



Reactive arthritis due to
chlamydia infections

Clinical features and diagnostic
procedures



Definition of chlamydia-induced arthritis (CIA)

Chlamydia-induced arthritis is a reactive arthritis. It can arise after an urogenital infection with *Chlamydia trachomatis* or after a bronchopulmonary infection with *Chlamydia pneumoniae*. CIA belongs to the category of aseptic peripheral arthritides and is initiated, maintained and perpetuated by intrarticular persistence of the pathogen. The living pathogens are characterised by a low level of metabolic and reproductive activity, but cannot be grown in culture.

Pointers to chlamydia-induced arthritis

Clinical history:

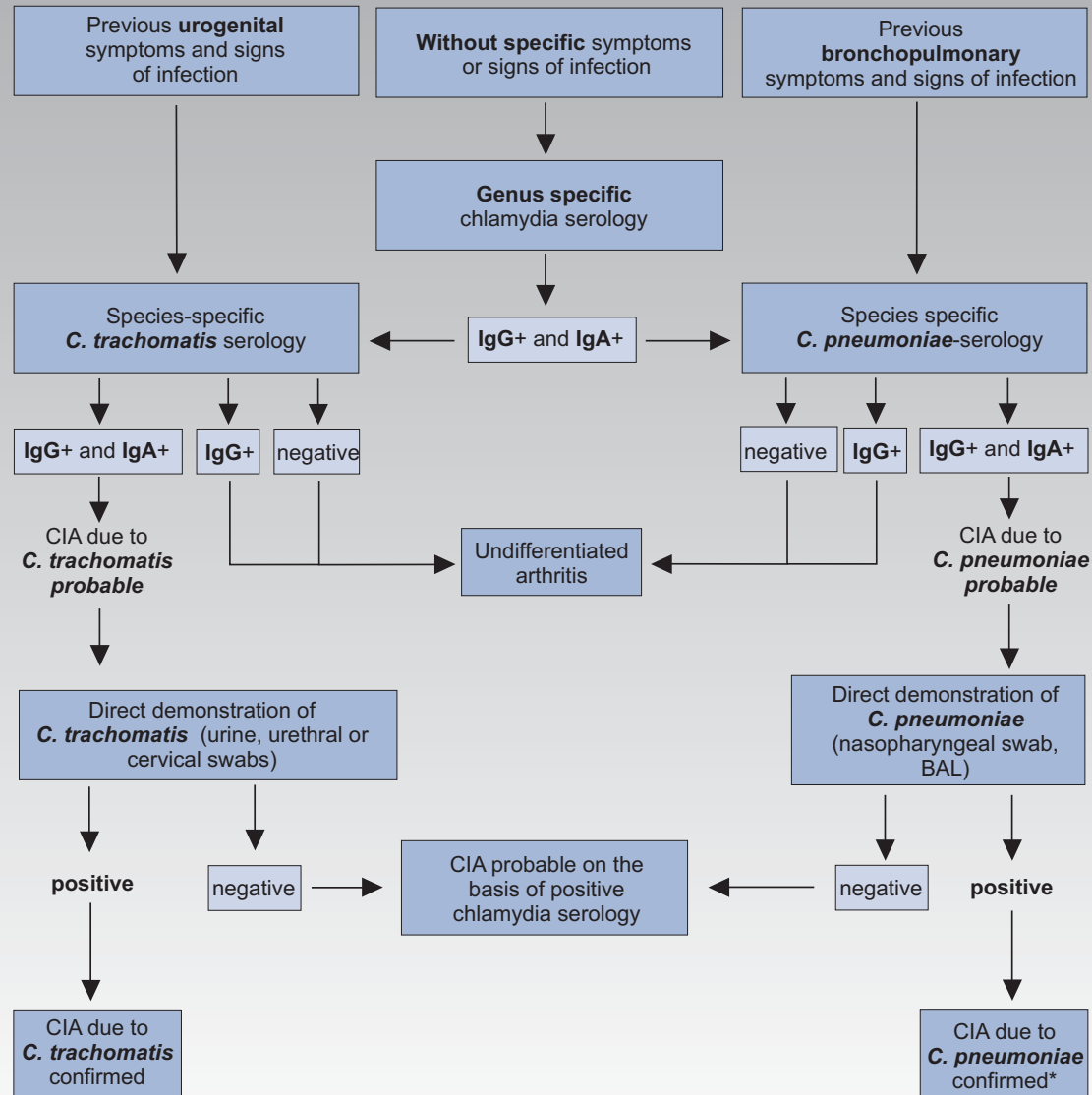
Weeks or months may elapse between a primary urogenital or bronchopulmonary infection with chlamydia and the emergence of CIA. As the vast majority of chlamydial infections cause no symptoms at the outset, the connection between a primary chlamydial infection and reactive arthritis is not always evident. Subsequent clinical manifestations may point to a chlamydial infection which has run its course or which is still present (table on the reverse).

Clinical rheumatological findings:

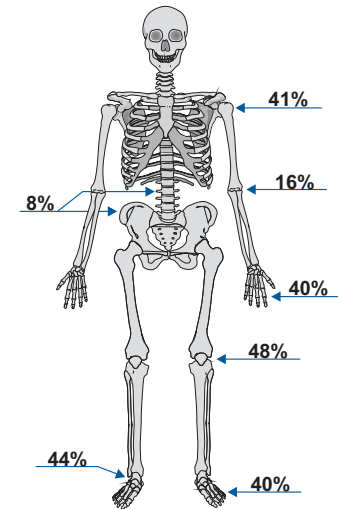
Cases of arthritis caused by *C. trachomatis* and *C. pneumoniae* are closely similar in their rheumatological manifestations. The following articular and periarticular findings are characteristic:

- Peripheral monoarthritis or oligoarthritis (1 or 2-5 joints are affected)
- Asymmetric, polyarticular joint involvement (symmetrical arthritis of small joints of the extremities not excluded)
- Predominant involvement of the lower extremities (knee and ankle joints)
- Involvement of finger and toe joints with periarticular swelling (sausage fingers/sausage toes)
- Vertebral column involvement (sacroiliitis, more rarely spondylitis)
- Tendon sheath involvement (tendovaginitis, teosynovitis, fibro-osteitis, bursitis, etc.)

Diagnostic Procedure in a Suspected Case of Chlamydia-Induced Arthritis (CIA) in Different Anamnesis



Pattern of joint involvement in chlamydia-induced arthritis



Course of infection in a case of chlamydia-induced arthritis

Extraarticular infection

The chlamydiae first of all colonise the mucosal epithelium of the cervix and urethra (*C. trachomatis*) or the nasopharynx (*C. pneumoniae*).

Intraarticular infection:

The chlamydiae are carried into the joints by the cells of the mononuclear system (infected monocytes). Once within the joints, they will persist indefinitely and are demonstrable in synovial fluid and synovial tissue. The infection stimulates an inflammatory response characterised by activation of CD4-positive T-lymphocytes and associated proinflammatory cytokines. The interaction between infected macrophages and liberated cytokines favours the conversion of active chlamydiae into the passive persistent form. This process is reversible, but it makes treatment difficult, because persistent chlamydiae are not susceptible to attack by the immune system or to antibiotic therapy.

* Seldom

Diagnostic procedure in a suspected case of chlamydia-induced arthritis

The history and clinical data will give the first pointers to CIA and will be the starting point for the diagnosis. The classification of the reactive arthritides is based on serological and microbiological investigations (see interior section).

In a patient where CIA is suspected the demonstration of chlamydia from a smear or from the urine is not sufficient. Because of the inevitable time lapse between peripheral infection and the onset of reactive arthritis, attempts at direct demonstration nearly always give negative results, because the pathogens have already become disseminated.

Evidence of infection can, however, be obtained from serological investigations. In a high proportion of CIA patients IgG antibodies (>90%) against chlamydia are demonstrable and there may also be IgA antibodies (70%).

- In the diagnostic investigation of a case of reactive arthritis chlamydia serology is indicated as an initial screening method.
- If serological tests are positive, the next step may be an attempt to demonstrate chlamydial DNA.
- IgG and IgA antibody titers in conjunction point to an existing infection.
- Classical increases in titer, irrespective of the antibody class, point to an active infection.

Clinical manifestations of chlamydial infections

In contrast to diseases caused by *Chlamydia pneumoniae*, diseases caused by *Chlamydia trachomatis* are predominantly sex-specific.

Chlamydia trachomatis		Chlamydia pneumoniae
Women	Men	Women and men
Cervicitis Endometritis Adnexitis Uterine tube infertility Ectopic pregnancy Premature birth/abortion Perihepatitis Perisplenitis Periappendicitis Peritonitis	Prostatitis Epididymitis Orchitis Balanitis	Atypical pneumonia Bronchitis Sinusitis Otitis media Pharyngitis Atherosclerosis Coronary heart disease Alzheimer's disease* Multiple sclerosis*
Women and men		
Urethritis Conjunctivitis Uveitis Erythema nodosum Keratoderma blennorrhagicum Proctitis		
Children		
Inclusion body conjunctivitis Neonatal pneumonia		

*speculative