

Evaluation of Scrotal Pathology on Ultrasonography

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ABSTRACT

The spectrum of conditions that affect the scrotum and its contents ranges from incidental findings that merely require explanation and patient reassurance to acute pathologic events that require expeditious diagnosis and treatment. Ultrasound (US) allows for urgent and accurate differentiation of many causes of scrotal pain, including prompt diagnosis of testicular torsion. Advances in high-resolution gray-scale and color Doppler US have expanded the clinical applications of scrotal US and have made it the ideal imaging modality for evaluation of the acute scrotum in both children and adults. This paper reviews the incidence of different scrotal pathologies in patients presenting with conditions affecting the scrotum in outpatient department of Ghurki Trust Teaching Hospital.

Key words: Scroum, ultrasonography, pathology

INTRODUCTION

Acute scrotal pain is a common clinical problem in both children and adults, symptoms are often vague and clinical findings are nonspecific. Ultrasound (US) allows for expedient and accurate differentiation of many causes of scrotal pain, including prompt diagnosis of testicular torsion that helps maximize testicular viability. Ultrasound (US) offers timely and accurate differentiation of many causes of scrotal pain. Advances in high-resolution gray-scale and color Doppler US have expanded the clinical applications of scrotal US and have made it the ideal imaging modality for evaluation of the acute scrotum in both children and adults. Knowledge of the normal appearance of the testis and scrotal contents and familiarity with the many pathologic conditions that may affect the scrotum are essential for expedient and accurate diagnosis of scrotal pathology.

The Tunica vaginalis and the epididymis are two important structures for the scrotal examination. The Tunica Vaginalis is a potential space that encompasses the anterior two thirds of the testis where fluid from a variety of sources may accumulate. The epididymis lays posterolateral to the testis and must be differentiated from a scrotal mass. The spermatic cord, which consists of the testicular vessels and the vas deferens, is connected to the base of the epididymis.

Scrotal Ultrasound is best performed with a linear 7.5 to 12 MHz transducer. A lower-frequency transducer may be helpful with marked scrotal swelling. Direct scanning with copious acoustic gel is performed most frequently. A towel or the examiner's hand may be used to elevate and support the scrotal sac. In addition to imaging in the longitudinal and transverse planes, it is helpful to obtain simultaneous images of both testes for comparison. Color Doppler is used to evaluate for abnormalities of flow and to differentiate vascular from nonvascular lesions.

MATERIAL & METHODS

This study was carried out in Ghurki Trust Teaching Hospital affiliated with Lahore Medical & Dental College, Lahore. 100 patients presenting with scrotal symptoms in the urology and surgical outdoor were included in the study. The age range was from 10 months to 70 years old. Detailed history and clinical examination of every patient was recorded to include the onset and duration of symptoms as well as any associated complaints. Patients were sent for Ultrasound scan of the KUB (kidney ureter bladder) as well as scrotal ultrasound. In patients where there was suspicion of Torsion of the Testis, Color Doppler study was also performed. Urine complete examination was carried out in all patients. Other relevant tests like semen analysis were done where indicated.

RESULTS

One hundred patients presenting with scrotal symptoms were included in the study. Youngest patient was about 10 months old where as the oldest patient examined was 70 years old. Twenty eight patients had Varicocele on USG. Of these 16 were bilateral, 11 was left sided whereas only 1 patient presented with right sided varicocele. Of these 23 patients belonged to 21-40 year age group. Thirty five patients were diagnosed to have Hydrocele. Of these 14 were bilateral, 15 were left sided and 6 were on the Rt. side. There was almost uniform distribution among all age groups. The number of patients found to have Left Epididymoorchitis was 7 whereas 5 patients had Rt. Epididymoorchitis. All these patients belonged to young age group. The incidence of Acute Epididymoorchitis as reported in the literature is 1 per 1000 adult males. The percentage in our study may be higher due to the fact that the USG was performed in patients presenting with acute scrotal pain. Twelve patients presented with Undescended Testis. 7 patients had Left whereas 3 had Rt. Undescended Testis, while 2 patients had Bilateral Undescended Testis. Epidemiology of Cryptorchidism as reported in the literature shows that between 2 and 5 percent of full-term and 30 percent of premature male infants are born with an Undescended testicle. Miscellaneous pathologies included Hernia (1 pt.), Testicular Tumor (1 PT.), Scrotal Abscess (2 Pt.), and Epididymal Cyst (5 Pt.). 4 patients had normal scrotal ultrasound.

DISCUSSION

A wide variety of conditions affect the male scrotum and its contents. These conditions may present at all ages. These conditions range from incidental findings that only require explanation and patient reassurance to acute pathologic events that require urgent diagnosis and management.¹Ultrasound (US) allows for expedient and accurate differentiation of many causes of scrotal pain, including prompt diagnosis of testicular torsion that helps maximize testicular viability. Ultrasound (US) offers timely and accurate differentiation of many causes of scrotal pain. Advances in high-resolution gray-scale and color Doppler US have expanded the clinical applications of scrotal US and have made it the ideal imaging modality for evaluation of the acute scrotum in both children and adults².

An experienced clinician can often make an accurate diagnosis based upon the history and physical examination alone, but advances in Ultrasonography especially color Doppler imaging of the Scrotum have made this a useful adjunct to the physical examination in equivocal cases.

In our study 27 patients out of 28 had left varicocele, which compares with the incidence of 85-95 % as reported in the international journals^{3,4}.

Thirty five patients out of the 100 patients who underwent scrotal evaluation were found to have Hydrocele. Out of these 14 had bilateral hydrocele, 15 had left sided Hydrocele and 6 patients had Rt. sided Hydrocele. Similarly 12 patients were found to have Epididymo-orchitis. Of these 7 had Left sided whereas 5 had Rt. Epididymo-orchitis^{5,6}.

Cryptorchidism can affect one or both testes; approximately 10 percent of cases are bilateral⁷. Among the unilateral cases, a left-sided predominance exists⁸. The prevalence of cryptorchidism varies geographically. In a prospective cohort study, cryptorchidism was present in 9 percent (95%) of newborn boys in Denmark, but only 2.4 percent (95%) of newborn boys in Finland.

The most common location for an undescended testicle is just outside the external ring (suprascrotal), followed by the inguinal canal, and finally the abdomen⁹. In our study 12 children were found to have undescended testis .7 pt. had left, 3 had Rt. while 2 patients had B/L Undescended Testis. This compares with the incidence of about 1.4 % reported in other studies. Other miscellaneous findings included Testicular tumor, scrotal abscess, and epididymal cyst etc. whereas 4 patients were found not to have any pathology on ultrasound evaluation. However in our study we did not come across any case of Testicular torsion.

CONCLUSION

The scrotal ultrasound is a very useful adjunct to Physical Examination in the evaluation and differential diagnosis of scrotal pathology. It is a cheap, non-invasive and readily available diagnostic modality which should be routinely used to ease diagnosis and management of such patients.

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