INFECTION AND IMMUNITY, Mar. 1973, p. 499-500
Vol. 7, No. 3

Printed in U.S.A.

Serotypic Heterogeneity in Isolates of Human Genital T-Mycoplasmas

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Received for publication 3 November 1972

Serological typing of human genital T-mycoplasmas by a complement-dependent mycoplasmacidal test showed that some recent isolates had different serotypic behavior before and after purification, and that the widely distributed prototype strain T960 was composed of at least two different serotypes. These results indicate that T-mycoplasma isolates from human genital tracts are not serologically homogeneous.

A complement-dependent mycoplasmacidal test for serotyping human genital T-mycoplasmas has been developed. The test has shown that there are at least 11 serogroups of T-mycoplasmas (J-S Lin, M. I. Kendrick, and E. H. Kass, J. Infect. Dis., in press). As a prelude to epidemiological studies of the distribution of serogroups of T-mycoplasmas in the human genital tract, under varying circumstances, a study was performed to determine if the T-mycoplasmas that are isolated are serologically homogeneous. The following data indicate that some recent isolates are not serologically homogeneous. Therefore, a standard strain (T960) of T-mycoplasma, which has been used in many laboratories as a typical T-mycoplasma, has been collected from the various sources to which it has been distributed. The serotyping of these widely distributed strains indicates that they are at present composed of at least two different serotypes.

Ten strains of T-mycoplasmas were selected at random from a larger series of isolates (1, 2) that were obtained in earlier studies. Four strains were obtained from the genital tracts of pregnant women, and six were obtained from newborn infants. As is seen in Table 1, only four of the strains that were derived from infants retained the same serological activity before and after purification by a terminal dilution method that has been described elsewhere (J-S. Lin et al., in press). The four strains derived from the pregnant women and two of the six strains derived from the newborn infants had different serotypic behavior before and after purification, when tested against a battery of 11 typing sera.

The phenomenon was investigated further by collecting a series of strains that have been known as T960. The original isolation of T960 by M. Shepard (4, 5) was followed by distribution to various laboratories. For example, our laboratory strain of T960 (Ch) was obtained from M. Shepard in 1968 and was cloned three times before further use. The ATCC 25023 strain was purchased directly from the American Type Culture Collection in 1971 and was not further cloned. The T960 (CX8) strain, supplied by M. Shepard and obtained from the National Institutes of Health, had been cloned eight times. The T960-16 strain had been maintained by Shepard in his laboratory until 1971 and has been passed but once in our laboratory. These four strains of T960 were run against the 11 antisera, and two different serotypes clearly emerged (Table 2).

These results indicate that T-mycoplasma isolates from the human genital tract are not serologically homogeneous. Whether these data indicate mixed serotypes of human genital T-mycoplasmas in situ, or variation in consequence of the cloning process, is not entirely clear. However, the strains that have been cloned seem to be serologically stable, suggesting that these organisms do not change their serotypic behavior readily, although it is possible that the initial isolates are less stable with respect to this characteristic than strains that have undergone repeated cultivation. Since sexual activity has been shown to be one of the important determinants of colonization with genital myco-

TABLE 1. *Serological activity of 10 strains of T-mycoplasma before (B) and after (A) purification by a terminal dilution method*

Strains	Mycoplasmacidal titers in serotyping antisera											Serogroup assigned
	U19	K2	K11	U23	U24	U38	T960	U30	U9	K393	U26	
K6 B	32	<8	256	8	<8	16	<8	128	64	8	16	—[a]
A	<8	<8	<8	<8	<8	<8	<8	64	2,048	<8	512	9
K10 B	<8	128	16	16	<8	<8	<8	<8	32	256	8	—[a]
A	128	16	256	32	64	<8	<8	<8	<8	<8	<8	3
U23 B	512	<8	512	16	<8	<8	<8	<8	<8	<8	<8	1
A	2,048	256	2,048	2,048	2,048	1,024	<8	<8	<8	<8	<8	4
U26 B	128	512	512	<8	64	<8	<8	<8	<8	<8	<8	2
A	<8	<8	<8	<8	<8	<8	<8	<8	32	16	2,048	11
U31 B	512	32	1,024	<8	<8	<8	<8	<8	<8	<8	<8	1
A	<8	<8	<8	<8	<8	<8	<8	16	2,048	<8	512	9
U32 B	512	128	512	<8	<8	<8	2,048	<8	<8	<8	<8	7
A	<8	<8	<8	<8	<8	<8	<8	<8	2,048	<8	512	9
152-10 B	128	<8	128	<8	<8	<8	<8	<8	<8	<8	<8	1
A	512	32	512	<8	<8	<8	<8	<8	<8	<8	<8	
152-12 B	<8	<8	<8	<8	<8	<8	<8	64	512	<8	128	9
A	<8	<8	<8	<8	<8	<8	<8	128	256	<8	64	
152-16 B	<8	<8	<8	<8	<8	<8	<8	<8	<8	8	256	11
A	<8	<8	<8	<8	<8	<8	<8	<8	<8	8	256	
152-39 B	128	8	256	64	256	<8	<8	<8	<8	<8	<8	3
A	512	16	1,024	64	1,024	<8	<8	<8	<8	<8	<8	

[a] Does not fit any known serotypic pattern.

TABLE 2. *Serological activity of four T960 strains maintained in different laboratories*[a]

Strains	Mycoplasmacidal titers in serotyping antisera											Serogroup assigned
	U19	K2	K11	U23	U24	U38	T960(Ch)	U30	U9	K393	U26	
T960 (Ch)	512	8	128	256	32	32	8,192	<8	<8	<8	<8	7
ATCC 25023	1,024	32	256	512	32	512	4,096	<8	<8	< 8	<8	7
T960 (CX8)	512	<8	64	8	<8	<8	<8	<8	<8	<8	<8	1
T960 (16)	128	<8	64	16	8	<8	<8	<8	<8	<8	<8	1

[a] The serological activities of all 11 prototype strains are shown in Table 1 (J-S. Lin et al., in press).

plasmas (3), and the numbers of different partners seem to be epidemiologically significant in determing rates of colonization, it is likely that several serotypes would be present in one individual. These findings emphasize the need for caution in the epidemiological analysis of the distribution of genital mycoplasmas until the problem of heterogneity has been studied further and dealt with adequately in accordance with the data that will have emerged.

This study was supported by Public Health Service research grant HD-03693 from the National Institute of Child Health and Human Development and training grant T01 AI-00068 from the National Institute of Allergy and Infectious Diseases.

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