



BEYOND THE BULGE: A CASE SERIES OF ENCYSTED HYDROCELE IN PAEDIATRIC PATIENTS – A DIAGNOSTIC EYE-OPENER

Radio-Diagnosis

Dr. Trilochan Tripura	Post Graduate Trainee, Department Of Radiodiagnosis, Agartala Government Medical College & Gb Pant Hospital, Agartala, West Tripura.
Dr. Pintu Biswas*	Senior Resident, Department Of Radiodiagnosis, Agartala Government Medical College & Gb Pant Hospital, Agartala, West Tripura. *Corresponding Author
Dr. Shubhajit Debnath	Post Graduate Trainee, Department Of Radiodiagnosis, Agartala Government Medical College & Gb Pant Hospital, Agartala, West Tripura.
Dr. Prabhat Debbarma	Professor, Department Of Radiodiagnosis, Agartala Government Medical College & Gb Pant Hospital, Agartala, West Tripura.

ABSTRACT

Encysted hydrocele is a rare form of hydrocele seen predominantly in paediatric patients. It is characterized by a well-defined, fluid-filled sac that is not connected to the peritoneal cavity or the testis. This case series presents five paediatric patients with ultrasonographic findings suggestive of encysted hydrocele, detailing the anatomical locations, dimensions and Doppler characteristics of the lesions.

KEYWORDS

Encysted hydrocele, inguinal swelling, paediatric surgery, processus vaginalis, spermatic cord, ultrasonography.

INTRODUCTION

Hydroceles are fluid accumulations within the tunica vaginalis or along the spermatic cord. Encysted hydrocele specifically refers to fluid accumulation along the spermatic cord without communication with the peritoneum or scrotal sac [1, 2]. This condition is more frequently observed in paediatric populations, particularly in the first few years of life and is generally considered benign. The etiology is believed to involve an aberration in the obliteration of the processus vaginalis during development [1]. Though often asymptomatic, larger hydroceles may cause discomfort or palpable swelling. Clinically, encysted hydrocele must be differentiated from other scrotal and inguinal pathologies such as inguinal hernias, lymphoceles, or spermatic cord cysts.

Ultrasonography remains the primary imaging modality for diagnosis, offering high-resolution visualization of fluid collections and anatomical relationships [3]. It enables precise assessment of the lesion's size, location, and relationship to adjacent structures which are crucial for both diagnosis and treatment planning. Doppler evaluation helps in excluding vascular lesions [4], while real-time imaging facilitates evaluation of communication with the peritoneal cavity [5].

Case Series

Case 1:

A 3 months old boy was referred with a suspected undescended right testis, as a firm mass was noted in the right inguinal canal region. On ultrasonography, the right testis was identified in right hemiscrotum, which was normal in size, shape, echotexture & vascularity [Fig-1A]. There was a well-defined anechoic cystic lesion seen in right inguinal region not reaching upto testis [Fig-1B]. It is not communicating with abdominal cavity superiorly.

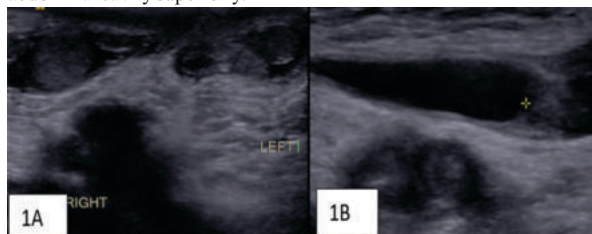


Figure-1: A & B. A- Showing both testes are normal in location & sonographically unremarkable. B: Showing oval shaped cystic lesion along the right spermatic cord, separate from right hemiscrotum.

Case 2:

A 1-year-old boy presented with 4-month history of painless right inguino-scrotal swelling. Examination revealed a soft, transilluminant, non-reducible right inguinal mass.

High resolution ultrasonography revealed an oval shaped cystic lesion was noted along the right spermatic cord, measuring approximately 3.26 x 1.24 cm [Fig-2A]. No communication to peritoneal cavity or scrotal sac detected. Both testes were normal [Fig-2B & 2C].



Figure-2: A, B & C. A- An anechoic lesion in right inguino-scrotal region along spermatic cord. B & C- Showing normal appearing testes.

Case 3:

A 2 years old male presented with occasional right groin pain. On examination, a mobile, soft, non-tender right inguinal mass was seen. Clinical findings were inconclusive.

Ultrasonography showed- a well-defined anechoic cystic lesion seen in the right inguinal region. No intralesional ethos seen. No relation of lesion's size to intra-abdominal pressure seen. The lesion was away from the testis.

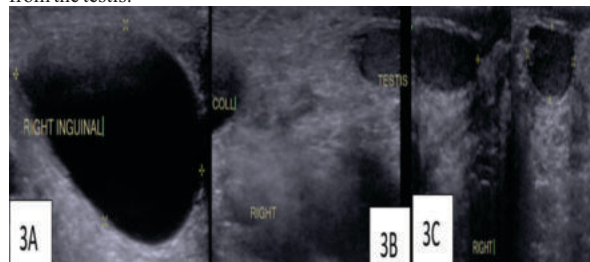


Figure-3: A, B & C. A- showing an oval shaped cystic lesion confined to right inguinal region along the spermatic cord. B- Showing the inguinal lesion is away from testis. C- The normal appearing right testis.

Case 4:

This male child of 2 years 8 months old, was brought by parents who had a right sided groin swelling, which they noticed since last one month. On examination, it appeared intermittently reducible, leading to an initial diagnosis of inguinal hernia.

On ultrasonography- an oval shaped cystic lesion was observed along the right spermatic cord [Fig- 4A]. No internal septa or debris were identified. There was no communication to peritoneal cavity or scrotal sac. No similar lesion was seen along the left spermatic cord. Both testes were normal appearing [Fig- 4 B & C].



Figure- 4: A, B & C. A- a cystic lesion along the right spermatic cord consistent with encysted hydrocele. B & C- normal appearing right & left testes.

Case 5:

A 6-year-old boy exhibited a left-sided groin swelling that mimicked an inguinal hernia. Testes were palpated separately in scrotal sac.

Ultrasonography showed- a well-defined round to oval anechoic encysted collection with minimal internal echoes seen in the left inguinal region [Fig- 5A]. The lesion displaced the testis inferiorly [Fig-5B] and extended along the left spermatic cord. On color Doppler, no color flow was observed. Right inguinal region was unremarkable.



Figure- 5: A, B & C. A- anechoic encysted collection with minimal internal echoes in left inguinal region. B - Normal appearing left testis, being slightly displaced downward by the lesion. C- The normal right testis.

DISCUSSION

Encysted hydrocele, though relatively benign, presents a diagnostic challenge in pediatric patients due to its variable clinical manifestations and overlap with other inguinal and scrotal pathologies. While many cases are asymptomatic, some may present as painless inguinal or scrotal swellings, often raising concern among parents and prompting further evaluation.

The primary differential diagnoses include inguinal hernia, spermatic cord cysts, lymphoceles and epidermoid cysts. Accurate differentiation is essential to avoid unnecessary surgical intervention. Ultrasonography, particularly with high-frequency probes and Doppler imaging serves as the cornerstone of diagnosis. It reliably identifies the cystic nature of the lesion, confirms its lack of communication with the peritoneal cavity, and delineates its anatomical relationship to the testis and spermatic cord. The absence of internal vascularity on Doppler imaging further supports the diagnosis and helps exclude vascular lesions such as varicoceles or hemangiomas [3, 4].

In the majority of infants and young children, encysted hydroceles are self-limiting and may resolve spontaneously over time [1]. Hence, a conservative approach is often warranted during early infancy. Surgical intervention is typically reserved for persistent, enlarging, or symptomatic cases, especially when the diagnosis is unclear or when the hydrocele fails to regress by the age of 1 to 2 years [2]. Surgical excision, when indicated, is curative with a low risk of recurrence.

The findings in our case series reinforce the role of ultrasonography as an indispensable tool in the evaluation of pediatric scrotal and inguinal swellings. The consistent imaging features across our cases highlight the diagnostic clarity provided by sonography and underscore the importance of incorporating Doppler assessment to exclude vascular anomalies. Moreover, early and accurate diagnosis facilitates appropriate management planning and prevents unwarranted surgical exploration.

CONCLUSION

This case series highlights the ultrasonographic features of encysted hydrocele in five paediatric patients, underscoring the importance of imaging in accurate diagnosis and management decisions. Early identification through non-invasive techniques can prevent unnecessary interventions and guide appropriate therapeutic strategies.

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