

## Co-existence of Asymptomatic Syphilis in Male Patients with Urethral Discharge, at Department of Family Medicine, Umtata General Hospital, Umtata – Sittampalam Ragavan



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### Curriculum vitae

Dr Ragavan graduated from the University of Colombo, (Sri Lanka) in 1983 and obtained the M Prax Med from Medunsa in 1992. He worked as Senior Resident Medical Officer at Kabwe General Hospital, Zambia, from 1986 to 1987 and has been attached to the Department of Health in Transkei since October 1987. After a period at All Saints Hospital, Engcobo until 1989, he is currently attached to the Department of Family Medicine, Umtata General Hospital. He is married to Dr Manohari who is also attached to the Department of Family Medicine, Umtata General Hospital, and they have two children.

### Summary

*A cross-sectional study was done to determine whether it was necessary and cost effective to do routine screening for syphilis of all males with urethral discharge. The study was done in the Department of Family Medicine, Umtata General Hospital, and the findings of only 5,1% indicate that it was not cost effective to do routine screening in this Department.*

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### KEYWORDS:

Sexually Transmitted Diseases;  
Syphilis; Urethral Discharge;  
Cross Sectional Studies;  
Routine Diagnostic Tests.

### Introduction

Umtata General Hospital is the teaching hospital for the University of Transkei Medical school. It is located in Umtata district which has a population of 245,034 (Transkei population census 1985), of which 47% are males. Of the men, 21% are migrant workers in South Africa.<sup>1</sup>

It was reported in a study that 14% of patients seen in this Department in 1990 presented with Sexually Transmitted Disease (STD).<sup>2</sup> Gonorrhoea is the most frequently reported STD and it is reported most often in young adults between the ages of 20 and 24.<sup>3,4,5,6,7,8</sup> The mode of transmission of Sexually Transmitted infections and epidemiological risk factors for acquisition of STD imply that patients with one of these diseases are at risk for the others since multiple pathogens may be acquired

simultaneously by the same route.<sup>9,10,11,12</sup> This significant incidence of simultaneous infections and high frequency of disease without physical signs indicate the desirability to screen patients with one STD for the other STDs.

RPR, a non-treponemal antibody test, is highly sensitive in early infections and cost effective, but it lacks specificity.<sup>9,13</sup> When a RPR reactive titre is less than 1:8 it could be due to biological false positive.<sup>14,15,16,17</sup> After adequate treatment of late infection the RPR test may remain reactive at 1:8 or less for many years and titres greater than 1:8 rarely persist in adequately treated infections.<sup>16,18</sup> So low titre of up to 1:8 in the non-treponemal test should be regarded as non diagnostic of syphilis and the high titre of greater than 1:8 should be considered as diagnostic.<sup>14,15,16,17,18</sup> False positive results could be due to several causes which need to be confirmed by specific treponemal antibody tests such as Treponema Pallidum HaeAgglutination (TPHA) or Fluorescence Treponemal Absorption (FTA-Abs) tests, which are relatively expensive.<sup>14,19</sup> Antibodies detected by TPHA do not disappear completely and are detectable for 20-30 years after adequate treatment.<sup>14,20,21</sup> IgG is detectable by FTA-Abs test very early in syphilis and remains detectable indefinitely despite adequate treatment<sup>14</sup> and IgM is detectable very early in syphilis and disappears in 1-9 months with adequate treatment. Competitive inhibition of IgM by IgG can occur where IgG levels are very high.<sup>14,19,22</sup>

Gonorrhoea is asymptomatic in 15-20% of men.<sup>10</sup> Chlamydia trachomatis co-infection occurs in 15% to 20% of heterosexual men with

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gonorrhoea.<sup>9,22,24</sup> It was reported by RC Ballard (1990) that up to 20% of RPR tests conducted in cases of non-treponemal STD had been proved to be reactive.<sup>25</sup> In a study done in Transvaal, it was found that 5,8% of patients with acute urethritis were diagnosed as syphilis on RPR and FTA-Abs.<sup>26</sup> In a study in Papua New Guinea in 1980/1981, 4% of patients

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#### More urethral discharge in younger patients

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with urethral discharge had been diagnosed as having syphilis.<sup>27</sup> In a study in New York on 2236 incarcerated urban adolescent boys, the prevalence of asymptomatic syphilis and gonorrhoea were 0,63% and 3,04% respectively and out of those with gonorrhoea, 4,6% had concurrent syphilis infection.<sup>28</sup> In a survey in Somalia serological evidence of syphilis was noted in 6% of the non-STD clinic control (blood donors) population whereas in the STD clinic patients the findings ranged from 11% to 19%.<sup>29</sup> In Nigeria, between 5% and 6% of blood donors and 3% of hospital patients were reactive.<sup>30</sup> In Jamaica 2,7% of the general adult population and 2,2% of children showed prevalence reactive syphilis.<sup>31</sup>

Based on the report by RC Ballard,<sup>25</sup> it was hypothesised that asymptomatic syphilis co-exists in more than 15% of male patients with urethral discharge in the Department of Family Medicine at Umtata. The objective of the study was to determine the prevalence of asymptomatic syphilis among male

patients with urethral discharge and thus to determine whether routine screening for syphilis is worthwhile.

#### Methods

This was a cross sectional study. The study sample included all the male patients of 14-64 years of age, who presented with urethral discharge, at the Department of Family Medicine, Umtata General Hospital from 29th January 1990 to 28th January 1991.

The patients were seen by the doctors in the Family Practice teams in the department. They were subjected to a structured interview and 5 mls of blood drawn after informed consent. The interview schedule contained the following data: Age, Occupation, Marital status, Residential area, Number of visits with STD in the past 2 years, Number of sexual partners in the past 2 years and the type of partners and the use of condoms. The patients were managed by the attending doctors and were asked to come back for review.

Blood samples were sent to the laboratory for RPR testing. RPR titre of 1:8 or less was considered as negative and more than 1:8 as

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#### Why the dislike of condoms?

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positive. The laboratory was instructed to perform a TPHA test on all those that had reactive RPR with titre greater than 1:8. TPHA was done from 29th January 1990 to 16th March 1990, but from 19th March 1990, due to unavailability of specific treponemal test kits, the sera were sent to a private laboratory in

East London where FTA-Abs tests were done instead of TPHA.

#### Results

A total of 1 314 male patients presented with urethral discharge during the study period. Eighty seven (6,6%) patients had co-existing penile ulcer disease at the time of presentation and were therefore excluded from the study leaving a study sample of 1 227 patients.

Ages of the patients ranged from 14 years to 64 years, with a mean age of 26,53 years (Standard Deviation = 7,69) and a mode of 21 (Figure 1).

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#### Urbanization as one factor related to increased STD.

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They consisted 257 (20,9%) students, 185 (15,1%) labourers, 168 (13,7%) unemployed, 96 (7,8%) security personnel, 92 (7,5%) builders, 79 (6,4%) mechanics & technicians, 66 (5,4%) clerks, 63 (5,1%) drivers, 126 (10,3%) were other occupation groups and 95 (7,7%) had no indication of their occupation. Seven hundred and sixty-nine (62,7%) patients were from the urban areas of Umtata.

Three hundred and forty-six (28,2%) patients were married. Of the 1 221 patients who responded (response rate of 99,5%) to the question about the number & type of partners, 1 083 (88,7%) had multiple partners and 811 (66,4%) engaged in casual sexual relationships during the past two years. Of the 1 227 patients, 618

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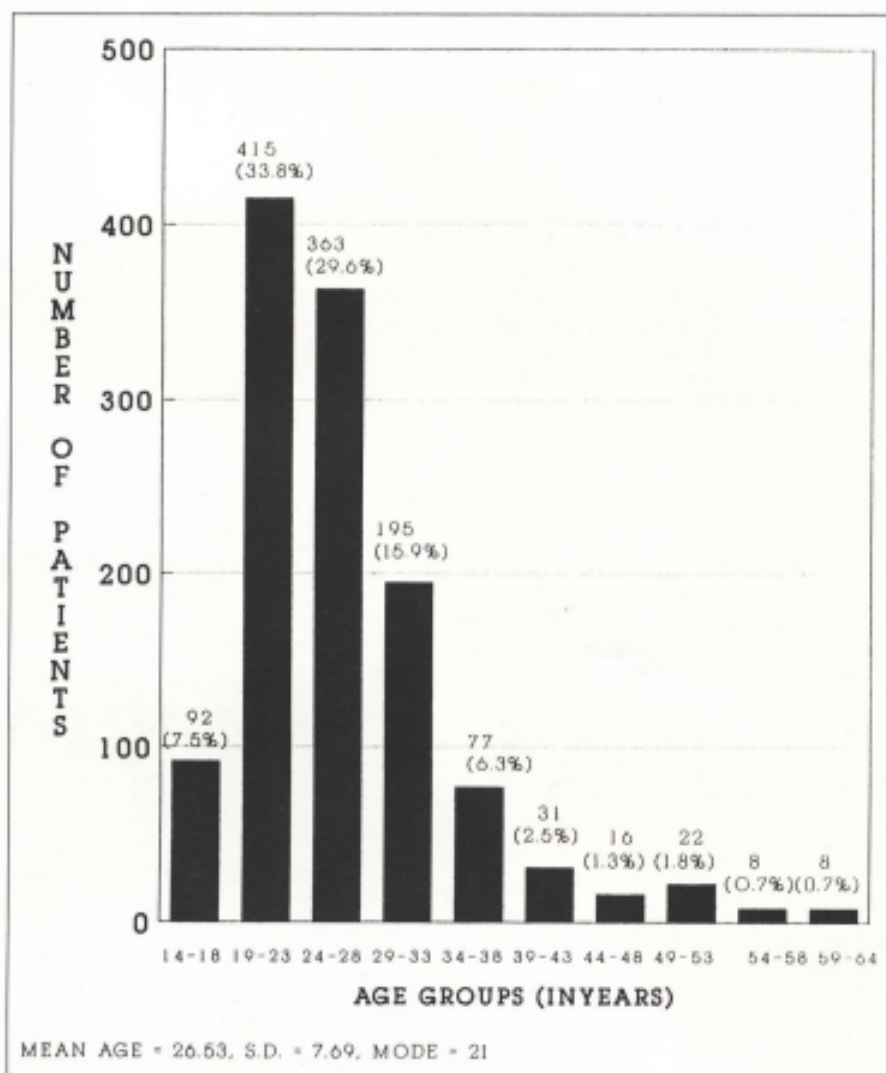


Figure 1. Age Distribution of Patients (n = 1227)

(50,4%) reported to have visited a hospital for STD in the last two years and only 19 (1,5%) used condoms.

Of the 1 227 sera tested for syphilis with RPR test, 99 (8,1%) were reactive. Of these, 36 had RPR titre of 1:8 or less while 63 (5,1%) had RPR greater than 1:8. Of the 63 sera with RPR titre greater than 1:8, 11 were tested with TPHA tests, 40 with

FTA-Abs tests and the remaining 12 (19%) had no confirmatory tests. Of the 11 sera tested with TPHA, 10 (90,9%) were positive and therefore suggestive of syphilis. Of the 40 sera tested with FTA-Abs, 33 (82,5%) were positive and suggestive of syphilis. Thus a total of 43 (3,5%) sera were positive for syphilis with RPR after confirmation with TPHA and FTA-Abs tests.

## Discussion

It was found that of the 1 227 male patients who presented with urethral discharge 5,1% patients had co-existent asymptomatic syphilis on RPR test. When these patients' sera were subjected to more specific treponemal tests 3,5% were confirmed to have co-existent asymptomatic syphilis. As more than 80% of the RPR positive sera were confirmed by the two treponema tests and no confirmatory test done on 19% of the sera with high RPR it was decided to use RPR results for comparison of patients with positive syphilis and negative syphilis.

The prevalence of asymptomatic syphilis in this study is similar to that reported by J Tawai in Papua New Guinea in 1980/81<sup>25</sup> where 4% of

88,7 had multiple partners.

patients with urethral discharge had asymptomatic syphilis; T Alexander-Rodriguez and SH Vermund in New York in 1983/84<sup>26</sup> where 4,6% of incarcerated urban adolescent boys had asymptomatic gonorrhoea and syphilis; and closer to home in Transvaal<sup>20</sup> where 5,8% of black mine workers with acute urethritis had asymptomatic syphilis. All these studies show a prevalence of less than the 15% hypothesised for this study and the 20% reported by RC Ballard.<sup>25</sup>

Mr Wilkinson, the head of technical division at Border Blood Transfusion Services (BBTS) reported, on request, that 497 (4,3%) of the 11 499 male blood donors from Umtata district were VDRL positive during the same period as this study. This could

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represent healthy males from Umtata district. The 5,1% reactive RPR among the study subjects is not statistically different ( $P>0,05$ ) from 4,3% reported by BBTS among male blood donors from Umtata district.

The mean age of the study population was 26,53 years (Standard Deviation = 7,69) with the modal age of 21 years. From a study conducted on the disease profile (unpublished) during the same period,<sup>2</sup> the mean age of male patients (14 to 64 years) seeking health care in the Department of Family Medicine, Umtata General Hospital was 31,29 years (Standard Deviation = 12,19) and the modal age was 30 years. This showed that the majority of male patients presenting with urethral discharge were younger than the general male patients presenting at this Department. But there was no significant difference in the mean and the modal age of patients with positive syphilis serology and patients with negative syphilis serology. The

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**Only 5,1% with urethral discharge had co-existent asymptomatic syphilis.**

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finding of more urethral discharge in young patients was in line with the other studies reported in patients with STD. When patients were grouped into 5 year age groups the difference in the prevalence of syphilis between 14 and 33 years was found not to be significant ( $P>0,05$ ) but the reduction in the prevalence after 33 years was found to be statistically significant ( $P<0,05$ ). Asymptomatic syphilis was found in 6,1% of the younger patients from 14 to 33 years

and 1,2% of the older patients from 34 to 64 years. This seems to be in keeping with the general belief that younger males are more sexually active than the older.

The three leading occupations of patients constituting 53,8% of the study subjects were students (22,7%), labourers (16,3%) and unemployed (14,8%). A study done in Alexandra clinic in Johannesburg showed 41% unemployed, 35% unskilled manual workers, 9% students and 15% were from other occupations and the distribution of the general outpatients in the same clinic were 37% unskilled manual, 35% unemployed, 10% students and 18% from other occupations.<sup>8</sup> It is not the same as in Umtata because Umtata is mainly rural and Johannesburg is mainly urban. So it is difficult to make any inference in this study as there were no information available on the distribution of occupations in the general patient population in this Department. Asymptomatic syphilis was found in 1,6% students and 6,1% of the others. This showed that students with urethral discharge had significantly low prevalence ( $P<0,01$ ) of asymptomatic syphilis.

Most of the study population were urban (62,7%) in spite of a large rural population (79%) in Umtata district.<sup>1</sup> This supports urbanisation as one of the social factors related to increased STD. But the difference in co-existence of asymptomatic syphilis in the urban and rural samples were not statistically significant ( $P>0,05$ ).

A small proportion (29,2%) of the study population was married but this is almost similar to the general population (28,9%).<sup>1</sup> Although the prevalence of asymptomatic syphilis was higher (5,8%) in the unmarried

than in the married (3,5%) this difference was not statistically significant ( $P>0,05$ ).

The distribution of patients by the number of sexual partners was similar to that found elsewhere. In this study 88,7% of the patients had multiple partners and 66,8% had casual relationships in the past 2 years which compares well with findings from Alexandra clinic where 59% of males with STD<sup>8</sup> and Baltimore STD clinic

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**Many studies worldwide showed a prevalence of far less than the hypothesized 15%.**

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where 42% of males in one study<sup>9</sup> and 87,5% in another study<sup>7</sup> had multiple partners and 56% of men in Baltimore study<sup>7</sup> had casual partners. There was however no significant difference ( $P>0,05$ ) in the prevalence of asymptomatic syphilis in patients who had single partners (6,5%) or those with multiple partners (5%). Surprisingly the prevalence of asymptomatic syphilis was higher in the patients who had regular partners (7,8%) than those who had casual partners (3,8%) and this was statistically significant ( $P<0,005$ ).

About half (50,4%) of patients with urethral discharge had STD in the past 2 years. In Alexandra clinic<sup>8</sup> 41% of patients with urethritis and 76% of males with STD in Baltimore STD clinic<sup>7</sup> had STD in the past. Again the finding in this study was similar to these two studies. The prevalence of syphilis was higher in patients who had no STD (6,1%) than patients who had STD (4,2%) but this

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difference was not statistically significant ( $P > 0,05$ ).

The number of patients who used condoms were small (1,5%) but none of them developed syphilis. In two different studies done in Baltimore STD clinic,<sup>6,7</sup> 35,5% and 60,7% men used condoms.

### Conclusions

A very low proportion (5,1% by RPR test) of male patients with urethral discharge had co-existent asymptomatic syphilis in the Department of Family Medicine, Umtata General Hospital.

The patients with urethral discharge were younger than the general patient population but this was almost similar to the other studies. The older patients (34-64 years) had a significantly low proportion of co-

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None of the patients who used condoms developed syphilis.

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existing asymptomatic syphilis. These are suggestive that the young are more sexually active. Most of the patients were urban in spite of a large rural population in Umtata district. This supports urbanisation as one of the social factors related to increased STD. One fifth of the study subjects were students but they had significantly lower proportion of asymptomatic syphilis than others.

A high proportion of patients had multiple sexual partners and casual relationships. A similar ratio was found in other studies as well. This shows that the patients with STD

have a tendency to change partners more frequently. The patients with regular partners had a significantly higher proportion of syphilis than the patients with casual partners. About half of the study population had STD within the past 2 years and this was also found to be similar to other studies. Only a few had used condoms and this was low when compared with other studies. Although they were few, none of them had asymptomatic syphilis.

### Recommendations

1. As the prevalence of asymptomatic syphilis was found to be low (5,1%) it is recommended that routine screening for asymptomatic syphilis in patients with urethral discharge at the Department of Family Medicine, Umtata General Hospital is not necessary.
2. As the study subjects were younger than the general patient population and students were the highest number of patients seen, sex education should be targeted at the children at senior primary and junior secondary schools, well before the age of 14 years.
3. As it was found that a negligible number of patients used condoms even though nearly 90% had multiple partners and two thirds casual partners, it is recommended that reasons for the dislike of condoms be established and appropriate health education given to encourage condom use.

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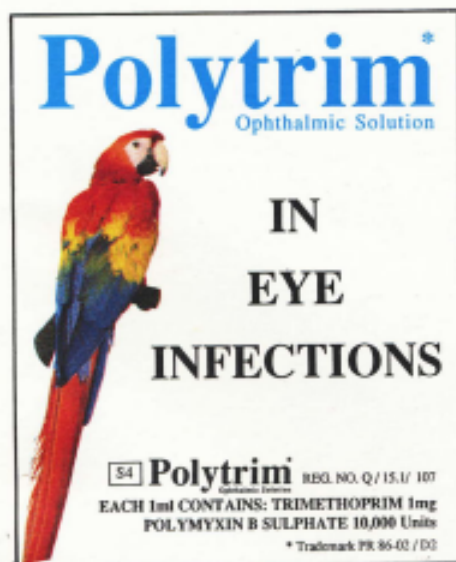
2. Mr H Mququ Senior technologist at Umtata branch, Border Blood Transfusion Service, Dr D Dickson Deputy Director and Mr R Wilkinson Head of technical division at Border Blood Transfusion Service, East London for giving me the VDRL results for the male blood donors from Umtata district.

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