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Research Article

**ANALYSIS OF FREQUENCY OF DIFFERENT
ULTRASONOGRAPHIC PATTERNS IN PATIENTS
PRESENTING WITH ACUTE SCROTUM****Tehreem Irfan¹, Zoha Ali Shahwar², Junaid Shahbaz³**¹Tehsil Headquarter Hospital Sangla Hill, Nankana Sahib²Allama Iqbal Memorial Teaching Hospital, Sialkot³Tehsil Headquarter Hospital Daska, Sialkot**Abstract:**

Introduction: The ability to confidently establish a surgical versus a nonsurgical diagnosis for acute scrotal pain is important. **Aims and objectives:** The main objective of the study is to analyse the frequency of different ultrasonographic patterns in patients presenting with acute scrotum. **Material and methods:** This cross sectional was conducted in Allama Iqbal Memorial Teaching Hospital, Sialkot during November 2017 to May 2018. The data was collected from 100 patients having acute scrotum. Patients with history of trauma and scrotal mass were excluded from the study. These patients were subjected to high frequency ultrasonography and color Doppler using standard machine equipped with high resolution and color Doppler linear probe. **Results:** The data was collected from 100 patients of acute scrotum. Testicular trauma and obstructed hernia can be differentiated on basis of history given by patients. Although, scrotal contents are the most accessible to clinical examination, serious dilemmas occur. **Conclusion:** It is concluded that color Doppler of scrotum is must in a patient presenting in emergency department with acute scrotal pain.

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INTRODUCTION:

The ability to confidently establish a surgical versus a nonsurgical diagnosis for acute scrotal pain is important. The benefits of early surgery for testicular salvage in ischemic disease, primarily torsion of the testis, are well-known; but must be balanced against the costs of operating unnecessarily on a large number of patients with nonsurgical disease, primarily acute epididymo-orchitis [1]. Acute scrotum is defined as acute pain with or without scrotal swelling, may be accompanied by local signs or general symptoms. The most common differential diagnoses of the acute scrotum include: i) Torsion of the spermatic cord and ii) acute epididymitis or epididymo-orchitis. Less common diagnoses include: Strangulated hernia, segmental testicular infarction, testicular tumor, and idiopathic scrotal edema [2].

The acute scrotum in childhood or adolescence is a medical emergency. The acute scrotum is defined as scrotal pain, swelling, and redness of acute onset. Because the testicular parenchyma cannot tolerate ischemia for more than a short time, testicular torsion must be ruled out rapidly as the cause. Testicular torsion accounts for about 25% cases of acute scrotum, with an incidence of roughly 1 per 4000 young males per year [3].

There is an overlap in the clinical presentation of the different causes of acute scrotal pain. Imaging in clinically equivocal cases may lead to an early diagnosis of testicular torsion, and thus, decrease the number of unnecessary surgeries [4]. However there is no definite protocol of acute scrotum screening for the primary care physicians to follow. Early detection of testicular torsion through color Doppler is the only means to reduce the burden of morbidity [5].

Aims and objectives

The main objective of the study is to analyze the frequency of different ultrasonographic patterns in patients presenting with acute scrotum.

MATERIAL AND METHODS:

This descriptive study was conducted in Allama Iqbal Memorial Teaching Hospital, Sialkot during November 2017 to May 2018. The data was collected from 100 patients of acute scrotum. Patients with history of trauma and scrotal mass were excluded from the study. These patients were subjected to high frequency ultrasonography and color Doppler using standard machine equipped with high resolution and color Doppler linear probe performed by 2 consultant radiologist with at least 3 years of experience. Serial transverse and sagittal images of each scrotum are obtained and both testis are compared for echotexture and color flow. The study included both the scrotum and inguinal area.

Statistical analysis

The data was collected and analyzed using SPSS version 23.0. All the values were expressed in mean and standard deviation.

RESULTS:

The data was collected from 100 patients of acute scrotum. 55 patients presented with scrotal pain, 31 had painless scrotal mass or swelling and 14 had trauma. Of the 55 patients with scrotal pain, 12 had infection, 5 had testicular torsion, 5 had testicular trauma, 8 had varicocele, 5 had hydrocele, 5 had cryptorchidism, 3 had scrotal sac and groin metastases, and 2 had unremarkable results. Testicular trauma and obstructed hernia can be differentiated by mere taking history from patient. Although, scrotal contents are the most accessible to clinical examination, serious dilemmas occur. Physical examination adds only a little information and limited by acute pain and discomfort for patient which further limits the proper physical examination.

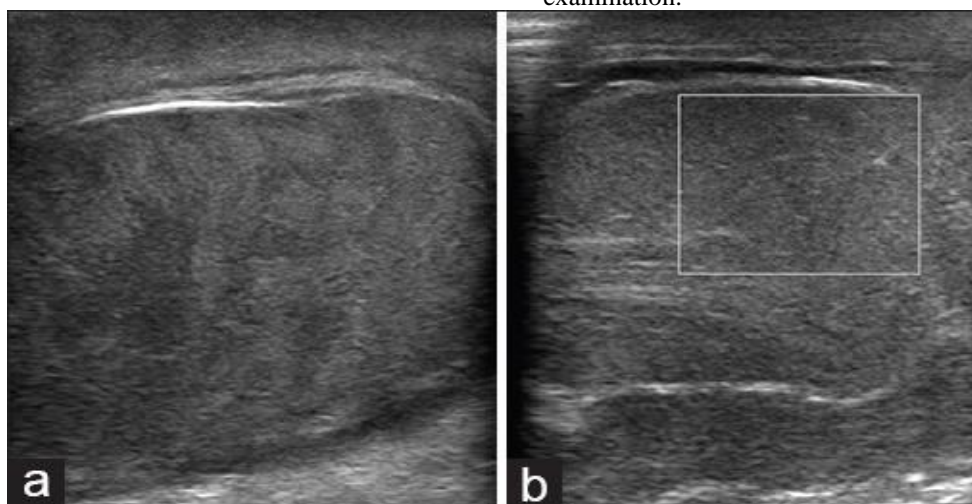


Figure 01: Epididymitis: Swelling, heterogeneous echotexture and increased vascularity of epididymis.

DISCUSSION:

Many disease processes, including inflammation, testicular torsion, testicular trauma, and testicular cancer, may have similar clinical presentation as acute scrotum. Differentiation of these disease processes is important for proper management [6]. High resolution gray scale ultrasound helps to better characterize the scrotal lesions. Color Doppler ultrasound demonstrates perfusion of the lesions which aids in reaching a specific diagnosis. Clinical symptoms and physical examination are often not enough for definite diagnosis. On the other hand miss diagnosed testicular torsion may lead to organ loss and cosmetic deformity and compromised fertility [7]. A consecutive 150 cases were selected who came to Radiology & Imaging department with acute scrotal pain.

Epididymo-orchitis is the most common cause of acute scrotal pain in postpubertal men. The age of peak incidence is 40–50 years [8]. It usually results from a lower urinary tract infection and is less often hematogenous or traumatic in origin. Typically, patients present with the insidious onset of scrotal pain and swelling with associated fever, rigors, and lower urinary tract symptoms such as increased frequency, dysuria, and urgency [9].

The pathogen is linked with age, the most prevalent age group is sexually active individuals and the commonest pathogens are *Chlamydia trachomatis* or *Neisseria gonorrhoeae*. At the extremes of age, *Escherichia coli* tend to be the commonest cause and are often linked to urinary tract infections [10]. In acute epididymitis, sonography characteristically shows thickening and enlargement of the epididymis, involving the tail initially and frequently spreading to the entire epididymis. Testicular involvement usually diffuse and in 10% focal and they appear hypoechoic. Reactive hydrocele formation is common, and associated skin thickening may be seen [11].

CONCLUSION:

It is concluded that color Doppler of scrotum is must in a patient presenting in emergency department with acute scrotal pain. It can reliably rule out

testicular torsion and helps in clearing clinical dilemma between torsion testis and epididymo-orchitis, and thus help in avoiding unnecessary surgical explorations.

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