Exploring 7 vs 21 Days of Doxycycline for Chlamydia trachomatis LGV Strains

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Alberto Rizzo[1], Laura Cordier[2], Samuel Lazzarin[2], Federica Salari[1], Chiara Fusetti[2], Manuela Morosi[2], Sara Giubileo[1], Loriana Morelli[1], Andrea Giacomelli[2,3], Amedeo Capetti[2], Barbara Argenteri[2], Alberto Dolci[1,3], Andrea Gori[2,3], Alessandra Lombardi[1], **Davide Moschese**[2]

[1]Laboratory of Clinical Microbiology, Virology and Bioemergencies, Luigi Sacco Hospital, ASST Fatebenefratelli Sacco, Milan, Italy
[2]Department of Infectious Diseases, Luigi Sacco Hospital, ASST Fatebenefratelli Sacco, Milan, Italy
[3]Department of Biomedical and Clinical Sciences, University of Milan, Milan, Italy

BACKGROUND

According to clinical guidelines, *Chlamydia trachomatis* **lymphogranuloma venereum** (LGV), unlike non-LGV cases, should be treated with 21-day doxycycline 100 mg twice daily. However, LGV typing is rarely performed in routine care, due to limited availability and turnaround time, so most cases are empirically managed as non-LGV.

Aim: was to estimate the proportion of LGV strains among attendees of two STIs clinics in Milan, Italy, and, in real-world practice, to preliminary compare infection clearance at test-of-cure (TOC) by empiric regimen.

METHODS

We conducted a prospective observational study of individuals:

- positive for *C. trachomatis* DNA
- TOC performed within 3 month after completing the therapy empirically prescribed at the first visit.

C. trachomatis DNA screening was performed with Allplex™ STI Essential Assay (Seegene, South Korea) while LGV typing was obtained with Genital Ulcer Real-Time PCR kit (Vircell, Spain).

Demographic and clinical data were collected.

Do All LGV Infections Really Need 21 Days of Doxycycline?

Preliminary Data on 7-Day Doxycycline

RESULTS

From Nov 2024 to May 2025, 46 individuals with *C. trachomatis* infection were included, mostly males (93.5%), with a median age of 33 (IQR 29, 37) years.

PrEP users and PLWH represented 78.3% and 8.7% of the population, respectively.

C. trachomatis LGV DNA was detected in **13%** of patients.
Among the 46 individuals, 80.4% had anal lesions and concomitant infections were observed:

- 10 (21.7%) *N. gonorrhoeae* coinfections,
- 1 (2.2%) *H. ducreyi*,
- 1 (2.2%) *M. genitalium*.

Most patients (89.1%) received a **7-day doxycycline course**, either alone or combined with azithromycin/ceftriaxone.
2 patients suspected of LGV were treated with **21-day doxycycline**, 2 patients with doxycycline + ceftraixone, and 1 individual did not take any antibiotic.
At the TOC, individuals with LGV strains, who received 7-day (3 individuals) or 21-day (2 individuals) doxycycline, cleared *C. trachomatis* LGV infection; the remaining LGV individual with *C. trachomatis* positive sample at TOC had received ceftriaxone + azithromycin.

Patient	Age	Biological Sex	PrEP	PLWH	Concomitant Infection	Empiric Treatment	Lesion Location	Signs & Symptoms	TOC Result
1	53	Male	No	Yes	None	21 days doxycycline	Anal	Pain, ulceration, bleeding, exudate	Negative
2	34	Male	No	Yes	None	7 days doxycycline	Genital	Ulceration	Negative
3	54	Male	Yes	No	None	21 days doxycycline	Anal	Pain, ulceration, exudate	Negative
4	36	Male	Yes	No	*N. gonorrhoeae*	7 days doxycycline + ceftriaxone	Anal	Pain, exudate	Negative
5	37	Male	No	Yes	*N. gonorrhoeae*	7 days doxycycline + ceftriaxone	Anal	Pain, bleeding, exudate	*N. gonorrhoeae*
6	47	Male	Yes	No	*N. gonorrhoeae*	ceftriaxone + azithromycin	Anal	Pain, exudate	*C. trachomatis*

Table 1. Characteristics of the six individuals with laboratory confirmed *C. trachomatis* lymphogranuloma venereum (LGV).

CONCLUSIONS

In this study, *C. trachomatis* LGV strains accounted for 13% of chlamydia cases. At TOC, individuals with LGV strains treated with **doxycycline** (either 7 or 21 days) **achieved clearance**, while the only persistence of C. trachomatis DNA positivity occurred after ceftriaxone + azithromycin. These hypothesis-generating preliminary data suggest that empiric 7-day doxycycline may clear some LGV strains infections, but larger comparative studies are required.

PLAIN LANGUAGE SUMMARY

Using advanced laboratory testing, we found that 13% of Chlamydia infections in our clinics were caused by a more aggressive strain called LGV. Although guidelines recommend 21 days of antibiotics for LGV, our preliminary real-world data showed that some patients cleared the infection with a shorter 7-day doxycycline treatment, suggesting that treatment duration may need further study.

ADDITIONAL KEY INFORMATION

- **LGV** strains accounted for **13%** of all *Chlamydia trachomatis* infections in our cohort of mostly male PrEP-users
- Most patients (89.1%) received **empiric 7-day doxycycline**, reflecting real-world practice where LGV typing is not routinely available.
- At test-of-cure, all individuals with LGV treated with doxycycline (7 or 21 days) **achieved microbiologic clearance.**

Any Questions? → *davide.moschese@unimi.it*