

Original Research Article

ROLE OF HIGH FREQUENCY ULTRASOUND WITH COLOUR DOPPLER IN DIAGNOSIS OF ACUTE SCROTAL PAIN

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Abstract:

Background & Method: The aim of this study is to study the role of high frequency ultrasound with colour Doppler in diagnosis of acute scrotal pain. Ultrasound of scrotum is performed with patient in supine position & the scrotum supported by towel placed between things. A large amount of gel is used to minimize pressure on the scrotal skin. High frequency linear array transducer is used for performing study. Each hemiscrotum is scanned in longitudinal & transverse planes.

Result: The most common presenting complaint of the patient was swelling in the scrotal region (49.3%). Many patients had more than one symptoms. Extratesticular lesions was more common in the study (52.6%) than the testicular lesion (20.6%) The left scrotal sac was more commonly affected (42%) in the study. Bilateral involvement is seen in (25.4%) of cases.

Conclusion: High frequency ultra sound combined with colour Doppler remains an accurate, rapid & safe diagnostic tool in imaging scrotum. High frequency ultrasound helps to distinguish intra testicular from extra testicular lesions. Improvement in resolution permitted greater confidence in characterization of lesions. Most common clinical presentation was swelling 49.3% followed by pain (34%). Most of the patients had unilateral involvement of left hemi scrotum (42%) in the study.

Keywords: Ultrasound, Colour Doppler & acute scrotal pain.

Study Designed: Observational Study.

1. INTRODUCTION

Scrotum is divided into two halves by median cutaneous raphae. The testis is a firm mobile organ lying within the scrotum[1]. The upper pole is tilted antero laterally & the lower pole

poster medially. The anterior aspect is convex & the posterior margin is nearly straight with the spermatic cord attached to it.

The average testicular dimensions are 4-5 cms in length, 2-4 cms in width & 3-3.5 cms in antero posterior diameter[2]. The weight ranges from 12.5-20 gms. Each testis is covered by a tough fibro muscular capsule, the tunica albuginea. The anterior, medial & lateral surfaces & both poles are covered by the visceral layer of the tunica vaginalis, which is separate from the parietal layer & the scrotum.

Extending from the inner surface of the capsule is a series of fibrous septa that divide the testis into lobules. Lying within each lobule are one to three seminiferous tubules[3]. Approximately there are 840 tubules per testis. As the tubules course centrally they join other seminiferous tubules to form 20 to 30 larger ducts known as tubuli recti. The tubuli recti enter the mediastinum testis to form a network of channels within the testicular stroma called the rete testis. Small efferent ductules connect the rete testis to the upper end of the epididymis. The epididymis is a curved structure measuring 6-7 cms. in length lying postero lateral to the testis. It is composed of a head, a body & a tail[4]. The head of the epididymis or globus major is located adjacent to the superior pole of the testis & is the largest part of the epididymis. The body or corpus of the epididymis lies adjacent to the postero lateral margin of the testis. The tail or globus minor is loosely attached to the lower pole of the testis by areolar tissue.

2. MATERIAL & METHOD

This prospective study of 150 cases of scrotal was conducted in the department of radio diagnosis at Amaltas Institute of Medical Sciences, Dewas, (M.P.) from September 2021 to August 2022.

Ultrasound of scrotum is performed with patient in supine position & the scrotum supported by towel placed between thighs. A large amount of gel is used to minimize pressure on the scrotal skin. High frequency linear array transducer is used for performing study. Each hemiscrotum is scanned in longitudinal & transverse planes. Study of spermatic cord is important in patients with varicose & suspected testicular torsion. Oblique longitudinal view of testis is obtained to optimally display vessels. In all cases the asymptomatic side is used as a control for comparison.

INCLUSION CRITERIA

All patients referred to department of Radio diagnosis with clinical features of scrotal disease for B-mode & Doppler study.

EXCLUSION CRITERIA:-

1. Patient's with previous history of operative or therapeutic procedure on scrotum with exception of vasectomy.
2. Patients presenting with hernia excluded in this study.
3. Trauma excluded in study

3. RESULTS

TABLE NO 01: Distribution of cases on the basis of clinical symptoms.

COMPLAINTS	NO OF CASES	PERCENTAGE
Swelling	74	49.3
Pain	51	34
Fever	23	15.3
Undescended testis	02	1.4

The most common presenting complaint of the patient was swelling in the scrotal region (49.3%). Many patients had more than one symptoms.

TABLE NO 02: Origin of lesion in the study

	NO OF CASES	PERCENTAGE (%)
TESTICULAR	31	20.6
EXTRATESTICULAR	79	52.6
TESTICULAR+ EXTRATESTICULAR	24	16
UNDESCENDED	16	10.6
TOTAL	150	100

Extratesticular lesions was more common in the study (52.6%) than the testicular lesion (20.6%)

TABLE NO 03: Distribution of cases on basis of laterality of various pathologies

	NO OF CASES	PERCENTAGE (%)
Right	49	32.6
Left	63	42
Bilateral	38	25.4
Total	150	100

The left scrotal sac was more commonly affected (42%) in the study. Bilateral involvement is seen in (25.4%) of cases.

4. DISCUSSION

Unilateral scrotal swelling was the most common presentation in 94% of cases in the study. Pain (40%) & fever (26%) were other most common clinical symptoms. Most patients presented with combination of symptoms, most common being pain & swelling[5]. Brigtle MD et al in their study of 498 patients found that unilateral swelling was the commonest presentation, followed by pain associated with swellings.

Unilateral involvement of the left hemi scrotum (46 %) was commonly observed in this study, followed by unilateral involvement of the right hemi scrotum seen in 33% of cases.

Hemiscrotal sac was found empty in 3% of cases in the study. The testis in these cases was positioned at inguinal canal. Study observed that undescended testis may be positioned anywhere along the normal path of descent[6]. The most common location is in the inguinal canal (72%), followed by inguino scrotal (20%), & abdominal location (8%). In our study all the undescended testis were positioned at inguinal canal.

Extratesticular lesions (67%) were more common than intratesticular lesions (18%).12% were epididymo orchitis (both intra- & extra- testicular). 3% were undescended testis. In a case series of 69 patients with scrotal swellings, they found that 41 had an extra testicular abnormality[7].

Extra testicular lesions were mostly anechoic (83.58%) in nature, attributed to hydrocele which is the most common finding in the study accounting for 42% of the total cases & 62.68% of extra testicular cases[8]. Diagnostic accuracy of high frequency ultra sound for diagnosing hydrocele is 100% on follow up study.

5. CONCLUSION

High frequency ultra sound combined with colour Doppler remains an accurate, rapid & safe diagnostic tool in imaging scrotum. High frequency ultrasound helps to distinguish intra testicular from extra testicular lesions. Improvement in resolution permitted greater confidence in characterization of lesions. Most common clinical presentation was swelling 49.3% followed by pain (34%). Most of the patients had unilateral involvement of left hemi scrotum (42%) in the study.

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