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Spectrum and Acquisition of Sexually Transmitted Infections in a Paediatric Cohort at a Tertiary Centre in South India: A Four-Year Retrospective study

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KEYWORDS

Paediatric, Adolescent, Sexually Transmitted Infections, HIV, Vertical Transmission , Sexual Abuse, South India.

ABSTRACT:

Background: Sexually transmitted infections (STIs) in children represent a critical, often overlooked, public health challenge with significant medico-legal and psychosocial dimensions. In India, data on the clinical and epidemiological profile of paediatric STIs, particularly from the southern region, are limited but essential for guiding prevention and care.

Methods: A retrospective, descriptive analysis was conducted of all paediatric patients (age ≤14 years) diagnosed with an STI at the STD clinic of a tertiary care centre from August 2014 to July 2018. Data on demographics, clinical presentation, laboratory findings, and assessed mode of acquisition were extracted and analysed.

Results: Among 10,542 clinic attendees, 91 were children, of whom 52 (0.49% of the total 3,786 STI cases) were diagnosed with an STI. The peak incidence (63.4%) was in early adolescence (11-14 years). HIV/AIDS was the most common diagnosis. Modes of acquisition were: vertical transmission (50%, n=26), sexual contact (11.5%, n=6), probable parenteral route (3.8%, n=2), and other/non-sexual routes (34.6%, n=18). Cases of secondary syphilis and gonorrhoea were documented in adolescent boys reporting homosexual contact.

Conclusion: This series underscores a dual burden: preventable vertical transmissions highlighting gaps in antenatal screening, and infections in adolescents signalling urgent needs for sexual health education and confidential services. A multi-pronged strategy strengthening prevention of parent-to-child transmission, implementing adolescent-friendly interventions, and enhancing clinical vigilance for abuse is imperative.

Introduction

The diagnosis of a sexually transmitted infection (STI) in a child is a sentinel event of profound clinical and social significance. It functions as a potential indicator of sexual abuse, early consensual sexual activity, or failures in the prevention of parent-to-child transmission (PPTCT) [1, 2]. The ramifications extend beyond immediate physical morbidity to include severe long-term sequelae, psychological trauma, social stigma, and legal implications [3, 4].

Globally, adolescents and young adults bear a disproportionate burden of STIs, with trends indicating changing epidemiological patterns [5]. In India, the landscape of paediatric STIs is complex and understudied. While national programmes have focused on adult populations and PPTCT, children with STIs remain a vulnerable and often hidden demographic. Existing literature reports a variable prevalence, with studies from Northern India citing rates between 0.82% and 2.5% among STD clinic attendees [6, 7]. However,

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www.jchr.org
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comprehensive data from South India, which may reflect distinct sociocultural and healthcare access dynamics, are scarce [8]. This gap impedes the development of targeted regional strategies. This study aims to detail the incidence, clinical spectrum, and modes of acquisition of STIs in a paediatric cohort attending a major tertiary care STD clinic in South India, thereby contributing evidence to inform clinical practice and public health policy.

Methods

Study Design and Setting: This was a retrospective, descriptive analysis of case records spanning four years (August 2014 – July 2018), conducted in the STD Outpatient Department of a tertiary care centre in Tamil Nadu, South India.

Study Population: The study included all patients aged 14 years or younger—aligning with the World Health Organization's definition of adolescence for health reporting [9]—who were diagnosed with one or more STIs during the study period.

Data Collection and Analysis: A structured proforma was used to extract data from clinical records. Collected variables included: demographic details (age, gender), detailed clinical presentation and examination findings, results of all laboratory investigations (including serology for syphilis [RPR, TPHA], HIV ELISA, Hepatitis B & C serology, Gram stain, and others as clinically indicated), and the clinician's final assessment regarding the most likely mode of acquisition. Modes were categorised as: vertical (congenital/perinatal), sexual (with further note on history of consensual activity or suspicion of abuse), parenteral, or other/non-sexual (e.g., fomites, autoinoculation, altered flora). Data were analysed using descriptive statistics to present frequencies and percentages.

Ethical Considerations: The study protocol was approved by the Institutional Ethics Committee of the tertiary care centre. As a retrospective review of anonymised records, the requirement for individual patient consent was waived. Patient confidentiality was rigorously maintained throughout the research process.

Results

During the study period, 10,542 individuals attended the STD clinic. A total of 3,786 patients received a diagnosis of one or more STIs. Among these, 52 were children, yielding a paediatric STI incidence of **0.49%** among all STI cases seen at the clinic.

Demographic and Clinical Profile

A significant majority of cases (63.4%, n=33) clustered in the early adolescent age group of 11 to 14 years. The youngest patients were infants diagnosed with congenital syphilis. HIV/AIDS was the single most common STI diagnosed in this cohort. The spectrum of conditions observed was diverse, as detailed in Table 1.

Table 1 - Clinical Spectrum of STIs in the Paediatric Cohort (n=52)

STIs	Boys	Girls	Exposure
HIV – AIDS	14	12	-
Anogenital wart (Figure 1)	5	-	14 yrs old boy: Homosexual for 2 years, known male, anoinsertive, unprotected, No.of partners- 4
Genital scabies (Figure 2)	5	-	11-year-old boy: Homosexual for 1 year, known male, anoinsertive, unprotected
Vulvovaginal candidiasis	-	4	-
Candidal balanoposthitis	3	-	-
Genital molluscum contagiosum (Figure 3)	1	1	-
Congenital syphilis	-	2	-

Journal of Chemical Health Risks
www.jchr.org
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Secondary syphilis (Figure 4)	1	-	11-year-old boy: Homosexual for 1 year, known male, anoinsertive, unprotected
Gonorrhoea (Figure 5)	1	-	14 yrs old boy: Homosexual for 3 years, last contact-1week back, known male, anoinsertive, unprotected, No.of partners-3.
Bartholins abscess	1	1	-
Genital herpes (Figure 6)	1	-	14-year-old boy: Heterosexual, Last contact – 10 days back, unknown female, unprotected
Bacterial vaginosis	-	1	14-year-old girl: Heterosexual, known male, unprotected
TOTAL	31	21	-
Non-venereal genital dermatoses	6	2	-

All cases of suspected or confirmed sexual acquisition were managed per hospital protocol, which includes mandatory reporting to child protection services for further investigation [10, 11].

Discussion

This four-year case series provides a detailed snapshot of paediatric STIs in a South Indian tertiary care setting. The incidence of 0.49% is lower than figures reported from some Northern Indian studies (0.82%-2.5%) [6, 7], a variation that may be attributed to regional differences in prevalence, healthcare-seeking behaviour, or patterns of referral to specialised clinics.

The most striking finding is that **half of all infections were acquired through vertical transmission**. This predominance of HIV and congenital syphilis represents a persistent failure in the PPTCT cascade, despite national programmes [12]. Each case is a preventable tragedy, underscoring non-negotiable gaps: inconsistent antenatal screening, delayed treatment of infected pregnant women, and inadequate postnatal follow-up. Our finding aligns with global concerns about congenital syphilis resurgence and the ongoing challenge of paediatric HIV [13, 14]. It mandates a call for stringent auditing and quality assurance of PPTCT services at all levels.

Second, the **high concentration (63.4%) of cases in early adolescence (11-14 years)** is a clear warning sign. This period of pubertal development and emerging sexuality is a window of both vulnerability and opportunity for intervention. The documented cases of STIs acquired through consensual homosexual activity challenge heteronormative assumptions and highlight the invisibility and lack of tailored services for sexual minority youth in India [15]. These findings strongly support the urgent implementation of comprehensive sexuality education (CSE) in schools, which is proven to delay sexual debut and increase protective behaviours [9, 16].

Third, the **diverse clinical spectrum**, from chronic viral infections to curable bacterial and parasitic conditions, underscores the need for broad clinical vigilance. Paediatricians, dermatologists, and family physicians must be trained to consider STIs in differential diagnoses for genital dermatoses, even in young children. The diagnosis of an STI in a pre-pubertal child, outside the neonatal period, should always prompt a meticulous and sensitive assessment for sexual abuse, following established guidelines [17, 18]. Our management protocol, which includes multi-agency collaboration, is essential for both the child's welfare and forensic integrity [10, 19].

Journal of Chemical Health Risks
www.jchr.org
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Limitations

This study has limitations inherent to its retrospective, single-centre design. The data reflect the profile of patients who present to a specialist STD clinic and may not represent community prevalence. Ascertaining the mode of acquisition can be challenging, particularly in cases of suspected abuse where disclosure is difficult. Nevertheless, the findings offer valuable insights for clinical practice and health system planning.

Conclusion and Recommendations

This series illuminates the dual nature of the paediatric STI challenge in South India: **preventable infections passed from mother to child, and emerging infections in early adolescents.** Addressing this requires a coordinated, multi-sectoral response.

We recommend:

1. **Reinforcing the PPTCT Safety Net:** Implement mandatory, quality-controlled dual antenatal screening for HIV and syphilis with guaranteed treatment pathways. Audits of missed opportunities should feed into continuous quality improvement.
2. **Prioritizing Adolescent Sexual Health:** Roll out evidence-based, age-appropriate Comprehensive Sexuality Education in school curricula. Establish confidential, adolescent-friendly health clinics that provide non-judgmental counselling, testing, and treatment.
3. **Strengthening Child Protection Systems:** Enhance training for healthcare providers on the clinical indicators of child sexual abuse and standardised protocols for examination, forensic sampling, and multi-agency referral, as per national and international guidelines [11, 18, 20].
4. **Enhancing Clinical Capacity:** Integrate paediatric STI recognition and management into the training of all primary care providers to ensure early diagnosis and appropriate referral.

The health of children is the foundation of public health. Confronting paediatric STIs demands courage, compassion, and collaboration across medical, educational, and social services to safeguard the well-being and future of this vulnerable population.

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Journal of Chemical Health Risks
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Figure 1 – Genital wart

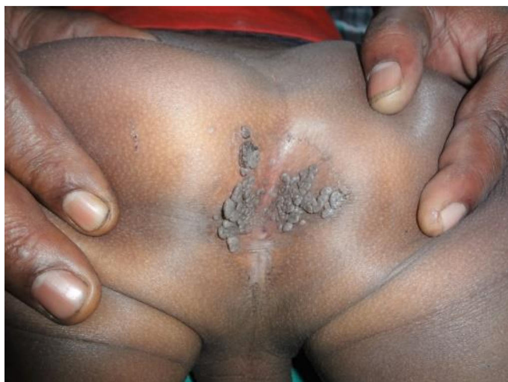


Figure 2 – Genital scabies

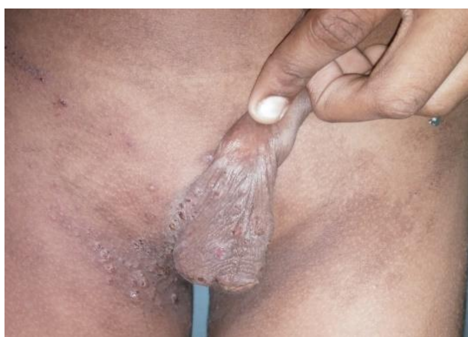


Figure 3 – Molluscum contagiosum

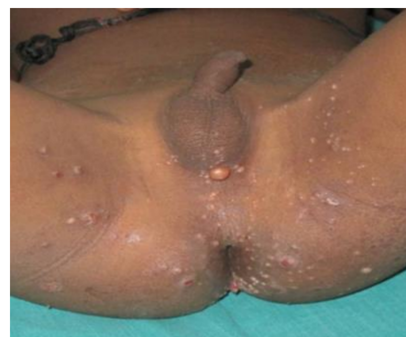
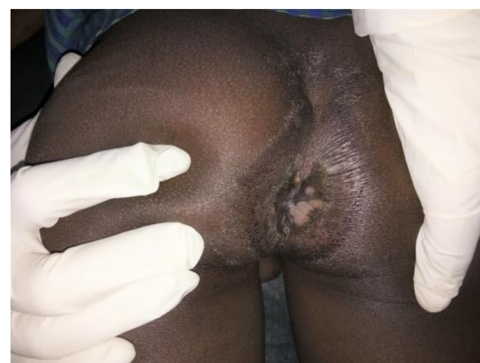


Figure 4 – Condyloma acuminata



Journal of Chemical Health Risks

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Figure 5 - Gonorhoea

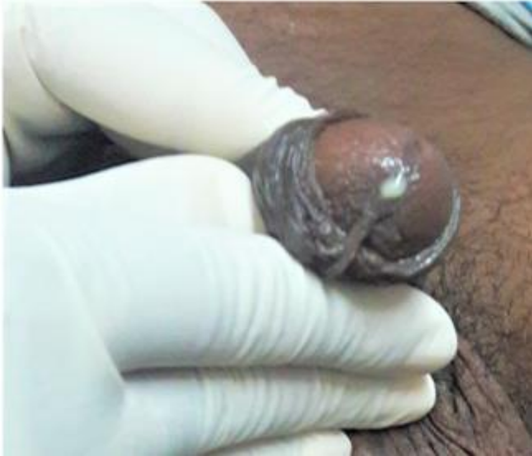

Figure 6 – Genital herpes