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Case Report

Chlamydia Infection in children: A silent disease?

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Abstract

Chlamydia trachomatis infection is the most common bacterial sexually transmitted infection (STI) affecting men and women and is most asymptomatic. It can be transmitted at birth to babies if their mother has cervicitis. There is no agreed upon consensus about the natural course of the nasopharyngeal and genital tract colonisation in pre-pubertal children after vertical transmission from the mother, with or without effective anti-Chlamydia treatment. This uncertainty can pose significant clinical dilemma to professionals involved in safeguarding children, when sexual abuse is suspected.

We report two cases of pre-pubertal children with Chlamydia infection to demonstrate some practical and ethical conundrums when the origin of the infection cannot be ascertained.

We hypothesize that congenital Chlamydia infection may potentially persist for up to 11 years and some infections may remain resistant to several courses of effective antimicrobial treatment. While maintaining a high index of suspicion for sexual abuse, although rare, other possible confounding explanations should be carefully explored.

Keywords: Sexual Abuse; Child Abuse; Gonorrhoea; Chlamydia; Treatment Failure; Cultures; Nucleic Acid Amplification Test (Naat); Sexually Transmitted Infections

Abbreviations

CSA : Child sexual abuse

MACST : Multi-agency child safeguarding team

NAAT : Nucleic-acid amplification test

STD : Sexually transmitted disease

Background

Chlamydia trachomatis is the most common sexually transmitted pathogen affecting men and women. It is an obligate intracellular bacterium which preferentially infects the columnar epithelium, causing urethritis, epididymitis, proctocolitis, vaginitis (in pre-pubertal girls), cervicitis (in post-pubertal females), endometritis, salpingitis, and perihepatitis after sexual contact [1].

Chlamydial infection is underdiagnosed as there is no routine screening and most affected patients are asymptomatic [2]. The commonest clinical manifestation in men is urethritis and cervicitis in women.

Chlamydial genital infection is reported in 5%–30% of pregnant women. It can be transmitted at birth to the baby, resulting in ophthalmia neonatorum, pneumonitis or both, as well as nasopharyngeal and genital tract colonisation. The risk of perinatal transmission has been reported to be as high as 50 to 70%.

There is no agreed upon consensus about the natural course of the nasopharyngeal and genital tract colonisation, with or without effective anti-chlamydia treatment [3,4].

We report two cases of pre-pubertal children with Chlamydia infection demonstrating some practical difficulties encountered by child safeguarding team when the origin of infection is uncertain.

Case 1

A General Practitioner (GP) was advised by the adult sexual health centre to see the six and a half year old offspring (AJ) of their patient being treated for Chlamydia for a general health check. The GP noticed some inflammation on AJ's throat and collected a throat swab. The mother presented with vaginal symptoms and Nucleic-acid amplification test (NAAT) on vaginal swab was positive for Chlamydia. The father also had positive urine test (NAAT) for Chlamydia.

AJ's throat swab was NAAT positive for Chlamydia and she was referred to the multi-agency child safeguarding team (MACST), comprising of children's Social services, police, educational and Community Child Health professionals, for further investigations.

AJ is the only child to both parents, born after an uneventful pregnancy, at term by vaginal delivery with birth weight of 2.25 kg. She needed naso-gastric feeding for a couple of days.

AJ denied any history suspicious of child sexual abuse. Her general health was good except for the complaints of mild sore genitals.

A joint multi-disciplinary forensic child sexual abuse (CSA) medical examination was carried out within one week after referral to the MACST and three weeks after the initial throat swab was taken.

AJ had satisfactory growth, slight redness of peri-hymen region with mildly tender genitals. The throat, anal and genital swabs and urine tests were negative for Chlamydia and Gonococci.

AJ was treated with Azithromycin, 250 mg daily for 4 days as advised by the Microbiologist. Repeat swabs after the treatment were negative for Chlamydia and Gonococci. Sellotape Slide test was negative for threadworm. Other differential diagnosis considered were non-specific Volvo-vaginitis and lichen sclerosis, and were excluded on careful clinical examination.

Clinical Conundrum

• Was the original positive Chlamydia throat swab acquired by perinatal transmission which had persisted for 6 years?

• Could she have gotten infected from the parents through fomites/towel sharing or physical non sexual contact, and why specifically in the throat?

• Is there a possibility of contamination of the initial swab from either parent?

• Was the throat colonisation spontaneously cleared without treatment or was this due to variable amount of bacteria load descending from the nasopharynx to the oropharynx?

• Is the presence of genital symptoms an indicator of child sexual abuse, even in the absence of any disclosure from the child?

Case 2

An eleven year old girl (ZT) presented with conjunctivitis to her GP with symptoms unresolved for several months despite repeated courses of conventional antibiotics. She was seen in the specialist Eye Hospital and had eye swabs taken which were NAAT positive for Chlamydia but negative for Gonorrhoea. Viral PCR was negative for adenovirus and herpes simplex. She was treated with a single dose of Azithromycin and referred to sexual health clinic following a chid safeguarding strategy discussion. ZT denied any sexual activity and made no disclosure of sexual abuse. She attended a local mainstream school and lived with both parents and 15yr old brother. A joint forensic CSA medical examination carried out was normal. An Initial throat swab was positive for Chlamydia by NAAT.

Her repeat throat swab (NAAT) taken at two-week intervals remained positive for Chlamydia, while the genital and anal swabs were negative, even after receiving other two courses of high dose Azithromycin, 500mg for 3 days followed after two weeks by even higher dosage (1gm for 4 days) as advised by the public health clinician. The throat swab was eventually negative for Chlamydia and Gonorrhoea one month after the last course of treatment.

The mother was seen at a sexually transmitted disease (STD) clinic and tested negative for Chlamydia from urine, genital and eye swabs. Urine test for Chlamydia was also negative in ZT's 15 year old brother and father.

Clinical Conundrum

• Was the nasopharyngeal colonisation acquired by perinatal transmission and persisted for 11 years?

• Was the primary Chlamydia eye infection transmitted from the throat to the eyes or vice versa?

• Was the throat or eye infection transmitted through fomites or physical self-inoculation, such as swallowing the tears or water draining from the eyes?

• What would be the explanation for the chronic nasopharyngeal colonisation despite high doses of appropriate antibiotic treatment?

• Is it ethical to assume CSA even in the absence of disclosure by the child?

Discussion

These two cases demonstrate common ethical dilemmas faced by child safeguarding professionals when CSA is considered a possible explanation for a child's presentation in the absence of positive social history or disclosure.

There is evidence that STDs are under-reported among children and adolescents. Anecdotal reports have also suggested that sexually acquired Chlamydia genital colonisation can remain asymptomatic for up to 3 years [2]. The commonest source of STD in children is by congenital vertical transmission from the mother at birth[4] reported a case series raising the possibility that congenital chlamydia infection can remain asymptomatic for as long as six years. Other authors have reported persistence of congenital Chlamydia infection in a 7-year old girl [5].

Previous case reports suggest that children presenting with a persistent positive result for STDs despite adequate medical management must be carefully investigated for possible ongoing sexual abuse, even in the absence of positive disclosure [6]. However, considerations should also be given to other possible explanations including treatment failure and a false-positive result due to the limitations of non-culture testing.

There have been reported rare cases where genital diseases appear to have been transmitted from non-sexual sources such as primary eye infections. In a series of 14 Danish patients with eye infections, one 9 year old girl had vaginal chlamydia infection, and the source was presumed to be the eyes [7]. However, it was unclear whether sexual abuse had been excluded as a source of the infection. Non-sexual transmission of Chlamydia, other than during birth, is theoretically possible but has NEVER been proven to occur, because Chlamydia only grows in warm and moist parts of the body [1].

We speculate that it is possible for some scenarios such as the patient swallowing the tears or contaminated water draining from her eyes during a shower, providing an explanation for transmission of infection between the eyes and the throat. Furthermore, it is commonly agreed that infected tears may drain into the nasal sinus through the nasolacrimal ducts and thereby cause infection in the pharynx. Other authors have also speculated that it is possible to transmit bacteria from the pharynx to other objects by direct contact (for examples, fingers, penis, or sex toys) and then the objects touch other body areas such as genitals or the eyes, though this happens infrequently [8].

Chlamydia infection in a pre-pubertal child beyond the neonatal period has traditionally been taken as a confirmation of mucosal contact with infective bodily secretions and therefore highly suspicious of sexual abuse [6]. On the other hand, other authors have reported that STDs after child sexual abuse are uncommon, occurring in less than 5% of sexually abused children, though the prevalence varies with the population studied and testing methodologies used [1].

A national surveillance study over 25 months through the British Paediatric Surveillance Unit (BPSU), for children with infections of Neisseria gonorrhoea, Treponema pallidum, Chlamydia trachomatis or Trichomonas vaginalis in the UK and Republic of Ireland among children under 13 years and over 12 months of age, identified 15 cases, giving an overall incidence of these infections of 0.075 cases per 100 000 children per year. Although only three cases of sexual abuse were confirmed in court or case conference, abuse was suspected in a further seven cases based on clinical factors, family or social history [9]. No sexual abuse was proven or confirmed in any of our two patients.

Recommended doses of appropriate antibacterial agents were used in our patients. However nasopharyngeal carriage was not cleared in Case 2 despite three courses of Azithromycin, known to have excellent intracellular and tissue penetration. Drug resistance of Chlamydia to Azithromycin or Doxycycline has not been scientifically demonstrated to date. We hypothesise that there is a potential mucosal protective mechanism that enables nasopharyngeal Chlamydia colonisation in children to persist, by escaping the natural immune processes, such as by forming a biofilm.

Conclusion

Sexually transmitted infections in children, although rare, should be thoroughly investigated by safeguarding multi-agency professionals. While maintaining a high index of suspicion for sexual abuse, other possible confounding explanations should be carefully explored. The possibility of persistent nasopharyngeal Chlamydia colonisation in children requires further research and exploration.

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