, which to the best of authors knowledge, is the first documented instance of an inguinal dermoid cyst from Dera Ismail Khan, Pakistan.

Case Report:

An 18 year old male patient presented to the Surgical Out-Patient Department from Wana, Waziristan with the chief complaint of left inguinal swelling for the last 2 months. The swelling being unilateral, gradual in onset associated with pain and non-reducible. The pain is gradual in nature, diffuse in character, associated with activity, not relieving by medications. There was no history of trauma. The Patient denies any associated symptoms like fever, nausea, vomiting. Examination revealed a firm, tender, and irreducible swelling in the left inguinal region, with an empty left scrotum, giving an impression of undescended testis. The differential diagnosis

Mohammad Osama

Final Year MBBS Student,
Gomal Medical College, DIK.
Email: chambersburg56@gmail.com

Muhammad Humayun (Corresponding Author)

Associate Professor, Department of General Surgery
Gomal Medical College, DIK.
Email: drhamayun83@gmail.com

Noman Ullah

Resident Trainee, Department of General Surgery
Gomal Medical College, DIK.
Email: Noumanwazir19@gmail.com

Mahroosha Noor Khan

Resident Trainee, Department of General Surgery
Gomal Medical College, DIK.
Email: Mahrooshakhan567@gmail.com

Musawir Khan

House Officer, Department of General Surgery
Gomal Medical College, DIK.
Email: musawarkhan100@gmail.com

Nawazish Ali

Final Year MBBS, Student
Gomal Medical College, DIK.
Email: Dralinawazish12147@gmail.com

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of left inguinal Hernia was made initially for inguinal swelling as being the most common. The patient was evaluated by further Investigations including Basic Laboratory Investigations, Ultrasound Abdomen & Pelvis and Scrotal ultrasound. The ultrasonography report validated Left empty Scrotal sac having no testicle, a hypoechoic structure measuring more than 3.7 x 4.73 cm in the left inguinal region, right sided testicle being normal in size, echotexture and in scrotal sac. Given the patient condition, the patient was scheduled for elective open exploration of the inguinal canal in the Surgical Unit the following day and was admitted to the ward for pre-operative care. Intra-Operative findings included a well circumscribed structure along the cord in inguinal canal. The structure was released gently and removed intact. Left undescended Testicle was evaluated and was found to be healthy with intact blood supply. The Structure containing a thick, white, putaceous, malodorous paste-like substance with incorporated hair. The sac was meticulously dissected from the inguinal cord, and no hernial communication was identified. The sac was completely excised, and the attenuated posterior wall, likely resulting from chronic pressure, was reinforced with 2-0 polypropylene suture. In the same setting, Orchiopexy was also performed. The clinical diagnosis of Dermoid Cyst was established. Post operatively, the patient was treated with Analgesics, IV antibiotics and suture were removed on the 11th Post-operative day. The patient underwent regular follow-up appointments to track his progress, identify potential issues, and monitor for recurrence. His latest evaluation showed satisfactory healing with no complications or recurrence.

DISCUSSION:

Epidermoid cysts are typically benign, but their occurrence within an inguinal hernia is rare as was observed in our case. These cysts usually develop when the ectoderm does not fully separate from the neural tube or when surface ectoderm fails to detach correctly at embryonic fusion points.⁵ Diagnosing these cysts requires a high level of suspicion

Figure 1: Dermoid cyst in Inguinal canal



Figure 2: Dermoid cyst excised intact from inguinal canal

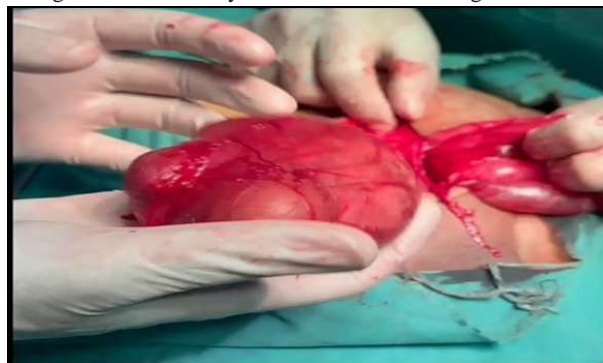


Figure 3: USG showing hypoechoic structure measuring more than 3.7 x 4.73 cm in the left inguinal region, with left un-descended testis

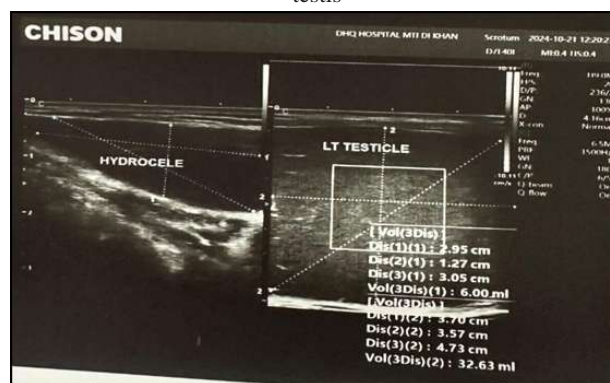


Figure 4: Dermoid cyst on exploration identified white, putaceous material and hair



due to their rarity in the inguinal region. Because clinically, these lesions can resemble more typical inguinal conditions like hernias or lipomas, making diagnosis challenging.⁶ Ultrasound has been the preferred diagnostic tool for dermoid cysts, offering 58% sensitivity and 99% specificity in detecting these cysts.⁷ However, sometimes misdiagnoses such as intramuscular hematoma or inconclusive studies can occur. The results of a scrotal ultrasound scan may not be entirely diagnostic, but they may distinguish the cyst from its surrounding structures with a smooth contour, a hyperechoic bulk, and a hypoechoic rim.⁸ Dermoid cysts are lined with keratinising squamous epithelium, filled with keratinous debris. The cyst walls usually contain eccrine glands, sebaceous glands or hair follicles.⁹ Histological the exterior layer of a dermoid cyst is composed of highly differentiated squamous epithelium, while the fibrous connective tissue beneath it is packed with hair follicles, hairs, blood vessels, and sebaceous, eccrine, and apocrine glands.

The existence of dermal tissue and its associated structures in dermoid cysts serves to differentiate them from both epidermoid and sebaceous cysts, while the lack of any components that are not intrinsic to the skin (such as cartilage, respiratory epithelium, or gastrointestinal mucosal lining cells) serves to distinguish them from benign cystic teratomas located in the ovarian, testicular, retroperitoneal, and sacrococcygeal regions.¹⁰ Dermoid cysts, particularly those located intra-abdominally, can rarely lead to serious complications, including torsion, spontaneous rupture, hemorrhage, infection, and, in extremely rare cases, malignant transformation. To date, there exists a conspicuous absence of documented instances pertaining to these complications in cysts that specifically manifest within the inguinal region as was seen in our patient. Our case was unique, as with a 2-month history of untreated increasing inguinal swelling that was left untreated initially but due to increasing pain worsened with activity, accompanied by undescended testis, no trauma history and an intra-operative surprise of dermoid cyst in the inguinal canal.

In females, dermoid cysts are primarily located in the ovaries, while in males, they may occasionally develop in the inguinal region as found in our case.¹¹ These lesions are characterized by their gradual growth, often going unnoticed until the person is in their second or third decade. A large dermoid cyst in the inguinal canal can potentially lead to a direct inguinal hernia. This occurs due to the prolonged, constant pressure exerted by the cyst, causing thinning and weakening of the posterior wall of the inguinal canal. Dermoid cysts often have a classic appearance, making diagnosis evident during surgery, and their benign nature means malignant transformation is rare. When completely removed intact as done in our case, recurrence risk is minimal. There is a good correlation between clinical diagnosis and ultimate pathological diagnosis of epidermoid cyst. The intraoperative

transection of a resected specimen may increase diagnostic confidence. Where classical features are present clinically and on excision, the specimens do not require histological examination.¹² In resource-limited settings, omitting routine histopathology for clinically unambiguous cases where cyst is excised completely without rupture, margins are not in question, making pathological analysis less critical and can optimize resources without compromising patient care.

In order to distinguish between more common and uncommon presentations, this case highlights the importance of thorough clinical evaluations combined with strategic diagnostic techniques. Clinicians should be more cautious when diagnosing and treating similar cases after discovering a dermoid cyst in an inguinal region. The recommended treatment for dermoid cysts is complete surgical excision of the lesion.

CONCLUSION:

Rarely found in the inguinal canal, dermoid cysts are common benign developmental anomaly lesions. Inguinal hernias are common, but other pathologies, including rare dermoid cysts, should be considered in differential diagnoses of groin lumps and completely excised if found. A high index of suspicion and timely investigations can help diagnose rare conditions like inguinal dermoid cysts, avoiding intraoperative surprises and potentially life-threatening complications if left undiagnosed or mismanaged.

Authors Contribution:

Mohammad Osama: Analyzed, Literature Search, Interpret the data as well as wrote the manuscript
Muhammad Hamayun: Analyzed, Literature Search, Interpret the data as well as wrote the manuscript.
Noman Ullah: helping in analysis, interpretation and maintaining the record
Mahroosha Noor Khan: Analyzed, Literature Search, Interpret the data as well as wrote the manuscript.
Musawir Khan: helping in literature search, interpretation, review manuscript
Nawazish Ali: helping in literature search, interpretation, review manuscript

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