



## Torsed Appendix of Testis : Retrospective Analysis of Clinical Profiles of 13 Surgically Diagnosed Cases

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### ABSTRACT

**OBJECTIVE:** Purpose of study is to evaluate clinical profile of torsion of appendix and to assess validity of clinical signs, investigations in diagnosing the condition. To testify early scrotal exploration is the standard of care in torsed appendix of testes as in torsion of testis.

**METHODS:** This was a retrospective analysis of 13 cases (n=13) of torsed appendix of testes diagnosed on emergency scrotal exploration. Details assimilated from case sheets including age of individual, duration of pain, urinary symptoms, clinical signs like "blue dot sign" (i.e., tender nodule with blue discoloration on the upper pole of the testis), cremasteric reflex, scrotal swelling, urine routine examination, total leucocyte counts, Gray scale and colour Doppler sonographic details of testes and its appendages. Preoperative diagnosis, intraoperative details, histopathology reports and post operative recovery were also included in the study. Information is analysed using descriptive statistics.

**RESULTS:** Age at presentation ranged from 7 to 37 years (median 12.9 year). n=13, Duration of pain ranged from 4 hours to 12 days. Paratesticular nodule (bluedot sign) could be elicited only in 2 cases (15.8%), Cremsteric reflex was absent in 3 patients, which if absent supposed to be sure sign of testicular torsion. 7 cases had mere tenderness at upper pole of testis with normal epididymis. Results of gray scale and colour Doppler study showed torsed testes were spherical (9), pedunculated (4) with mean size of 7.6mm, isoechoic (8), hyperechoic (5). Blood flow within appendages was uniformly absent (13). Increased periappendicular bloodflow was present in 6. 4 out of 13 cases had preoperative diagnosis as testicular torsion

**CONCLUSIONS:** Clinical profile of torsed appendix of testis is mere an assertion, without surgical evidence of necrosed appendix. Clinical profile itself is not strong enough to be diagnostic in clinical practice. This retrospective study justifies our institutional policy to surgically intervene at the earliest in suspicious cases of torsed appendages of testes as in testicular torsion upto age of 40 years.

**KEYWORDS :** torsed appendix of testis, testicular torsion, scrotal exploration, clinical profile

**INTRODUCTION** There are actually four appendages on a testicle that can undergo torsion. The appendix testis is the best known appendage. It is located at the upper pole of the testis in the groove between the testis and the head of the epididymis<sup>1-4</sup> and is a vestigial remnant of the paramesonephric (Müllerian) duct. The appendix epididymis can also occur and is a remnant of the mesonephric (wolfian) duct. The normal appendix testis is 1 to 7 mm in length, and it is oval or pedunculated in shape.<sup>1-4</sup>

Torsion of the appendix testis is the most common cause of an acute painful hemiscrotum in the child.<sup>4</sup>

The other appendages are the paradidymis and vas aberrans and these are much less common. The appendages on the testis and epididymis were first described by Morgagni in 1761 and, consequently, these appendages are also called the "hydatids of Morgagni." These appendages are readily viewed by ultrasound and in one small study the appendix testis was identified on 80% of testes and the appendix epididymis on 6%.<sup>8</sup>

A review by Mäkelä et al of surgical explorations in 388 boys presenting with an acute scrotum revealed 100 cases (26%) of spermatic cord torsion, 174 cases (45%) of torsion of the testicular appendage, 38 cases (10%) of epididymitis, 32 cases (8%) of incarcerated inguinal hernias, and 44 (11%) other conditions.<sup>9</sup> Finally, another retrospective review of 100 consecutive children admitted for acute scrotal

pain demonstrated an appendix torsion in 70 patients and a testicular torsion in 12 patients. Ten boys were admitted with 11 episodes of epididymitis-orchitis and seven had other pathologies, including incarcerated hernia, varicocele, and idiopathic scrotal edema. 10 Majority of these cases present with unilateral scrotal swelling and are managed

conservatively. Rarely a definitive diagnosis is reached. Surgical intervention is not only useful in making the final diagnosis but excision of the necrotic appendix of testis can also be contemplated. The clinical presentation of testicular appendage torsion can be indistinguishable from that of a testicular torsion, the true acute scrotal emergency. This is especially true the longer the duration of the condition, as the scrotal examination may show increasing testicular enlargement, tenderness, and scrotal erythema.

Color Doppler ultrasonography, the imaging modality of choice for the acute scrotum, will show normal blood flow to the testicle. Inflammation of the affected side may cause an increase in blood flow. Hyperperfusion of the epididymis with or without an enlarged (> 5.6 mm) appendix testis or a normal-appearing appendix may be noted in cases of testicular appendage torsion.<sup>11</sup> The twisted appendage may appear as an ovoid, hyperechoic, hypoechoic, or heterogeneous nodule without blood flow.<sup>11</sup>

Torsion of testicular appendages is virtually a benign condition that

can be managed conservatively over only one reported case of scrotal abscess secondary to tissue necrosis. Outcome if left untreated is infarction and resorption of appendage, no effect on fertility. Greatest morbidity results from a missed case of torsion of testis and subsequent delay in treatment.

But in view of questionable validity of clinical signs, Doppler ultrasound with 50% sensitivity to differentiate between torsion of testis and torsed appendages, it is a clinical dilemma which warrants early surgical exploration for definitive diagnosis and to rule out testicular torsion.

**MATERIALS AND METHODS:** This was a retrospective analysis of 13 cases (n=13) of torsed appendix of testes diagnosed on emergency scrotal exploration. It covers cases of torsed testicular appendages presented as acute scrotal pain to emergency room of MYSORE MEDICAL COLLEGE AND RESEARCH INSTITUTE, MYSORE, KARNATAKA, INDIA over 2 years.

For each case following details were assimilated from case sheets including age of individual, duration of pain, urinary symptoms, clinical signs like "blue dot sign" (i.e., tender nodule with blue discoloration on the upper pole of the testis), cremasteric reflex, scrotal swelling, laboratory reports included urine routine examination, total leucocyte counts, Gray scale and colour Doppler sonographic details of testes and its appendages whichever is done as per availability and need. Preoperative diagnosis, intraoperative details, histopathology reports and post operative recovery depicted in further followup visits were also included in the study.

Information is analysed using descriptive statistics. Although Mean (arithmetic) is the only measure of central tendency that includes every value in data, our study results depicted in median, as mean is susceptible to get influenced by outliers (unusual presentation of torsed testicular appendix at 37 years of age).

**RESULTS:**

Age at presentation ranged from 7 to 37 years (median 12.9 year). n=13, 5 were right sided and 8 were left sided. Duration of pain ranged from 4 hours to 12 days. None of the patient had dysuria or urinary symptoms. Paratesticular nodule (bluedot sign) could be elicited only in 2 cases (15.8%), which is pathognomonic of torsion of testicular appendages. Cremasteric reflex was absent in 3 patients, which if absent supposed to be sure sign of testicular torsion. 4 cases presented with diffuse scrotal swelling later diagnosed at operation as necrosed appendix, among one turned out to be due to reactive hydrocele fluid accumulation. 7 cases had mere tenderness at upper pole of testis with normal epididymis. Urine routine examination and total leucocyte count being normal in all. Results of gray scale and colour Doppler study showed torsed testes were spherical (9), pedunculated (4) with mean size of 7.6mm, isoechoic (8), hyperechoic (5). Blood flow within appendages was uniformly absent (13). Increased periappendicular bloodflow was present in 6. Inferences of which ended up in equivocal findings.

4 out of 13 cases had preoperative diagnosis as testicular torsion, in view of fallacious clinical profile including early presentation of pain within 24 hours, diffuse scrotal oedema, absent cremasteric reflex, age of 37 and equivocal scrotal ultrasound and colour Doppler studies.



**Figure 1 :Diffuse swelling of left hemiscrotum with absent cremasteric reflex on both sides**



**Figure 2 : intraoperative necrosed appendix of testis**



**Figure 3 : Resected specimen of torsed appendix of testis**



**Figure 4 : Colour Doppler study of scrotum**

In all 13 cases, on emergency scrotal exploration, necrotic testicular appendages were excised and in a case reactive hydrocele was also addressed. Histopathological reports revealed necrosis, haemorrhage, vascular dilatation and oedema with inflammatory infiltrate. All patients were discharged on postoperative day 3, recovery was uneventful and testes were found to be normal on followup visits.

**DISCUSSION:**

Diverse clinical presentations of torsed appendix of testes, indeterminate clinical signs and investigations, even in highly suspicious clinical profile warrants surgical exploration.

In our study initially recorded several clinical features found to be fallacious after scrotal exploration. No single element of the history can reliably distinguish testicular torsion.<sup>12</sup>

In fact, there are a number of series that report loss of the cremasteric reflex in 100% of patients presenting with testicular torsion.<sup>13,14-16</sup> Unfortunately, this is not true. First, the cremasteric reflex is a fickle examination finding and it is well documented that the cremasteric reflex is frequently absent in up to 30% of males with normal testicles.<sup>17,18</sup> In fact, if cremasteric reflexes are tested regularly, one quickly realizes that this reflex is often subtle or barely perceptible. The reflex is elicited by gently stroking the inner thigh and observing for more than 0.5 cm elevation of the ipsilateral testis.<sup>19</sup>

The “blue-dot” sign, which represents an ischemic, torsed testicular appendage, is sometimes visualized through the scrotal skin. This finding is difficult to see even through the translucent scrotum of the prepubescent boy, and it is nearly impossible to visualize when the scrotum becomes dark and thickened at puberty. Although rare case reports of testicular torsion in an elderly male of 75 year old<sup>21</sup> and torsed appendix in 37 year old being reported from our institution, we prioritise ideal age of presentation. Bimodal peak (infancy and puberty) in torsed testis and pre-pubertal (7-14) in torsed appendage.

Surgical treatment of torsed appendage is safe, clearly rules out torsed testicle with minimal morbidity. Also it ensures maximum testicular salvage.

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