BACKGROUND

Previous studies demonstrated that a Chlamydia trachomatis plasmid negative OCULAR strain (A/P-) resulted in attenuation of infection and pathology, paired with immune stimulation that produced protective immunity in a monkey ocular model.

OBJECTIVE

To assess a plasmid-negative GENITAL strain (D/P-) in the pigtailed macaque model of chlamydial reproductive tract infection, comparing infection and pathology to a plasmid-positive GENITAL strain (D/P+).

METHODS

Groups of six macaques were cervically challenged with C. trachomatis D/P+ or D/P-. All animals were followed for infection, circulating antibody, local immunity, and tissue inflammation. Upon spontaneous clearance of cervical infection, each animal underwent repeated challenges with matched strains to drive upper reproductive tract disease. The same strains were similarly compared in the macaque OCULAR infection model.

RESULTS

Similar rates and duration of chlamydial genital infection were documented in both the P+ and P- challenged macaques. Likewise, serum and local antibodies were similar.

Tissue inflammation, graded by gross observation during laparoscopic procedures and by tissue histology, yielded no discernible patterns to disease pathology between P+ and P- strains.

Because A/P+ and A/P- ocular strains in macaques exhibited dramatic differences in infectivity and pathology in the eye, we ocularly challenged animals with D/P+ and D/P-.

SUMMARY

Unexpectedly, no differences in infectivity or pathology were observed between the D/P+ and D/P- strains; each produced similar infection kinetics with ocular disease, characterized by conjunctival hyperemia and follicle formation.

CONCLUSIONS

Unlike the ocular strain, the plasmid negative genital strain is not attenuated in either genital or ocular macaque infection models.

This suggests that genetic determinants unrelated to the plasmid play a dominant role in the pathogenesis of urogenital strains.

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