

# Upsurge in mycoplasma pneumonia!

By Dr. H.G.V. Küstner

An investigation was initiated following a call from the National Institute for Virology. A private paediatrician, as well as doctors at Rietfontein Hospital, had noticed several cases of *Mycoplasma pneumonia* many of whom came from the East Rand.

Rietfontein Hospital was visited on 6 March 1980 and a suspected case of *M. pneumonia* (R.W.) was examined. He presented with headache and cough and was suspected of having encephalitis. Subsequent complement fixation test was positive for *Mycoplasma*.

Perusal of case notes of a second patient, who was discharged on 1 March 1980, revealed a history of a chronic cough and pyrexia unresponsive to co-trimoxazole. Furthermore, this patient (R.B., male aged 3 years) attended a nursery school in Benoni at which, as reported by the mother, there had been other cases of "pneumonitis".

This nursery school was visited on 11 March 1980. The Principal provided a list of names of children who had recently been ill. The nursery school is a modern, clean and well-organized establishment with an attendance of 67 children between the ages of 3-6 years, who attend school on mornings only.

Suspect cases, which were to

be followed up, were defined as: any child absent from school for longer than two days since the beginning of the first term at school complaining of pyrexia with chronic cough and/or headache.

Four children conformed to the definition. Blood specimens were obtained from three (the fourth refused permission). Visits to these three cases led to the discovery of two additional cases, M.H. who had had pneumonia in September 1979 and J.H. who attended the school last year, but who is now at Primary school. (Cases Nos. 1 and 2). R.B., mentioned above and his sister T.B. were discovered and confirmed prior to investigating the nursery school and are regarded as the INDEX CASES.

## Results of Nursery School Investigation.

All six blood specimens taken were positive to a titre of 1:32 or greater. Radiological confirmation of pneumonia/pneumonitis was obtained in five out of the seven. In two instances mothers, too, volunteered that they had had a mild cough and pyrexia at the time their children had been ill.

## Clinical Features

The usual clinical picture was of a chronic cough not responding to antibiotics, specifically co-trimoxazole and penicillin, with a

chest X-ray often more dramatic than the clinical illness. Four of the seven children had had pyrexia and headache during the illness and one case (T.D.) had presented as an encephalitis.

## Survey of Laboratory Data

In order to establish the endemic level of *Mycoplasma pneumoniae* infection in the Witwatersrand area, positive laboratory reports were collected from two sources: National Institute of Virology — all positive *Mycoplasma* complement fixation tests with titres 1:32 from January 1976 to March 1980 were included in the analysis. Lancet Laboratories — for the period January 1979 to March 1980.

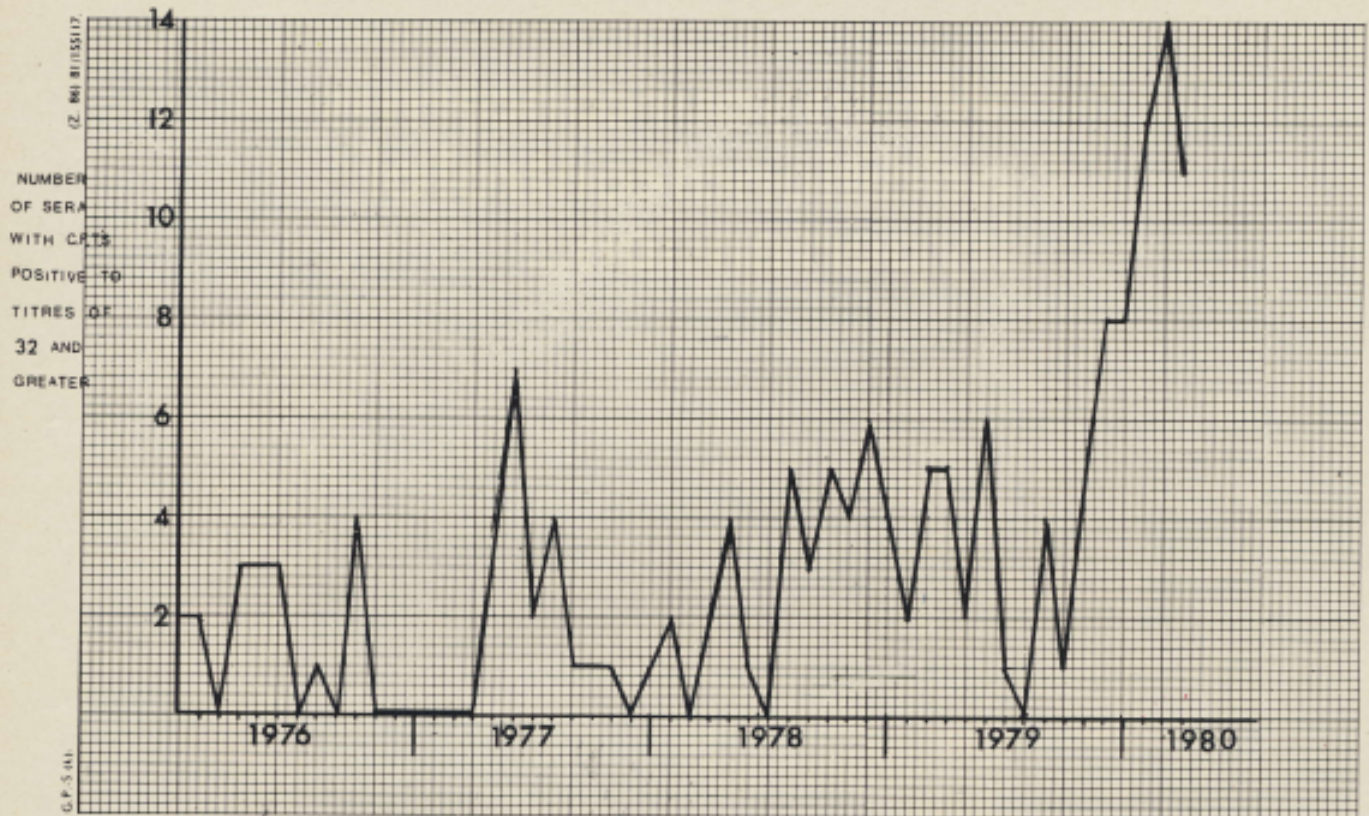
Ideally the diagnosis should be made on a four-fold rise in titre over two weeks. This ideal procedure is, however, impractical, because patients rarely come back for a second blood test and, secondly, due to the chronicity of the disease patients are seldom seen in the acute phase with low titres. Following consultation with Prof. J.H.S. Gear a titre of 1:32 and greater was accepted as highly suggestive of recent infection.

## Laboratory Findings

It can be seen from Figures 1 and 2 that in the early part of 1980 there has been a greater than normal incidence of *Mycoplasma pneumoniae* infection. Most of the recent

fig 1

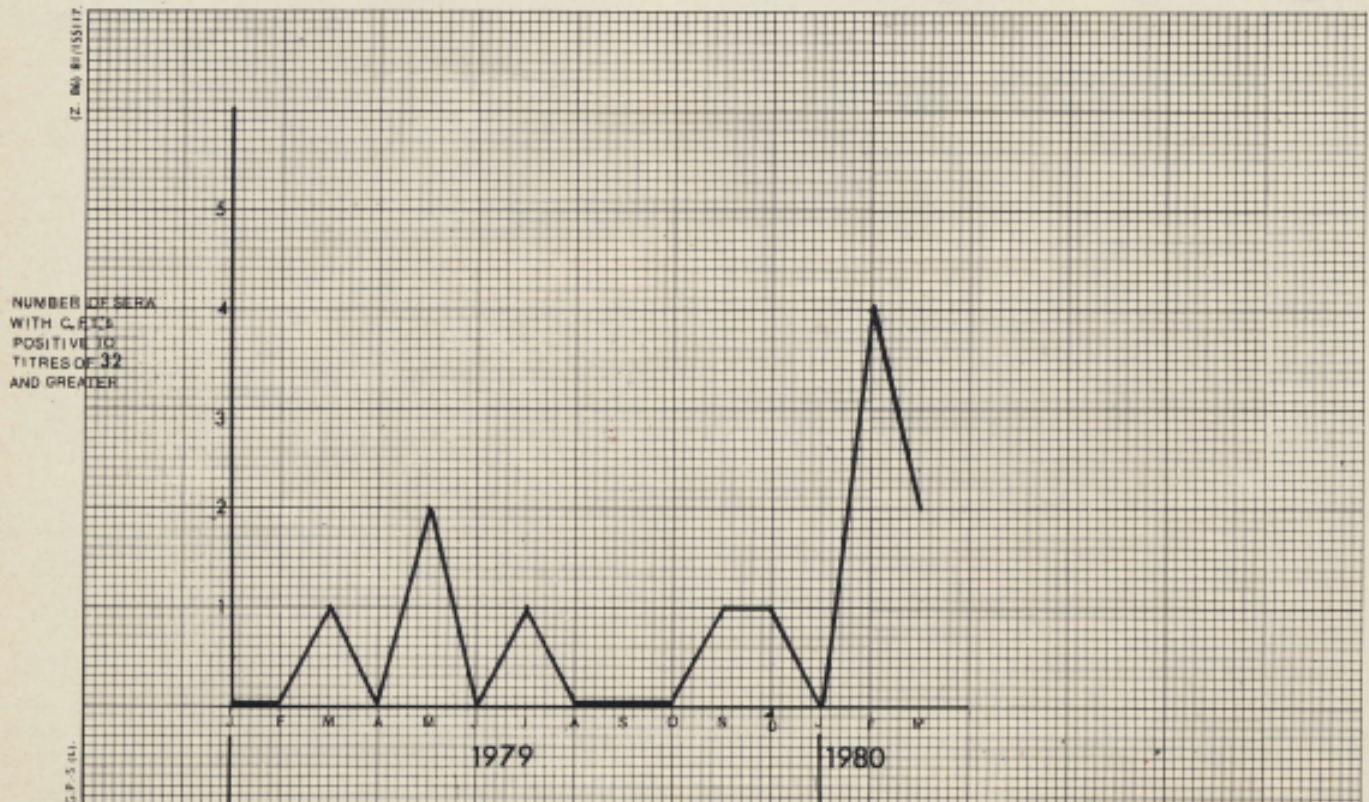
Positive Mycoplasma C.F.T.'s From January 1976 To March 1980



Source: National Institute For Virology Records 1976-1980  
(March 1980 is incomplete but contains the 4 active surveillance cases.)

Fig 2

Positive Mycoplasma C.F.T.'s From January 1979 To March 1980



Source: Lancet Laboratories (Johannesburg) Records 1979-1980  
(March 1980 is incomplete)

Table 1.

\* = case found in consequence of active surveillance.

Details of seven cases of *Mycoplasma pneumoniae* infection at Benoni nursery school, September 1979 to February 1980.

Initials	Case No.	Characteristics	Date of onset	Symptoms and Signs	X-ray findings	<i>Mycoplasma</i> CFT — titre
M.H.	1	White male, 4½ years old.	Sept '79	Chronic cough, pneumonia	not done	not done
J.H.	2*	6 year old brother of "1"	Dec '79	Chicken pox, which led to chronic cough; pneumonia, unresponsive to antibiotics.	pneumonia	1 : 128
T.D.	3*	6 year old White female	Jan '80	Severe headache, ? encephalitis. Admitted to hospital	not done	1 : 32
M.D.	4*	4 year old White female	Feb '80	Cough, no response to ampicillin	pneumonia	1 : 128
K.D.	5*	6 year old sister of "4"	Feb '80	Cough, headache, no response to ampicillin.	pneumonia	1 : 64
T.B.	6	6 year old White female	Feb '80	Pyrexia, headache, cough; no response to antibiotics.	pneumonia	1 : 512
R.B.	7	3 year old brother of "6".	Feb '80	Cough, pyrexia, no response to co-trimoxazole. Admitted to hospital.	pneumonia	1 : 64

positive cases from Lancet Laboratories were cases from the East Rand, but the NIV-data show a more general spread of cases throughout the Rand and also included some cases from Natal. In both cases (NIV and Lancet) the 1980-peak is about three times higher than what is usually seen. Details of the seven cases associated with the Nursery School are given in Table 1. It should be noted that the seven cases presented occurred over a period of six months, namely September 1979 to February 1980.

#### Discussion

It is usual for waves of *Mycoplasma pneumoniae* infection to occur every few years. (Joosting et al<sup>1</sup>) demonstrated that a peak in the incidence of the infection occurred every three years in this country and that the epidemic usually lasted about eighteen months. These authors also state that the incidence during the epidemic phase is about ten times the level during the inter-epidemic phase.

Continuing the three-year cycle observed by Joosting outbreaks could be predicted for the early months of 1977 and 1980. As can be seen from Figure 1 a small outbreak was observed 1977, while the 1980-outbreak appears to be more substantial.

*Mycoplasma pneumoniae* is the simplest free-living organism known! Its DNA mass is about one tenth that of most bacteria and just more than that of large viruses<sup>2</sup>). The organism is resistant to penicillin, but infections can be successfully treated with tetracycline or erythromycin, the latter being the treatment of choice in children.

#### Conclusions

There is a greater-than-usual incidence of *Mycoplasma pneumoniae* infections in the Witwatersrand area at present. An investigation of a Nursery School in Benoni revealed an outbreak in a closed community.

Clinicians, especially in the Witwatersrand area, should be alerted to the anticipated upsurge of *Mycoplasma pneumoniae* in the forthcoming months.



Dr H G V Küstner

**Horst Günther Valentin Küstner** Born in 1932 as the eldest of three sons in Port Elizabeth of German immigrant parents he underwent his primary schooling at Grey College, Port Elizabeth.

A Civil Internee Exchange Programme took the family to war-torn Europe in 1944. On his return to this country in 1950 he completed his secondary school education in Johannesburg and took up employment with a large industrial concern as a Laboratory Assistant in 1952.

In 1955 he was awarded a Scholarship with the aid of which he completed a B.Sc. with majors in Physics and Chemistry at the University of Natal.

In 1958 he enrolled at the Medical School of the University of the Witwatersrand and qualified in 1964. Extra-curricular

activities included sport (Soccer and Tennis), choir work (Bach Cantata Club) and the humanities (Zulu I, 1958; German I, 1957; Sociology I, 1962, Philosophy I, 1966) and theology.

After completing his internships (Surgery, Johannesburg General Hospital and Medicine/Paediatrics, Coronation Hospital) he entered private practice in 1966 in Brakpan, Transvaal.

In 1970/71 this was followed by 1½ years at Grootshoek Mission Hospital whence he was recruited to join the Department of Health as Medical Statistician.

His activities at the Department in the Branch of Strategic Planning and Co-ordination included data processing and data analysis in a wide variety of fields.

In 1976 he was offered the position of Epidemiologist and was trained in the course of 1977 at the Centre for Disease Control, Atlanta, Georgia, U.S.A.

In 1978 he became involved in the training of Epidemiologists at the University of Pretoria (post-graduate diploma in Public Health).

Special interests in the field of Epidemiology include surveillance of infectious diseases, particularly poliomyelitis, typhoid fever and tuberculosis and the "natural" epidemiological course of these diseases.

He is married and has three daughters.

#### References

- 1 Joosting A.C.C. et al. South African Medical Journal, 50., 2134 - 2135, 18 Dec. 1976, "A Serological Investigation of *Mycoplasma pneumoniae* Infection on the Witwatersrand".
- 2 Joosting A.C.C. South Afr. J. of Hospital Medicine, Aug. 1979, pp 241 - 247, "A Review of Respiratory Virus Diseases and *Mycoplasma pneumoniae* Infections in South Africa".