Isolated tuberculous epididymitis: A review of forty cases

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ABSTRACT

Background: Tuberculous epididymitis is one of the causes of chronic epididymal lesions. It is difficult to diagnose in the absence of renal involvement.

Aim: To profile isolated tuberculous epididymitis and to assess our approach in the evaluation of this group of patients.

Setting and Design: Retrospective study done at Christian Medical College, Vellore, South India.

Methods and Materials: Between 1992 and 2002, 156 fine needle aspiration cytology specimens and 108 epididymal biopsies were carried out in 187 men for evaluation of chronic epididymal nodules. Isolated epididymal tuberculosis was defined as "tuberculous infection affecting the epididymis without evidence of renal involvement as documented by the absence of acid fast bacilli in the urine sample and on imaging". The age, laterality, mode of presentation and method of histological diagnosis were studied with the objective of profiling isolated tuberculous epididymitis.

Results: Fifty-four of the 187 men (median age 32 years; interquartile range: 21-37 years) had tuberculous epididymitis. Fourteen were excluded from the analysis (10 had associated urinary tract tuberculosis and 4 were lost to follow-up). None of the 40 men with isolated tuberculous epididymitis had urinary symptoms. Bilateral involvement was seen in five (12.5%) cases. The salient presenting features included painful swelling (16 subjects, 40%), scrotal sinus (4, 20%) and acute epididymitis (2, 10%). Past history or concomitant presence of tuberculosis was noted in three subjects each. Anti TB treatment resulted in a complete response in 10 and partial response in 18. Five subjects underwent epididymectomy. Tuberculous epididymitis was found incidentally in 5 (10%) cases on high orchiectomy specimen done for suspected testicular tumour.

Conclusions: Tuberculous epididymitis can be the sole presentation of genitourinary tuberculosis.

KEY WORDS: Tuberculosis, epididymis, inflammation

Genitourinary tuberculosis (TB) accounts for 20-73% of all cases of extra-pulmonary tuberculosis in the general population and epididymo-orchitis accounts for 22% of all cases of of genotourinary tuberculosis.[1] In another series, epididymal involvement was reported in 7% of all tuberculosis patients.[2] It has been postulated that tuberculous epididymitis almost always results from a tuberculous lesion in the prostate which, in turn, is usually secondary to a renal lesion.[3] This study was undertaken to determine the profile of subjects with TB epididymitis and to check for its association with a renal lesion.

Material and Methods

One hundred and fifty-six fine needle aspiration cytology (FNAC) and 108 epididymal biopsy specimens were obtained from 187 men for evaluating chronic epididymal nodules during the 10-year period beginning 1992. The records of those who were confirmed to have epididymal tuberculosis on pathological examination were reviewed retrospectively by a urologist. Isolated epididymal tuberculosis was defined as "tuberculous infection of the epididymis without evidence of renal involvement". Renal involvement was excluded on the basis of the absence of acid fast bacilli (AFB) on microscopic examination of early morning urine samples collected on three consecutive days, negative urine AFB culture and intravenous urography (IVU). The absence of caliceal fuzziness or spasm or blunting, infundibular or ureteral stricture and ranal calcification suggested a negative tuberculous lesion on IVU. Tuberculin skin test and urine PCR for *M. tuberculosis* were not done. Men who qualified the definition of isolated tuberculous epididymitis and completed anti-tuberculosis treatment (ATT) with a median follow-up of 12 months [interquartile range (IQR)12-28 months] were included in the study. Data regarding age, laterality, mode of presentation, method of histological diagnosis, follow-up resolution in symptoms, serial determination of the size of the epididymal swelling and response to ATT were noted. Complete response was defined as full resolution of the epididymal nodule while partial response was defined as disappearance of pain albeit with no significant reduction in the size of the nodule.

Results

The pathological diagnoses obtained on FNAC and epididymal biopsies are enumerated in Tables 1 and 2. Non-specific

inflammation was the commonest lesion encountered followed by tuberculous lesion accounting for 54 subjects. Fourteen subjects were excluded from further analysis as they had concomitant urinary tract affection (10) or were lost to follow-up (4). In the study population of 40 subjects, the median age was 32 years (IQR: 21-37 years). Seventeen patients had only right-sided affection and five had bilateral affection. Painful swelling was the commonest mode of presentation noted in 16 (40%). Four (10%) presented with acute epididymo-orchitis and 8 (20%) with scrotal sinus. Haematospermia was reported in 2 (5%). Four (10%) were infertile and fertility did not return following treatment. Three subjects suffered from TB of the lungs and spine for which they had received complete ATT. Concomitant TB was diagnosed in three: one had granuloma in the brain documented during CT scan for evaluation of seizures and the other two were diagnosed on the basis of cervical lymph node biopsy and chest radiography respectively. Only one person was on immunosuppressive treatment following a renal transplant.

FNAC established the diagnosis in 26, among them five required a repeat FNAC for confirmation. In nine other men, epididymal biopsy established the diagnosis. Five subjects were diagnosed on the basis of pathological examination of the testicular specimen obtained following high orchiectomy done for the evaluation of a suspected testicular tumour. All except for five received nine months of HRZ. Of the five, three received HRE and two HRZE for 12 months. Ten had complete response and 18 had partial response. Epididymectomy was required in seven.

Discussion

While it is agreed that tuberculous epididymitis is secondary,[4] this is by no means universal. Tuberculous epididymitis may be the first and only presentation of genitourinary TB (GUTB).[5] It may, however, be conceded that IVU and microscopic examination of the urine can fail to diagnose a renal lesion and hence all cases of isolated TB epididymitis, may not be isolated in the true sense. Hence, it is not uncommon, as demonstrated by Ross and co-workers, to notice that cases with "isolated TB epididymitis" develop renal tuberculosis at a later date.[6] In their series of 129 cases of "isolated TB epididymitis, 65% had positive urine at some stage. This is rarely seen nowadays given the effectivity of modern anti-TB treatment.

Table 1: Pathological diagnoses in fine needle aspiration cytology

Diagnosis	Number
Non-specific inflammation	96
Tuberculous epididymitis	29
Sperm granuloma	9
Filariasis	10
Histoplasmosis	1
Xanthogranulomatous epididymitis	2
Malignancy	2
Degenerative changes	7

Table 2: Histological diagnoses in epididymal biopsies

Diagnosis	Number
Non-specific inflammation	40
Tuberculous epididymitis	25
Benign tumour	13
Filariasis	12
Sperm granuloma	8
Xanthogranulomatous epididymitis	2
Malignancy	3
Foreign body granuloma	5

TB epididymitis is said to result from haematogenous spread and its predominant caudal involvement is attributed to its high vascularity.[7] Carbal *et al* opined that higher frequency of isolated lesions in children favoured the possibility of haematological spread of infection, while adults seem to develop tuberculous epididymo-orchitis as a result of direct spread from the urinary tract.[8] The predominant involvement of the cauda epididymis over the caput and testis could be attributed to the presence of the blood epididymal and blood testis barrier, which at the caudal portion allows low molecular weight compounds to permeate.[9,10]

Lymphatic spread although not shown to be of significance in clinical settings, has been shown to be of importance in experimental animals.[11] The clinical evidence in favour of this is the predominant caudal involvement in filariasis, which spreads by the lymphatic route.

Retrograde spread is another likely route. Evidence for this comes from the development of epididymitis in patients with gonococcal urethritis and those who have tuberculous epididymitis following intravesical BCG.[12] The point against this is the lack of disease in the vas in the majority. The other strong evidence is the presence of disease in the prostate and seminal vesicle in the entire autopsy specimen who had tuberculous epididymitis.[13] In the absence of lower urinary tract symptoms (LUTS) and digital rectal examination (DRE) being nonspecific, it is hard to prove this point clinically except by examining expressed prostatic secretion for AFB and performing needle biopsy of the prostate. This procedure by itself can give rise to prostatic nodules and granulomatous prostatitis. This adds to the morbidity without contributing much to its management.

Tuberculous epididymitis can be the sole presentation of genitourinary TB and hence FNAC of the epididymis should be performed in all men with suspected epididymal lesion even in the absence of clinical and laboratory markers of renal involvement.

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Expert's Comments

Isolated tuberculous epididymitis

This paper[1] brings to the fore various unresolved but interesting issues regarding tuberculosis of the genital tract in particular and management of epididymal masses in general. Though this is a retrospective study with all its inherent limitations, several findings merit attention. Isolated tuberculous involvement of the genital tract i.e. the epididymis in the absence of any documented or clinically evident disease elsewhere in the genitourinary system is not uncommon as shown in this study. This is an important finding and indicate that any clinician evaluating an epididymal mass should consider this in differential diagnosis, especially in the subcontinent where tuberculosis (TB) continues to be rampant.

Another important finding of this study is the fact that though fine needle aspiration cytology (FNAC) is a good starting test to evaluate epididymal masses and has a moderate yield, a fair proportion of patients will be missed by this modality alone and would require a formal epididymal biopsy to confirm the diagnosis and get appropriate therapy. In spite of the prevalence of TB in India, it would be prudent not to ignore the possibility of a neoplastic involvement of the epididymis as is evident in this study too. Though the authors do not report the exact histology in the subgroup of patients classified as 'malignancy', it may be worth remembering that adenomatoid tumours of the epididymis are not uncommon and are usually indolent. Epididymal adenocarcinoma is relatively rare but possible. I also sense a feeling of missed opportunity when evaluating a report of this nature. Could we have performed any imaging modality such as a scrotal ultrasound (an established norm in the evaluation of scrotal mass at present) in all these cases and possibly come with some diagnostic findings characteristic of TB involvement? I hope future studies on this topic address this issue. TB of the genital tract is also a disease of the young as confirmed by this report with patients presenting with primary infertility. While fertility rates were dismal in this study due to the advanced nature of the disease, there may be merit in not subjecting every patient to a FNAC or a biopsy especially those with acute inflammation and compromise epididymal continuity.

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