

# NON - GONOCOCCAL URETHRITIS.

By

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The spectacular success of sulphonamides and later of penicillin in the treatment of gonorrhoea, has focussed attention on the prevention and treatment of non-gonococcal urethritis. Since the recognition of this malady by Richard Dawson<sup>2</sup> in 1848, it is continuously on the increase. Durrel<sup>3</sup> et al have rightly pointed out that it is a great cause of concern causing anxiety and obsession, and a source of heavy expenditure to the patient. Being more frequent in the males than in the females (about 18 times) and that too at a very active period of life, it is likely to result in much more illhealth and unhappiness, unless scientifically investigated and judiciously treated.

This insidious and so called incurable disease is full of many unsolved problems. The key to the knowledge is the correct discovery of the aetiological agent. Aubert<sup>1</sup> in 1884 first pronounced the microbial aetiology of nongonococcal urethritis. Since then almost every form of microbial life—a bacterium, a virus, a fungus, and a parasite has been held responsible for this condition, working individually or in different combinations. The isolation of these microbial agents, the identification of these to establish their pathogenicity and the antibiotic sensitivity entail very lengthy and elaborate procedures to the patient, the clinician and the laboratory worker. However unless these procedures are instituted the results of the therapy advocated are not likely to bear fruit. The expert committee on the venereal diseases of the World Health Organization Interim Commission in January 1948 has unanimously recommended collection of data in appreciation of the increasing importance of this disease. Very scanty Indian data are at present available. It is with this impulse that this investigation was undertaken. An account of 25 fully studied cases of nonspecific bacterial urethritis is proposed to be presented here.

## MATERIALS & METHODS.

Cases attending Venereal Diseases Out Patient Department of the J. J. Group of Hospitals, Bombay, complaining of urethral discharge, varying in quantity and duration, with or without burning micturation were selected for study. The patients were requested to with-hold the morning urine and attend the Out Patient Department. The glans penis was sterilised with absolute alcohol.

(1) An urethral smear made with a sterile platinum loop and stained by the Gram's method of staining was carefully studied.

(2) In those cases which showed the absence of N. gonorrhoeae material was collected in a sterile manner and was cultured on Hydrocoele fluid agar, Blood

agar & MacConkey's agar medium. The Hydrocoele fluid agar medium was incubated at 37° C in 10% carbon dioxide. The other media were incubated at 37° C in the usual way. Those cultures which showed the absence of growth of *N. gonorrhoeae* were completely studied and identified.

(3) Antibiotic sensitivity tests were put up on pure cultures of the micro-organisms by the shake plate method using the following concentrations of the antibiotics:—

Penicillin 2 units, Chloramphenicol 25 ugm, Streptomycin, Achromycin and Aureomycin 10 ugm each.

(4) About 5 c. c. of blood was collected in plain bulb and Gonococcal Complement Fixation Test and Venereal Diseases Research Laboratory Test were carried out.

(5) A prostatic massage was done on the following day with similar instruction to the patient. Material was collected and subjected to bacteriological identification and antibiotic sensitivity tests as above.

Only those cases which showed indetical bacteriological findings of the two investigations, with absence of growth of *N. gonorrhoeae* and a negative Gonococcal Complement Fixation Test are presented here.

Virological and mycological data do not form the subject matter of the present communication.

## RESULTS AND DISCUSSION.

Table I.

Percentage incidence of N. G. U. at the V. D. O. P. D. J. J. Group of Hospitals during 1958-62 (Compiled from the official annual reports).

	1958	1959	1960	1961	1962	Total.
Total cases of urethritis	813	802	812	838	837	4102
Total cases of Gonococcal urethritis	722	720	740	760	749	3691
Total cases of Non-gonococcal urethritis	91	82	72	78	88	411
Hence percentage of N. G. U.	11.1	10.2	8.9	9.3	10.5	10.02

Harkness<sup>6</sup> has reported an incidence of 17-21% between 1921-39, and an incidence of 31% between 1939-47. Pelouze<sup>10</sup> in 1941 has reported an incidence of 30.8%. Durrel<sup>3</sup> et al in 1954 have reported an incidence of 23.6%. Of late Siboulet<sup>1,2</sup> has cited an incidence of 17.2%. These fluctuating figures only indicate that the problem still requires further elaborate studies to reach reasonable conclusions. At the J. J. Hospital, Venereal Diseases Out Patient Department during the last five years the incidence of non-gonococcal urethritis has been lurking round about 10%. This incidence is distinctly lower than that quoted above, and is difficult to explain.

The patients of non gonococcal urethritis principally present two symptoms—urethral discharge and burning micturition. In this series burning micturition was present in 10 cases (40%), and the remaining 15 cases (60%) complained of urethral discharge. In the majority of these cases (10 cases) the urethral discharge was frank, while only five cases complained of the morning drop. Gartman<sup>4</sup> et al in their series have quoted urethral discharge in 94.4% of the patients.

Table 2.

Agewise classification of cases of Non-gonococcal Urethritis.

Years	Age groups						Total
	11-20	21-30	31-40	41-50	51-60	61-70	
No. of cases	2	14	4	3	1	1	25
Hence %	8	56	16	12	4	4	100

Age wise distribution of non-gonococcal urethritis has revealed interesting findings. The maximum incidence is in the third decade of life, declining in subsequent decades. In this series the youngest patient was aged 18 years and oldest was 66 years of age. Gartman<sup>4</sup> et al in their series have reported 75% of the cases between the ages of 18-30, the youngest was aged 18 years and the oldest was 47 years of age. Willcox<sup>13</sup> in his series has found the average age as 30.8 years, extremes being 18-61. Pelouze<sup>10</sup> has made similar observations and is of the opinion that this malady is rare beyond the age of 45. This is the same pattern of age distribution of venereal diseases in general.

Table 3.

Classification of the bacterial isolates		Total isolates 35	
Gram Positive cocci		Gram negative bacilli	
Staphylococcus pyogenes	19 strains	Escherichia coli	6 strains
Streptococcus pyogenes	2 strains	Escherichia freundii	1 strain
		Aerobacter aerogenes	3 strains
		Pseudomonas pyocyanea	3 strains
		Proteus vulgaris	1 strain
	21 strains		14 strains

25 cases of non-gonococcal urethritis revealed 35 bacterial isolates. These comprise 21 strains of gram positive cocci and 14 strains of gram negative bacilli. Amongst the cocci there was a predominance of Staphylococcus pyogenes, while Streptococcus pyogenes was isolated in only two cases. Amongst the bacilli the majority were of the Escherichia group of organisms, while Pseudomonas and Proteus group comprise only four cases. Gartman<sup>4</sup> et al in their series have also found Staphylococcus pyogenes as the predominating organism. Harkness<sup>7</sup> had also made similar observations in his study. Of late Lejman<sup>9</sup> et al have also found Staphylococcus pyogenes as the chief causative microorganism.

Table 4.  
Results of Antibiotic sensitivity tests of different isolates

Total strains	Penicillin			Streptomycin			Chloramphenicol			Achromycin			Aureomycin			Total resistant strains
	H	M	S	H	M	S	H	M	S	H	M	S	H	M	S	
Staph. pyogenes 19	8	0	0	7	0	2	9	6	2	8	4	4	5	5	7	0
Staph. pyogenes 2	1	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0
E. coli 6	0	0	0	3	0	0	6	0	0	2	1	0	1	2	1	0
A. aerogenes 3	0	0	0	3	0	0	3	0	0	0	1	0	0	2	1	0
Ps. pyocyanea 3	0	0	0	1	0	0	2	0	0	0	0	0	1	1	0	1
Pr. vulgaris 1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
E. freundii 1	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0

H: Highly sensitive M: Moderately sensitive S: Slightly sensitive.

Antibiotic sensitivity tests put up on pure cultures of the micro-organisms have revealed following findings. Out of the 35 isolates one strain of *Ps. pyocyanea* has been resistant to all antibiotics. The remaining 34 strains have showed differential sensitivity. Out of 32 strains sensitive to Chloramphenicol 24 strains have shown high sensitivity. Out of the 17 strains sensitive to Streptomycin 15 strains have shown high sensitivity, Out of the 20 strains sensitive to Achromycin 10 have shown high sensitivity, All the 9 strains have shown high sensitivity to Penicillin. Out of the 28 strains sensitive to Aureomycin 7 strains have shown high sensitivity. An assessment of the sensitivity results shows that Chloramphenicol is the antibiotic of choice in this series of non-gonococcal urethritis followed closely by Streptomycin. Gartman<sup>4</sup> et al have made similar observations in their series. Willcox<sup>14</sup> is of the opinion that Penicillin has no place in the therapy of non-gonococcal urethritis. Prebble<sup>11</sup> is of the opinion that a specific is still to be found, and yet it appears that the more recent antibiotics are the most effective in the largest number of cases. Terramycin and Erythromycin have been used by many in preference to simpler antibiotics. However in view of the prohibitive cost of the drug and the possibility of developing resistance to such powerful antibiotics, Jelinek<sup>8</sup> has suggested that a safe, cheap, and apparently satisfactory drug combination should be used initially reserving the more expensive drugs for the resistant and relapsing cases. This may be a convenient method where extensive and expensive laboratory aids are not always available.

#### TREATMENT AND RESULTS.

On the basis of the work carried out all the 24 cases were treated and followed up for a period of two months. Each case was checked bacteriologically and found to be sterile after treatment and follow up. One case of *Ps. pyocyanea* infection was given up and the patient left.

## SUMMARY

✓ A review of 25 cases of non-gonococcal urethritis has shown that this disease is very common during the active decades of life. *Staphylococcus pyogenes* has been the predominating organism responsible for urethral discharge of non specific nature. The antibiotic sensitivity studies have revealed Chloramphenicol as the antibiotic of choice for therapy. ✓

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