

# Acute Epididymo-orchitis – Is empirical therapy for Chlamydia Trachomatis justified?

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In sexually active males, the commonest organisms causing acute epididymo-orchitis are Chlamydia trachomatis and Neisseria gonorrhoeae. The peak incidence is seen during 20's. The aim of our study was to prove that in majority of cases of acute epididymo-orchitis, the bacterial pathogens cannot be isolated. The reason being that the pathogen responsible in majority of cases is Chlamydia trachomatis which cannot be isolated by routine bacteriological techniques. We reviewed the cases of acute epididymo-orchitis and studied the percentage of patients in which bacterial pathogens were isolated. The clinical and microbiological data of patients from Aug. 2003 to Sep. 2005 was reviewed. The clinical diagnosis of acute epididymo-orchitis was confirmed by scrotal ultrasonography. Midstream urine sample were processed by using standard culture techniques. Patients were followed for a period of three months. There were total 97 patients, with median and interquartile range of 20 and 17-25 years respectively. At the time of presentation the median duration of symptoms was 4.5 days, while median hospital stay was 5 days. Scrotal pain was the main presenting symptom. Pyuria was noticed in 41 (43%) patients and in only 12 (14%) of these the bacterial pathogens were isolated. Main organisms being Escherichia coli and Klebsiella pneumoniae. We have concluded that Chlamydia trachomatis can not be isolated by routine bacteriological techniques. Currently available diagnostic methods are cumbersome and expensive. Therefore there is a need to develop simpler techniques, which can be made available in moderately equipped laboratories; in order to facilitate the detection of Chlamydia trachomatis. Presently the patients in whom the causative organisms can not be isolated can safely be treated for Chlamydia trachomatis.

**Key words:** Epididymo-orchitis, Chlamydia trachomatis, Bacterial pathogens

Acute Epididymo-orchitis is a common Urological emergency<sup>1,2</sup>, most common between the age of 15 –30 and then after 60 years. It is a painful scrotal swelling of less than six weeks duration<sup>3</sup>. It is associated with various complications such as abscess, testicular infarction and infertility. The causative organisms vary at different age groups. In adults less than 35 years the disease is caused mostly by sexually transmitted organisms<sup>4,6</sup>. Commonest organisms being Neisseria gonorrhoeae and Chlamydia trachomatis. As many hospitals would lack the facilities for identification of Chlamydia trachomatis; we conducted this study to find out whether it is necessary to isolate these organisms or the patients may treated empirically and also to find the percentage of patients who are infected by other urinary pathogens.

## Material and Methods:

The clinical and microbiological data of patients treated for acute epididymo-orchitis between Jan. 1999 and June 2002 was reviewed. Clinical diagnosis was based on history, clinical examination and was confirmed by scrotal ultrasound. This is a retrospective study of 97 patients. The clinical parameters studied were age, presenting symptoms, duration of illness, hospital stay and associated illnesses. The laboratory parameters mainly included were urine microscopy and urine culture. Midstream urine samples were processed by using standard culture techniques.

Results were interpreted on the basis of  $\geq 10^5$  cfu/ml. as significant bacteriuria. Culture results were correlated

with presence of pus cells in microscopic examination of urine. Greater than 5 pus cells per HPF of centrifuged deposit of urine was considered as pyuria.

The statistical tools used for the calculation of central tendency and variation was Median and Interquartile Range respectively. The patients were empirically treated with cephadrine / doxycycline and later according to culture and sensitivity results. Those patients who showed negative cultures and whose smears were indicative of non gonococcal urethritis (NGU), were treated with doxycycline for a ten days. The patients were studied for any associated complication (abscess, recurrence, testicular atrophy). The patients were followed for a period of three months on fortnightly basis in the OPD after their discharge from the hospital.

## Results:

There were total 97 patients in this study. The age range was 12 to 75 while median and inter quartile range were 20 and 17 to 25 years respectively. In this study 52 (54%) patients presented with the complaint of painful scrotal swelling. Associated fever was present in 22 (23%) cases. Regarding the symptoms median duration was 4.5 days and interquartile range of 2 to 7 days. While median duration of hospital stay was five days.

Outcome of the therapy was satisfactory except in some cases in whom the following complications were noted at the time of presentation or later; scrotal abscess in 6 (6%), recurrence in 12 (12%) and testicular atrophy in 1 (1%) case. A secondary cause e.g. BPH or stricture was

detected in 15% of cases. Pyuria was noticed in 41(43%) patients and in only 12(14%) of these, the bacterial pathogens were isolated. All the patients in whom the bacterial pathogens were isolated were above the age of 35 except one. The organisms isolated were gram negative bacilli mainly *Escherichia coli* and *Klebsiella pneumoniae*. The urethral smear was positive for gonococci in only three patients.

#### Discussion:

Acute epididymo-orchitis affects younger adults. It is a common urological emergency and is associated with serious complications. In one study it was found to be fifth in number in the genito- urinary consultations<sup>7</sup>. While in another study it was the third common urological emergency<sup>1</sup>. Being a common urological problem affecting the young adults, we need to address the issue and develop appropriate management strategies.

It is associated with various complications such as scrotal abscess, testicular infarction and infertility. Desai et. Al. have found late testicular atrophy in 21% of cases<sup>8</sup>. The association with subfertility is poorly understood. It has been seen that there is decreased spermatogenesis during the acute phase of epididymo-orchitis<sup>9</sup> and secondly reduced spermatogenesis is commonly seen thereafter<sup>10</sup>. As most of the affected patients are young adults and many of them are unmarried, this may seriously affect their marital life later on.

In a study in USA the peak incidence was between 20–29<sup>11</sup> while in another study the mean age was 28 years<sup>12</sup>. In our study the median age was 20 years. Regarding the clinical presentation 54% of the patients complained of painful scrotal swelling, while 23 % had fever. Kaver and Matzkin have found fever (>37.5C<sup>0</sup>) in three quarters of their patients<sup>13</sup>.

The microbiological flora responsible for acute epididymo-orchitis varies at different age groups<sup>14-19</sup>. In young adults the disease is caused by sexually transmitted pathogens, the two most common being *Neisseria gonorrhoeae*<sup>4</sup> and *Chlamydia trachomatis*<sup>15,16,17,18</sup>. The low incidence of gonococci in our study can be either due to prior treatment or because of low prevalence of sexually transmitted diseases in the kingdom. Patients > 35 years are usually infected with urinary pathogens and are associated with underlying urinary pathology e.g. BOO<sup>20</sup>. Low culture positivity in our study may be due to the younger age group presented with acute epididymo-orchitis (AEO).

Prior to the availability of tests for detection of *Chlamydia trachomatis* the cause was unknown in most of the cases of (AEO)<sup>21</sup>. Diagnosis of *Chlamydia trachomatis* can be achieved by cytology, culture, direct detection of antigen or nucleic acid and serologic testing<sup>22</sup>. The chlamydial culture is generally used in research studies<sup>14</sup> while in routine clinical practice enzyme immunoassay (EIA) is used. The drawback for this is that it has a low

sensitivity<sup>23</sup>. Recent techniques e.g. ligase chain reaction (LCR) or polymerase chain reaction (PCR) has shown that even culture has a sensitivity of no more than 70%<sup>22</sup>.

Cell culture techniques for *Chlamydia trachomatis* are available in most large medical centres but not in other clinical settings<sup>24</sup>. As most of the laboratories in district general hospital setup will lack the facilities e.g. fluorescent antibody test, the detection of *Chlamydia* in most of the cases of AEO is not possible and the etiology will remain a dilemma. In such cases we have been treating with doxycycline whose efficacy with other antibiotics such as other tetracyclines, erythromycin, azithromycin and ofloxacin has been studied<sup>25</sup>.

As it has been proved that majority of cases of AEO which were previously labeled of unknown origin; with the recent techniques most of them have proved to be Chlamydial in origin. Therefore the patients with negative routine cultures have been treated with doxycycline at our establishment. In addition to this, patients with positive urethral smear for gonococci were treated with single intramuscular injection of ceftriaxone 250mg. Although some patients will be over treated such as those with viral infections, yet in our opinion it is acceptable in a setup with limited facilities. The efforts for preparation of Chlamydial vaccine have not been successful, therefore for the control of disease widespread screening has been used<sup>24</sup> in a few places in USA. We have already mentioned that diagnostic facilities are available in only specialized centres, therefore there is a need for simpler diagnostic tests, in smaller clinical settings, so that the diagnostic enigma of Chlamydial epididymitis can be eliminated.

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