

INTRODUCTION

Experimentally induced cervical chlamydial infection in the macaque may naturally cross-infect rectal epithelial cells which are also prone to Chlamydia trachomatis (CT) infection. This would be a significant finding in the field of STI preventive strategies, particularly when products intended for vaginal use are assessed for efficacy.

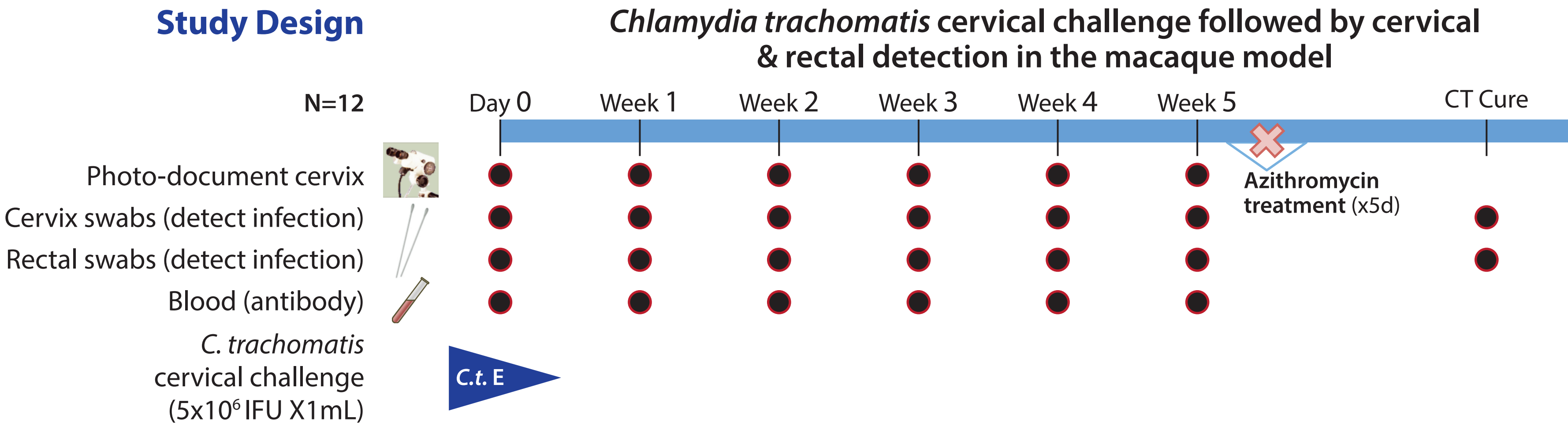
OBJECTIVE

To specifically assess rectal secretions for evidence of infection after cervical CT inoculation, as delivered in product efficacy studies

METHODS

- 12 pigtailed macaques underwent direct cervical inoculation (1mL C. trachomatis serovar E; 5E6IFU), followed by 5 weekly exams to detect infection in cervical and rectal secretions
- Inoculant was delivered to the face of the cervix/vaginal fornix via 1mL tuberculin syringe
- Secretions were collected on dacron swabs
- Chlamydial infection was detected at each site by culture and by nucleic acid amplification (NAAT: Aptima Combo2) assays

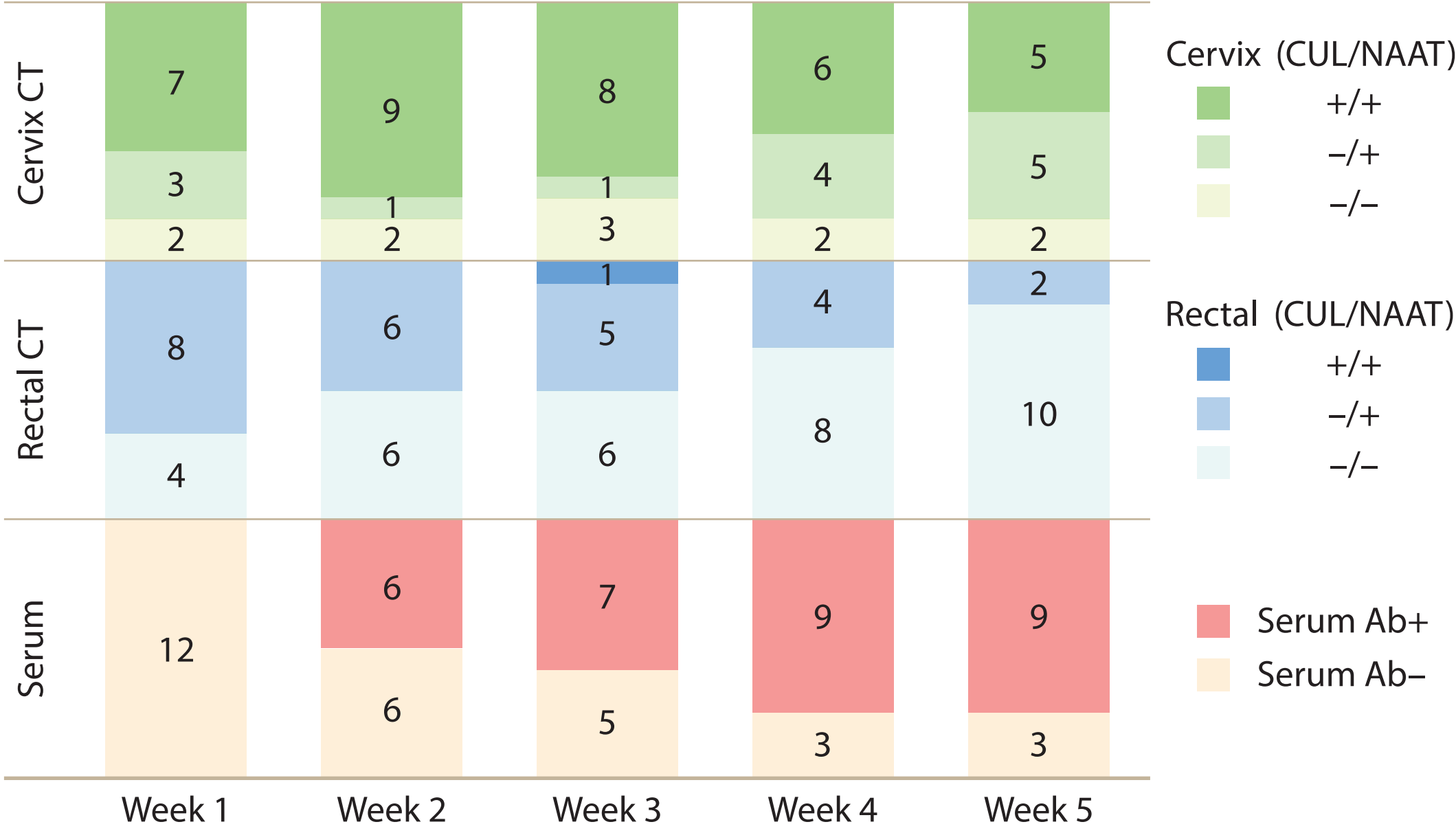
Study Design



RESULTS

- 10 of 12 macaques tested positive for cervical chlamydial infection by culture and NAAT assays
- Other 2 were transiently positive (2 weeks, 1 week) by NAAT only
- Paucity of culture positive results from rectal samples may be related to fecal contamination in the specimens
- 5 animals remained NAAT positive in rectal secretions for ≥ 3 weeks
- One of these macaques had replicating chlamydia cultured from a rectal swab (week 3 only), followed by a spike in culture positivity from next cervical sample (week 4)

CT Cervical & Rectal Detection in 12 Macaques



Detection of Chlamydia trachomatis & Antibodies: Culture/NAAT, Serum

Animal #	Study Visit	Day 0	Week 1	Week 2	Week 3	Week 4	Week 5	Azi Tx	Post Tx
	Inoculant CT Culture	6800-7140	na	na	na	na	na	na	na
1	Cervix CT Culture	NEG	2	74	48	4	NEG	na	na
	Cervix CT NAAT	NEG	POS	POS	POS	POS	POS	na	NEG
	Rectal CT Culture	NEG	NEG	NEG	NEG	NEG	NEG	na	na
	Rectal CT NAAT	NEG	POS	POS	POS	NEG	POS	na	NEG
	Serum IgM	<1:8	<1:8	<1:8	<1:8	<1:8	<1:8		
2	Cervix CT Culture	NEG	NEG	NEG	NEG	NEG	NEG	na	na
	Cervix CT NAAT	NEG	NEG	NEG	NEG	POS	NEG	na	NEG
	Rectal CT Culture	NEG	NEG	NEG	NEG	NEG	NEG	na	na
	Rectal CT NAAT	NEG	NEG	NEG	NEG	NEG	NEG	na	NEG
	Serum IgM	<1:8	<1:8	<1:8	<1:8	<1:8	<1:8		
3	Cervix CT Culture	NEG	340	3315	368	782	146	na	na
	Cervix CT NAAT	NEG	POS	POS	POS	POS	POS	na	NEG
	Rectal CT Culture	NEG	NEG	NEG	NEG	NEG	NEG	na	na
	Rectal CT NAAT	NEG	POS	NEG	NEG	NEG	NEG	na	NEG
	Serum IgM	<1:8	<1:8	<1:8	1:16	1:32	1:16		
4	Cervix CT Culture	NEG	14	18	13	NEG	5	na	na
	Cervix CT NAAT	NEG	POS	POS	POS	NEG	POS	na	NEG
	Rectal CT Culture	NEG	NEG	NEG	NEG	NEG	NEG	na	na
	Rectal CT NAAT	NEG	NEG	POS	NEG	POS	NEG	na	NEG
	Serum IgM	<1:8	<1:8	<1:8	<1:8	<1:8	<1:8		
5	Cervix CT Culture	NEG	NEG	NEG	NEG	144	NEG	na	na
	Cervix CT NAAT	NEG	NEG	NEG	NEG	POS	POS	na	NEG
	Rectal CT Culture	NEG	NEG	NEG	NEG	NEG	NEG	na	na
	Rectal CT NAAT	NEG	NEG	NEG	NEG	NEG	NEG	na	NEG
	Serum IgM	<1:8	<1:8	<1:8	<1:8	<1:8	<1:8		
6	Cervix CT Culture	NEG	NEG	2	1530	3570	935	na	na
	Cervix CT NAAT	NEG	POS	POS	POS	POS	POS	na	NEG
	Rectal CT Culture	NEG	NEG	NEG	NEG	NEG	NEG	na	na
	Rectal CT NAAT	NEG	POS	NEG	POS	POS	POS	na	NEG
	Serum IgM	<1:8	<1:8	<1:8	<1:8	<1:8	<1:8		

Animal #	Study Visit	Day 0	Week 1	Week 2	Week 3	Week 4	Week 5	Azi Tx	Post Tx
	Inoculant CT Culture	6800-7140	na	na	na	na	na	na	na
7	Cervix CT Culture	NEG	NEG	NEG	NEG	NEG	NEG	na	na
	Cervix CT NAAT	NEG	POS	POS	NEG	NEG	NEG	na	NEG
	Rectal CT Culture	NEG	NEG	NEG	NEG	NEG	NEG	na	na
	Rectal CT NAAT	NEG	POS	POS	POS	NEG	NEG	na	NEG
	Serum IgM	<1:8	<1:8	<1:8	<1:8	<1:8	<1:8		
8	Cervix CT Culture	NEG	NEG	1	1	NEG	NEG	na	na
	Cervix CT NAAT	NEG	POS	POS	POS	POS	POS	na	NEG
	Rectal CT Culture	NEG	NEG	NEG	NEG	NEG	NEG	na	na
	Rectal CT NAAT	NEG	NEG	NEG	NEG	NEG	NEG	na	NEG
	Serum IgM	<1:8	<1:8	<1:8	<1:8	<1:8	<1:8		
9	Cervix CT Culture	NEG	121	11	1	NEG	13	na	na
	Cervix CT NAAT	NEG	POS	POS	POS	POS	POS	na	NEG
	Rectal CT Culture	NEG	NEG	NEG	NEG	NEG	NEG	na	na
	Rectal CT NAAT	NEG	POS	POS	NEG	NEG	NEG	na	NEG
	Serum IgM	<1:8	<1:8	<1:8	<1:8	<1:8	<1:8		
10	Cervix CT Culture	NEG	75	38	91	1054	44	na	na
	Cervix CT NAAT	NEG	POS	POS	POS	POS	POS	na	NEG
	Rectal CT Culture	NEG	NEG	NEG	85	NEG	NEG	na	na
	Rectal CT NAAT	NEG	POS	POS	POS	POS	NEG	na	NEG
	Serum IgM	<1:8	<1:8	1:256	1:512	1:512	1:256		
11	Cervix CT Culture	NEG	170	65	8	1	NEG	na	na
	Cervix CT NAAT	NEG	POS	POS	POS	POS	POS	na	NEG
	Rectal CT Culture	NEG	NEG	Cont. Bact.	NEG	NEG	NEG	na	na
	Rectal CT NAAT	NEG	POS	POS	POS	POS	NEG	na	NEG
	Serum IgM	<1:8	<1:8	1:8	1:128	1:128	1:128		
12	Cervix CT Culture	NEG	1530	11	NEG	NEG	NEG	na	na
	Cervix CT NAAT	NEG	POS	POS	POS	POS	POS	na	NEG
	Rectal CT Culture	NEG	NEG	NEG	NEG	NEG	NEG	na	na
	Rectal CT NAAT	NEG	POS	EQV	NEG	NEG	NEG	na	NEG
	Serum IgM	<1:8	<1:8	1:8	<1:8	<1:8	<1:8		

CONCLUSIONS

- Experimental CT infection of the cervix indeed gave rise to chlamydia detection in rectal secretions in the majority of animals in this study
- Culture positivity in cervical samples did not predict chlamydia detection in rectal samples
- Paucity of culture positive results from rectal samples may be related to fecal contamination
- Clearly it is advisable that rectal secretions be assessed for evidence of chlamydia in studies designed to assess prevention/treatment of cervical CT infections

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