

## Who is Afraid of a Bug Mantled Like Zorro?

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### Abstract

Obligate intracellular microorganism in the form of Elementary bodies, *Chlamydia trachomatis*, in the extracellular environment surrounds itself with a mantle, like Zorro and can adapt in a balanced activity as in a niche, letting the cells survive but determining multisite and long-lasting subclinical forms, causing inflammatory pathologies that go beyond the trachoma itself to one way of *Inflammaging*. This means alerting the medical doctor to verify signs or consequences typical of *C. trachomatis* infection such as trichiasis, corneal ulcer and trachomatous scar, spontaneous abortion, inflammatory pelvic disease, infertility and cervical cancer, also paying attention to the correlation with ocular lymphomas, the rare oropharyngeal disease also supported by *Neisseria gonorrhoea* and introducing the need to control patients also for sexual attitude. This suggests the opportunity to add an **S. (sexual behaviour)** to the **S.A.F.E.** strategy prescribed by the WHO to combat trachoma.

**Keywords:** *Chlamydia*; *Inflammaging*; *Trachoma*; *NAAT*; *SAFE Strategy*; *Sexual Attitude*

### *Chlamydiaceae* are still a mystery

Chlamydial diseases have been known for millions of years. Old Chinese and Egyptian manuscripts report the first description of eye infections similar to those of the trachoma of our times. Although their story parallels the humans, their survival strategy when developing from Elementary Bodies out of cytoplasm to infect other cells, in a widespread opportunity for different organs triggering or causing disease, they are less selective than other, *Herpesviridae* for instance.

Although the term *Chlamydia* (from the Greek *Χηλαμνο*, mantle) appears in the literature only in 1945, its exact morphological definition and taxonomic location is far from being established. Mantled like Zorro, this "ghost bacterium" can adapt himself in an equilibrate activity, leaving cells to survive but firing a subclinical form of long lasting inflammation in the predisposed host (mainly HLA-B27 positive), accompanying them to one way of "*inflammaging*" [1-3].

ELISA test having low sensibility, NAAT kept the first place for clinical diagnosis for their great sensitivity and specificity [4,5]; but the sampling modality is crucial: scraping is mandatory for chronic chlamydial infections, unless a sufficient cellular material could be collected.

The goal of elucidating as much as possible the role of *Chlamydiaceae* in the multisite infections, alone or associated to other mucosal epithelial aggressor like urogenital *Mycoplasmas* [6,7] resulting in pathologies other than trachoma itself, means to alert Practitioner to check for typical signs (Arlt line [3]; Neri white-line [8]) or consequences (entropion, spontaneous abortion, pelvic inflammatory disease

(PID), infertility and cervical cancer) paying attention to correlation with ocular lymphomas [9] and oropharyngeal disease [10] as for *Neisseria gonorrhoeae*. This means to screen the patient also for sexual attitude, to propose and prescribe a prolonged course of antibacterial therapy with long half-life to ensure adequate levels of antibiotic agent in order to eradicate the cryptic form of Chlamydia. Antibiotic concentrations must be present throughout the entire 36 to 48 hours life-cycle of the organism.

Trachoma blindness is indirectly due to this bacterium: *C. trachomatis* starts the chronic conjunctivitis that moves to a cicatricial phase leading to an entropion; the self-scraping of eyelash on the corneal surface in presence of a reduction of tears due to inflammation of lacrimal production system, in a septic behaviour either for reduction of defensors including lysozyme, lactoferrin and so on, causes abrasion and recurrent infection of the corneal ulcer: this is the final cause of blindness. Surgery, not ointment, is the right way to treat.

The Ligue Against Trachoma, led by prof. Gabriel Coscas, and the OMS/WHO, often represented by Silvio Mariotti, have widely spread off the SAFE rules: **S**urgery, **A**ntibiotics, **F**ace cleanliness, **E**nvironment. Lacking Ophthalmologists, there is a move to teach and prepare qualified nursery staff to perform the entropion surgery.

Recently major attention has been more and more kept on sexual attitudes (that are changing in the different world areas, not only in the Khajuraho-temple area), leaving quite blameless the *Sarcophaga carnaria*, but enhancing the *Chlamydia trachomatis* role in apparent “sterile” chronic prostatitis, or conjunctivitis or, less frequently, oropharyngitis, so to add an **S** (SAFES) for ‘sexual behaviour’ has been proposed by Researchers [11] to attract also the interest and attention of Obstetrician/Gynaecologist, Urologist/Andrologist and Pediatrician. This means that sexually transmitted infections should be screened in asymptomatic patients with sexual risk behaviours or sexual contact with patients diagnosed with transmitted infection.

As regards the recent evidences of correlation with infective cancerogenesis, both for the intracellular activity that predispose to ATP alteration and the possible enhancement in combination with HPV for cervical cancer, researches are blooming [12]. Now the need seems to move from molecular evidence of bacterial infection to the ‘-omics’ ones, pushing forward from the “Molecular Age” to the “-omics Age”. Opening also the door to study the cross-talk in the inflammatory cascade, from arachidonic acid to Cytokines and Interleukins pro-inflammatory (like IL-1 family) and anti-inflammatory (like IL-37 [13]) we do hope this way would be a surprisingly rich target for biological molecules empowerment, promising to offer new active drugs.

A more extensive and in-depth cultural information seems now adequate task to fight against this dangerous microorganism mantled like Zorro.

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