Case Report

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Augmentation Cystoplasty in a Child with Genitourinary Tuberculosis and Small Capacity Bladder

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Abstract

Genitourinary tuberculosis (GUTB) is very uncommon in children because the symptoms of renal tuberculosis do not appear for 3-10 or more years after the primary infection. We report on a child presenting with lower urinary tract symptoms with urine showing acid fast bacilli. A 16 year old male presented to the Urological services of the hospital with lower urinary tract symptoms (LUTS) of storage of two months duration. Augmentation cystoplasty was done using 15 cms of terminal ileum. Post-operative period was uneventful and following catheter removal the child was able to void with no residual urine.

Keywords: Tuberculosis; Genitourinary; Children; Antitubercular Therapy; *Mycobacterium Tuberculosis*; Augmentation Cystoplasty.

Introduction

Widespread implementation of the strategy of directly observed treatment short course (DOTS) during the 1990s has resulted in improved global control of tuberculosis [1]. However, its effectiveness has been limited in areas where poverty and infection with the human immunodeficiency virus (HIV) or drug-resistant tuberculosis are prevalent, and the emphasis on a positive sputum smear as the diagnostic criterion actually excludes most children from care [2]. In areas wherein the disease is endemic such as India, tuberculosis remains a major but often unrecognized cause of disease and death among children [3]. Service delivery in such areas is hampered by the absence of pragmatic strategies to guide diagnosis and management [4] .

Accurate estimation of the global burden of disease from tuberculosis in children is prevented by poor ascertainment and reporting of cases [5]. Best estimates suggest that children (defined as persons younger than 15 years of age) account for approximately 11% of the burden of disease from tuberculosis [6]. The problem of under-diagnosis in children is illustrated by the low pediatric caseload reported in four countries with a high disease burden, where rates exceeding 10% of all reported cases would be expected: Russia, 0.8%; India, 1.1%; Nigeria, 1.4%; and Brazil, 3.5% [1] .

Genitourinary tuberculosis is very uncommon in children because the symptoms of renal tuberculosis do not appear for 3-10 or more years after the primary infection [6]. It is therefore unlikely that the disease will be seen in a child younger than 5 years. GUTB occurs in 4-15% of patients with tuberculosis and accounts for 73% of the cases of extra-pulmonary tuberculosis [6]. Tuberculosis in children occurs most often in lower socioeconomic groups. If diagnosed early, nearly all children can be cured with anti-tubercular treatment (ATT)[7]. However, diagnosis is often delayed and a number of children present with non-functioning kidneys, strictured ureters, shrunken bladders and even chronic renal failure [8]. We report on a child presenting with lower urinary tract symptoms with urine showing acid fast *bacilli*.

Case Report

A 16 year old male presented to the Urological services of the hospital with lower urinary tract symptoms of storage of two months duration. The child also complained of fever, low grade, occasionally with chills and hematuria. Routine abdominal ultrasonography revealed bilateral hydronephroureterosis, with thickened bladder wall. In view of bilateral hydronephroureterosis, the child was taken up for voiding cystourethrogram, which confirmed bilateral vesicoureteric reflux, (Figure 1 a & b) left grade III and right grade IV. Cystoscopy revealed a congested bladder with small capacity (110 cc), left orifice golf hole like and right orifice not clearly visualized. Urine for acid fast bacilli (AFB) was positive. The child was started on anti-tubercular treatment.

Following a six week treatment of ATT the LUTS in the child worsened. Frequency was 12/7 day/night, with urge and urge incontinence. Cystometry revealed a cystometric bladder capacity of 90 cc with high filling pressures. The child's parents were counselled regarding augmentation cystoplasty. Augmentation cystoplasty was done using 15 cms of terminal ileum. Post-operative period was uneventful and following catheter removal the child was able to void with no residual urine.

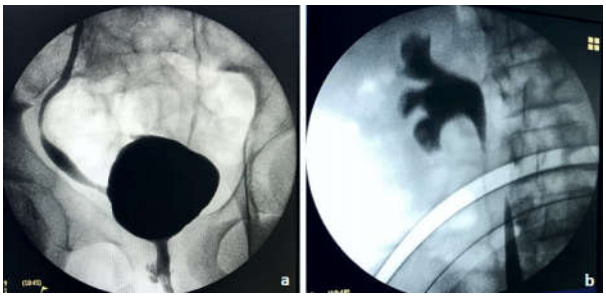

Fig. 1 a&b: VCUG showing small capacity bladder with bilateral vesico-ureteric reflux.

Discussion

GUTB is much rare in children, and accounts for less than 3% of all cases of tuberculosis. It is a form of secondary tuberculosis, the symptoms and signs of which are often vague and insidious [6, 9]. With an anticipated increase in the incidence of tuberculosis caused by the spread of AIDS and immigration, it is imperative that a high index of suspicion is maintained for the disease.

Symptoms and signs of GUTB are not classic and often vague. Hematuria was the most common presentation in the series reported by Chattopadhyay et al [10], with 55% of the children having had one or more episodes of frank hematuria. The diagnosis of GUTB is based on isolation and culture of *M. tuberculosis*. Although the presence of bacilli in urine is diagnostic of the disease, only (29%) patients in Nerli et al [6] series showed positive bacilli in urine. Similarly Chattopadhyay et al [10] reported bacilli isolation in 57% of the children with GUTB in their series. PCR (Polymerase chain reaction) for *M. tuberculosis* is used to amplify a specific DNA genomic sequence, whereby the presence of an extremely small number of bacteria can be detected. The sensitivity of PCR is particularly useful in situations where there is small bacterial population such as in non-pulmonary tuberculosis. Moreover, PCR can provide much faster confirmation of tuberculosis (24-48 h) than urine culture [11].

Modern anti-tubercular chemotherapy remains the cornerstone of management of GUTB. Gow recommended short-course chemotherapy of 6 months as there are fewer bacilli in renal lesions as compared to pulmonary ones, high concentrations of rifampicin are achieved in urine and there is good penetration of isoniazid into cavities [12]. While this is also recommended by the WHO for uncomplicated extra-pulmonary tuberculosis, to ensure maximal chances of bacteriologic cure, we prefer to treat GUTB in children with chemotherapy for at least 9 months [6-8].

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