

LETTER TO EDITOR

Genito-Urinary Infection in an Adult Male Caused By Group B *Streptococcus*

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Abstract:

Streptococcus agalactiae, Group B *Streptococcus* (GBS) has been considered to be a major pathogen in neonates and pregnant women. GBS disease in non-pregnant adults is increasing, particularly in elderly persons and those with significant underlying diseases. We report a case of balanitis and urinary tract infection caused by Group B *Streptococcus* (*Streptococcus agalactiae*) in an adult male with multiple underlying diseases. The patient was successfully treated with antibiotics.

Keywords: Urinary Tract Infection, Balanitis, Group B *Streptococcus*

Introduction:

Streptococcus agalactiae (Lancefield's group B *Streptococcus*) constitutes part of the normal bacterial flora of the human lower genito-urinary tract [1]. *Streptococcus agalactiae*, Group B *Streptococcus* (GBS) is the leading cause of sepsis and meningitis in newborn infants. GBS infections cause substantial pregnancy-related morbidity [2]. GBS can cause disease in healthy adults but majority of disease occurs in those with significant underlying conditions of which diabetes is the commonest. An article by Farley MM and Strasbaugh LJ stated that 20%-25% of non-pregnant adults with GBS disease had diabetes mellitus as the most common comorbid condition [3]. We present a case of an adult male who was known case of long standing diabetes mellitus along with other co-morbidities, presenting with balanitis and urinary tract

infection either as independent co-existing infections caused by GBS or urinary tract infection occurring as a complication of balanitis. He promptly responded to gentamicin.

Case Report:

A 59 year old married male, circumcised, presented with pain during micturition along with fever since six days. There was no history of haematuria, pain in lumbar region or multiple sexual partners. He was a known case of diabetes mellitus since the past 25 years. He was also a known case of hypertension. He was diagnosed and treated for pulmonary tuberculosis 15 years back. He underwent Coronary Artery Bypass Graft (CABG) ten years back. He underwent right sided below knee amputation two years back. His spouse did not give history of genitourinary tract infection in the past six months.

On local examination, the tip of the penis was red. The patient was empirically given gentamycin. On hospital day one, his white blood cell count was 12,600/mm³ and renal function tests and liver function tests were normal. Using aseptic technique and after thorough cleaning of periurethral area, his midstream urine sample was received for culture and routine microscopic testing which showed 70-80 pus cells and occasional red blood cells per high power field. Gram stain from the urine sample showed Gram

positive cocci in pairs and chains with pus cells in fair numbers. The sample was inoculated under sterile conditions on sheep Blood agar and MacConkey agar (Himedia, Maharashtra, India.). At the end of 24 hours, culture showed pure growth of smooth white colonies with a narrow zone of beta haemolysis with significant colony count on Blood agar (Fig.1). MacConkey agar showed no growth. Gram stain from blood agar showed Gram positive cocci in pairs and chains (Fig.2).

Identification and antibiotic sensitivity was done on VITEK 2 COMPACT machine (bioMerieux, Marcy l'Etoile, France). GP Id card was used for identification and ST 01 card was used for antibiotic susceptibility testing (bioMerieux, Marcy l'Etoile, France). The growth was identified as *Streptococcus agalactiae* (Group B *Streptococcus*).

It was sensitive to benzylpenicillin, ampicillin, cefotaxime, ceftriaxone, clindamycin, trimethoprim-sulfamethoxazole, erythromycin, vancomycin, linezolid and resistant to tetracycline and levofloxacin. On third day of hospitalization, his urine sample was received again which did not show growth.

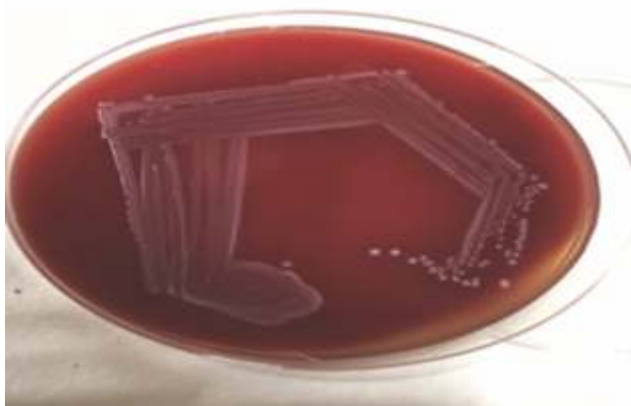


Fig. 1: Growth of Isolate on Sheep Blood Agar

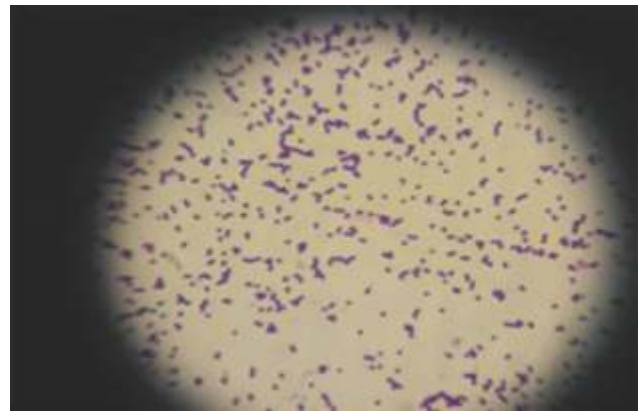


Fig.2: Gram Stain from Blood Agar Plate Showing Gram Positive Cocci in Pairs and Chains

Discussion:

Streptococcus agalactiae belongs to group B of Lancefield's classification. [4]. *Streptococcus agalactiae* [Group B Streptococcus (GBS)] can be found as part of normal mucosal flora in the gastro-intestinal and genital tracts. It can also become pathogenic especially in the obstetric and neonatal settings [5]. GBS infections may also be a health problem in nonpregnant adult patients. GBS has been reported to occur exclusively in adults with serious underlying conditions [2]. One of the most important underlying diseases for the development of GBS infections is diabetes [2, 6]. Invasive group B streptococcal infections can involve soft tissue, bones, urinary tract, central nervous system and lungs. [7].

Our patient presented with fever and difficulty during micturition. Urine sample of the patient was received which showed significant number of pus cells and it grew GBS with a significant colony count and the symptoms of the patient indicated that he had a urinary tract infection and also his white blood cell count were high which indicated

infection. Various pathogens such as Gram negative rods, Gram positive cocci and fungi are highly prevalent in diabetic UTIs [8]. A study conducted by May Sewify *et al*, showed that *Streptococcus agalactiae* was the responsible pathogen in around 6% of the UTI in diabetic patients [8]. On local examination tip of the penis was red indicating that he also had balanitis although no swab from the affected area was sent for culture. Balanitis is a clinical diagnosis and covers a range of heterogenous conditions [9]. Diabetes can increase the chances of getting balanitis, especially if the blood sugar is poorly controlled [9]. GBS can be carried asymptotically in adult genital tract, but are strongly associated with balanitis [9]. Our patient though was circumcised, was a known case of diabetes mellitus since many years. From his age, the fact that there was no history of multiple sexual partners and the type of growth obtained in culture, there are very rare chances that presentation of urinary tract infection along with balanitis in this patient was a manifestation of sexually transmitted disease. The role of *Streptococcus agalactiae* as causing Sexually Transmitted Diseases (STDs) is still controversial [10].

Hence in our case, there are two possibilities. First, balanitis and Urinary Tract Infection (UTI) could be present as independent co-existing infections caused by GBS. Also, in addition to age our patient had multiple underlying diseases like diabetes, hypertension and compromised cardiovascular function which make him more prone to GBS infections. Second possibility is that the UTI may be a complication of balanitis as urethra is located close to the glans and its infection can lead to organisms ascending into the urinary tract. The patient was empirically given gentamicin to which he promptly responded as was seen in urine culture on day 3 which did not show growth. The addition of gentamicin can be empirically considered for fulminant disease and deep-seated infections such as endocarditis [3]. Our isolate was sensitive to most of the drugs.

Conclusion:

Infections caused by GBS are a growing cause of concern in older adults and those with chronic medical conditions especially diabetes mellitus. It can cause urological infections in diabetic patients. Skin and soft tissue infection is also one of the presentations of this organism. In our case, this fact was kept in mind and thus the growth was not thought to be a contaminant.

References

1. Mhalu FS. *Streptococcus agalactiae* in urinary tract infections. *Post Grad Med J* 1977; 53(618):216-18.
2. Yanai H, Hamasaki H, Tsuda N, Adachi H, Yoshikawa R, Moriyama S, et al. Group B streptococcus infection and diabetes: A review. *J Microbiol Antimicrob* 2012; 4(1):1-5.
3. Farley MM, Strasbaugh LJ. Group B streptococcal disease in nonpregnant adults. *Clin Infect Dis* 2001; 33(4):556-61.
4. Ananthnarayan R, Paniker Jayram CK, Ananthnarayan and Paniker's Textbook of Microbiology. 9th ed. Hyderabad 500 029 (A.P), India: Universities Press (India) Private Limited; 2013:208.
5. Waghorn D. Group B Streptococcus and upper respiratory tract infection-report of *S. agalactiae* associated with bacteraemic tonsillitis. *Open J Clin Med Resp* 2016; 2(16):1151.

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6. Skoff TH, Farley MM, Petit S, Craig AS, Schaffner W, Gershman K, et al. Increasing Burden of Invasive Group B Streptococcal Disease in Nonpregnant Adults, 1990–2007. *Clin Infect Dis* 2009; 49 (1): 85-92.
 7. Dhawan B, Khan U, Das BK, Mathur P, Pandhi RK, Kapil A. Group B Streptococcal Bacteremia in an Adult: A Case report from India. *Southeast Asian J Trop Med Public Health* 2001; 32(4): 867-68.
 8. Sewify M, Nair S, Warsame S, Murad M, Alhubail A, Behbehani K et al. Prevalence of urinary tract infection and antimicrobial susceptibility among diabetic patients with controlled and uncontrolled glycemia in Kuwait. *J Diabetes Res* 2016; 2016: 6573215.
 9. Rajiah K, Veetil SK, Kumar S, Mathew EM. Study on various types of infections related to balanitis in circumcised or uncircumcised male and its causes, symptoms and management. *Afr J Pharm Pharmacol* 2012; 6(2):74-83.
 10. Frey MN, Ioppi AE, Bonamigo RR, Prado GP. Streptococcus agalactiae involved in the etiology of Sexually Transmitted Diseases. *An Bras Dermatol* 2011; 86(6):1205-7.
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