ORIGINAL PROF-438

TESTICULAR APPENDIX TORSION ;
THE ROLE OF ULTRASOUND

Dr. Qamar S Khan,
Assistant Professor Radiology,
Liaquat Medical College, Jamshoro.

Dr. Gull Mohammad Sheikh
Assistant Professor of Surgery,
Liaquat Medical College, Jamshoro.

ABSTRACT

Testicular torsion and testicular appendix torsion show similar clinical features, like acute testicular pain and swelling. The testicular torsion needs emergency surgical management, while testicular appendix torsion can be treated conservatively. Lot of work has been going on in developed countries for the accurate diagnosis of the testicular lesions in the field of ultrasonography, from B mode gray scale to Doppler technology. Following study was conducted in our setup by only using B mode real time gray scale ultrasound for the diagnosis of the testicular appendix torsion in small series of patients just to avoid unnecessary surgical exploration and to show that B mode gray scale real time sonography can play important role in the diagnosis of testicular appendix torsion if it is performed carefully.

INTRODUCTION

Acute hemiscrotal pain and swelling is one of the complain in emergency department of any hospital. Various causes of acute testicular pain must be considered before reaching the final diagnosis. The common causes of acute testicular pain are testicular torsion, incarcerated inguinal hernia, twisting of the spermatic cord, trauma and rupture. But the torsion of the appendix testis is said to be one of the common causes of acute hemiscrotum accounting for 35% to 67% of cases[1,2,3].

Urgency and experience is needed in making the correct diagnosis of torsion of testis or torsion of the appendix of testis.

Torsion of the testicular appendix is self limiting condition and can be managed conservatively in most of the cases[4,5,6]. It is however the most frequently mis-diagnosed intra scrotal lesion[7]. The need to exclude testicular torsion with certainty has led to the unnecessary surgical exploration[8]. Lot of work has been going on in developed countries for the correct diagnosis of the testicular appendix torsion by using various sonographic techniques, from gray scale to colour doppler ultrasound. Inspite of non-availability of doppler, we conducted the study on the torsion of appendix testis in a small series of patents from 1995 to 1997, and the results obtained were very encouraging, though the total number of patients was only nine among 29 patients, with complain of acute hemiscrotal pain.

PATIENTS AND MATERIAL

Children between age of 6 to 9 years and two adults 18 to 22 years were evaluated for acute hemiscrotal pain and swelling. The pain was localized to the testis. The duration of pain was of several hours. The intensity of pain was acute. Fever was not present. There was no history of UTI, nor there was any history of trauma. Five patients show pain in the left scrotum while four of them had pain in the right scrotum.

The clinical diagnosis prior to the ultrasound was testicular torsion in five cases, Epididymo orchitis in two cases, acute hydrocoele in two cases who were adult. Ultrasound was performed by using 7 Mz linear probe.

Both sides of the scrotum were examined, specially concentrating over the size of epididymal head thickness of hemiscrotum and evidence of hydrocoele. The presence of appendix testis was carefully sought at the upper part of the testis and was finally diagnosed as the torsion of appendix testis rather than the other pathology mentioned above prior to the ultrasound examination.

The enlarged appendix on ultrasound seen adjacent to the head of epididymis. Its position may be medial or posterior. Six patients show medial position while three show posterior to the head of epididymis (Table 2). Appendix and the head of the epididymis appears equal in size on ultrasound.

Scan was performed in different views but the transverse or coronal view was found to be the best, at the level of epididymis. Reactive ipsilateral hydrocoele was present in all cases. The colour doppler ultrasound was not performed due to non-availability.

RESULTS

The results obtained were very encouraging. All nine patients showed sonographic feature of the torsion of appendix testis. Seven patients respond to conservative treatment, two(adults) underwent surgery and were found to be the case of appendix torsion of testis which was already diagnosed on ultrasound examination. The enlarged appendix was found medial to the epididymis in six patients and posterior position in three patients. (Table 2).

Table 1. Sonographic findings in torsion of appendix testis.

Patient	Scrotal wall thickness	Hydrocoele	Head of Epididymis	Site
1	+ve	+ ve	Enlarged	Left
2	+ ve	+ ve	Enlarged	Left
3	+ ve	+ ve	Enlarged	Right
4	+ ve	+ ve	Enlarged	Left
5	+ ve	+ ve	Enlarged	Left
6	+ ve	+ ve	Enlarged	Left
7	+ ve	+ ve	Enlarged	Right
8	+ ve	+ ve	Enlarged	Right
9	+ ve	+ ve	Enlarged	Right

The appendix of the testis and the head of the epididymis was nearly equal in size and echoegenicity in sagittal plane, for this reason transverse or coronal views were found to be the best scanning view to avoid any error or pitfall. The scrotal wall thickness and the reactive hydrocoele were found in all cases. The head of the epididymis was enlarged in all cases (Table 1). Colour doppler could not be performed because of unavailability of this facility.

Table 2. Sonographic findings in torsion of appendix testis.

Pts	Age in years	Size mm	Location of appendix	Echoe pattern

1	6	6 x 6	Medial to Epididymis	Hyper Echoeic
2	6	5 x 5	Medial to Epididymis	Hyper Echoeic
3	9	7 x 6	Medial to Epididymis	Hyper Echoeic
4	21	8 x 6	Posterior to Epididymis	Hyper Echoeic
5	9	5 x 5	Posterior to Epididymis	Hyper Echoeic
6	8	7 x 6	Medial to Epididymis	Hyper Echoeic
7	18	6 x 5	Posterior to Epididymis	Hyper Echoeic
8	6	6 x 5	Medial to Epididymis	Hyper Echoeic
9	6	6 x 5	Medial to Epididymis	Hyper Echoeic

DISCUSSION

Testicular appendages are vestigiak of the mesonephric and mullerian duct system. They include appendix testis,, appendix of vas, and the appendix of cord.

Appendix testis is most liable to undergo torsion[5]. The normal size of appendix testis is only 1-3mm long. The echoengenicity on ultrasound is similar with that of the head of epididymis and difficult to demonstrate on ultrasound, until hydrocoele is present[1,2].

The head of epididymis lie superior and lateral to the testis and appendix if seen is situated medial to the epididymis. In our study six patients showed medial position and three showed posterior position (Table 2). The appendix may lie in between the testis and the head of epididymis[6].

Testicular appendix torsion is manifested by pain localized to the upper pole of the testis with a palpable firm tender nodule. If the appendix infarcted then blue dot sign must be look on examination, which is the purplish infarcted appendix seen clinically through scrotal skin. This is sign seen in 21% of cases[7]. We had this sign in seven patients, all were children. This sign was absent in adult as the cases were received late and had to underwent surgery. The physical examination is helpful in distinguishing between epididymitis, testicular torsion and the torsion of the appendix testis[9].

The diagnosis may be obscured by hemiscrotal edema, erythema and presence of hydrocoele, as two of our cases (adult) who went under surgical exploration.

Acute scrotal disorder, scrotal masses and cryptorchidism provide a practical basis for evaluation with the most commonly used modalities, as sonography, scintigraphy and MRI (magnetic resonance imaging)[10]. Colour doppler ultrasound has been reported to be useful in ruling out the testicular torsion and other intrascrotal pathalogy in children, but some investigator have continued to report false-positive and false negative studies[11].

Our small series of patients does not show bilateral involvement of the testicular appendix torsion, as bilateral torsion of appendages is extremely uncommon[12] (Table 1). The appearance of the testicular appendix torsion on ultrasound are variable. It may be hypoechoic[13] or hyperechoic[14]. Sometimes a central hypoechoic region is seen in effected testis[13].

We noted this central hypoechoic region in two adult cases who underwent surgery as this was the region of infarction and necrosis, although clinically the blue dot sign was absent in these two cases. As far as the common side of involvement is concerned, it has been reported that the torsion of the appendix testis does not have left sided involvement comparative with the testicular torsion which is more common on left side[15]. Our study shows left sided involvement with minimum difference of one

case.

CONCLUSION

Thus it is concluded that inspite of large varieties of advance imaging modalities, B mode ultrasonography is still one of the best imaging modality in the diagnosis of testicular appendix torsion if performed carefully.

REFERENCES

1. Lewis AG, Bukowski TP, Jarvis PD, et al: Evaluation of acute scrotum in the emergency department. J Pediatr Surg 1995; 30: 277.

2. Atkinson GO Jr, Patrick LE, Ball TI Jr, et al: The normal and abnormal scrotum in children: Evaluation with colour doplar sonography. AJR 1992; 158: 613.

3. Patriquin HB, Yaz Beck S, Trink B, et al: Testicular torsion in infants and children: Diagnosis with dopplar sonography. Radiology 1993; 188: 781.

4. Anderson P, Glacomantonio J: The acutely painful scrotum in children: Review of 113 consecutive cases. Can Med Assoc J 1985; 132: 1153.

5. Hesser U, Rosenborg M, Gierup J, et al: Gray scale sonography in torsion of testicular appendiages. Pediatr Radiol, 1993; 23: 529.

6. Holland JM, Grahm JB, Ignatof JM, Conservative management of twisted testicular appendages. J Urol, 1981; 125: 213.

7. Berman JM, Beidle TR, Kumberge LE, et al: Sonographic evaluation of acute intrascrotal pathalogy. AJR, 1996; 166: 857.

8. Leape LL, Rendolph JG, Revit MM et al(Eds): Pediatric surgery 4th edition chicago, years book, 1986, page 1330.

9. Kadish-HA, Bolte RG: Retrospective review of pediatric patients with epididymitis, testicular torsion and torsion of testicular.

10. Frush DP, Sheldon CA. Diagnostic imaging for pediatric scrotal disorder.

11. Galejzs-LE: Kass EJ: Colour Dopplar Ultrasound evaluation of acute Scrotum. Tech-Urol. 1998 Dec: 4(4): 182-184.

12. Mumtaz-FH, Khan MA: Morgan-RJ: Synchronus bilateral torsion of testicular appendix: Urol. Int. 1998: 60(2): 128-9.

13. Lerner RM, Mevorach RA, Helbert WC et al: Colour doplar ultrasound. In evaluation of acute scrotal disease. Radiology 1990; 176: 355.

14. Cohen HI Shapiro MA, Haller JO et al: Torsion of testicular appendix. Sonographic diagnosis. J Ultrasound Med. 1992; 11: 81.

15. Mc Combe AW, Scobie WG, Torsion of scrotal contents in chidren Br. J Urol 1988; 61: 148.