

# *Chlamydia trachomatis* in a girl suspected of sexual abuse in the city of Córdoba, Argentina

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## ABSTRACT

*Chlamydia trachomatis* (*C.tr*) infections are the most prevalent bacterial sexually transmitted infections worldwide. They are often asymptomatic and therefore underdiagnosed as there is no routine screening surveillance. This case supports the possibility of sexual abuse as a route of transmission of *C.tr*. It is well known that nearly one third of sexually assaulted children are at risk for infection by a sexually transmitted agent. This is why in cases of sexual abuse, it is standardized that *C.tr* positive results by Nucleic Acid Amplification Techniques (NAATs) should be confirmed looking for another *C.tr* target; for this reason, we used a Polymerase Chain Reaction (PCR) directed to cryptic plasmid of *C.tr*. Confirmation was specified by the use of another PCR with a different genetic target (*ompA*) and sequencing. We concluded that our patient's oral lesions were probably originated by her father's sexual abuse.

## KEYWORDS

*Chlamydia trachomatis*; Sexual Abuse; Girl; Argentina

## 1. INTRODUCTION

*Chlamydia trachomatis* (*C.tr*) infections are the most prevalent bacterial sexually transmitted infections (STI) worldwide [1].

*C.tr* infection is often asymptomatic and therefore underdiagnosed, as there is no routine screening surveil-

lance. The real prevalence of chlamydial infection in the general population is currently unknown. A study conducted by professionals from the Universidad Nacional de Córdoba and the Universidad Católica de Córdoba (Argentina) determined that 8.7% of sexually active asymptomatic young people (18 - 25 years) are infected with *C.tr* [2].

Untreated *C.tr* infections can lead to serious complications such as salpingitis, probably resulting in pelvic pain and tubal pregnancy or infertility in women and epididymo-orchitis in men [3]. Babies may acquire the infection at birth if their mother's cervix is infected resulting in neonatal ophthalmia, pneumonitis, or both, in addition to nasopharyngeal and genital tract colonization, which may persist for 2 - 3 years after birth [4,5].

Another route of transmission in children is sexual abuse. The identification of a STI in a child should always suggest sexual abuse, and may have both, medical and serious legal implications [6] mainly because it can be used to support the occurrence or allegations of sexual abuse and, in some cases, may prompt an investigation of possible abuse [7].

The implications of the identification of a sexually transmitted agent in children as evidence of a possible sexual abuse varied according to the pathogen involved. According to The American Academy of Pediatrics (AAP), *C.tr* isolation is diagnostic of sexual abuse when perinatal transmission is discarded [8]. It has been suggested that the thinness of the vaginal epithelium in prepubertal girls and the likelihood of repeated abuse by the same perpetrator may increase the risk of *C.tr* acquisition after unprotected intercourse; however, published prevalence studies of STIs in sexually abused children have reported rates of infection lower than 5% [9].

This case supports the possibility of sexual abuse as a

transmission route of *C.tr.*

## 2. CASE REPORT

A 13-year-old girl was referred to the dentist because of white vegetative lesions on the ventral side of the tongue and exfoliative cheilitis of the lips semimucosa (**Figure 1**). The stomatological exam suggested chlamydial infection and samples of the lesions were taken for pathological and molecular analysis. The mode of transmission was a source of concern and two possibilities were considered: perinatal transmission or recent acquisition resulting from sexual abuse. For this reason, the girl was referred to the interdisciplinary Department of Abuse at the Hospital de Niños de la Santísima Trinidad, Córdoba city, Argentina. Due to suspicious attitudes of the girl's father, the dentist decided to report the alleged abuse case. Subsequently, justice officers started the study protocol for sexual abuse.

The child's mother was seen at the Genitourinary Medicine Department. She denied any history suggestive of past or current chlamydial infection and screening for sexually transmitted infection, including urine testing by polymerase chain reaction (PCR) yielded negative results.

The girl's father was also seen at the Genitourinary Medicine Department. He also denied any data suggestive of chlamydial infection, but screening for sexually transmitted infections yielded positive results for *C.tr* in urine.

Under the assumption that sexual abuse had occurred, the girl was examined, but no genital stigmata of sexual abuse were found. Urine, pharyngeal swab and samples of oral lesions were positive for *C.tr* by PCR.

The formal interview of the girl, conducted by an interdisciplinary team (pediatrician and psychologist), resulted complex and unsatisfactory because she suffered mild mental retardation. The girl's mother recounted that her husband was the caretaker of the child and that although the three of them cohabited in the same house, she was separated from her husband.

The girl's father flatly denied having abused his



**Figure 1.** Photograph of white vegetative lesion on the ventral side of the tongue.

daughter, but the judge in charge of this case decided to separate the girl from the father and provide medical treatment to eradicate *C.tr.*, in addition to psychological therapy. This study was in accordance with the Comité Institucional de Ética de la Investigación en Salud.

## 3. DISCUSSION

Siegel indicated that nearly one third of sexually assaulted children were forced to submit to sexual intercourse, placing them at risk for infection by a sexually transmitted agent [10].

Interdisciplinary work is very important in cases of sexual abuse to dispose conclusive evidences. The victim's story is one of the most important of them [11]. Though we could not get the story of abuse by the girl, we found that both the girl and her father had *C.tr* infection. Furthermore, the mother was negative for this microorganism and she had no history of *C.tr* infection.

Although the girl was 13 years old, we had to discard perinatal transmission because this infection may persist several years [12].

According to the molecular differences of *ompA* gene, *C.tr* is divided into different genotypes that are responsible for various diseases. A, B, Ba y C genotypes produce trachoma; D, Da, E, F, G, H, I, Ia, J y K are responsible for urogenital infections in adults and respiratory and conjunctival neonatal infections; finally, L1, L2, L2a and L3 genotypes cause lymphogranuloma venereum [13,14]. In women, asymptomatic clinical presentation occurs in 70% - 75% of cases. Approximately 30% - 40% of sexually active teens are infected and up to 40% of them could develop pelvic inflammatory disease if they are not properly treated [15]. Besides the aforementioned complication, *C.tr* can cause fertility problems, abortions and premature births [3].

In contrast to women, asymptomatic *C.tr* infection takes place in the 25% of the infected men [1] and is considered the most frequent cause of nongonococcal urethritis [16]. The complications that this population is exposed to are: epididymitis, prostatitis, infertility and Reiter's Syndrome (conjunctivitis, arthritis, urethritis and macules) [17]. It is worth mentioning that the girl's father did not present any of these pathologies when the urine sample was taken.

In pregnant women, untreated chlamydial infections are associated with abortions, postpartum endometritis, premature rupture of membranes, low birth weight and transmission to the infant through the birth canal [18]. Some studies suggest that the risk of infection of a newborn mother infected with *C.tr* is approximately 50% and may cause neonatal bronchitis, pneumonia and conjunctivitis [5].

It is important to note that the diagnosis was performed using nucleic acid amplification tests (NAATs).

We know that culture remains the gold standard for diagnosis of *C.tr* in this population because of its high specificity [6], but the difficulty in maintaining the viability of the organism during transportation and the low sensitivity limit its usefulness [19].

NAATs for detection of *C.tr* became widely available in early 1990s and offers the advantages of higher sensitivity and ease of specimen collection (urine specimens), when compared with cultures [19].

In cases of sexual abuse, it is standardized that *C.tr* positive results by NAATs should be confirmed looking for another *C.tr* target [20], so we utilized a PCR directed to cryptic plasmid of *C.tr*. Confirmation was specified as use of another PCR with a different genetic target (*ompA*) and sequencing.

We know that this bacterium can be easily eliminated by antibiotic therapy; therefore, early diagnosis and treatment of infected individuals are very important to prevent the spread of the infection and severe sequelae.

US Centers for Disease Control and Prevention recommend to treat children older than eight years with oral Azithromycin (1 g single dose) or Doxycycline (100 mg orally twice a day for 7 days) [7]. The same treatment schedule is used for prophylaxis after sexual assault.

Additionally, Sexually Transmitted Diseases Treatment Guidelines 2010 suggest the examination for STIs within 1 - 2 weeks after the assault unless prophylactic treatment was provided.

#### 4. CONCLUSIONS

As we know, *C.tr* infection is asymptomatic in most cases, so innovative screening strategies are needed to interrupt the transmission of *C.tr* and connect the hidden cases to care. This way, it would be possible to reduce the prevalence of this infection and prevent transmission to this vulnerable population.

The diagnosis would not have been achieved if the possibility of chlamydial infection had not been initially considered by the dentist and the appropriate swab taken for chlamydial testing. Additionally, the assistance of the Hospital de Niños multidisciplinary team, who specializes in sex abuse cases, was very helpful. For all these reasons, we concluded that our patient's oral lesions were probably originated by her father's sexual abuse.

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## NOTE LIST OF ABBREVIATIONS

*C.tr.*: Chlamydia trachomatis

NAATs: Nucleic Acid Amplification Techniques

PCR: Polimerase Chain Reaction

STI: Sexual Transmitted Infections

AAP: American Academy of Pediatrics