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Case Report

Urinary Tract Infection By Staphylococcus Aureus In An Alcoholic Male Patient :- Case Report And Review Of Literature

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Abstract

Urinary tract infections are commoner in females but comparatively rarer in males due to various factors. Staphylococcus aureus is not uncommon in male patients as causative agent of Urinary Tract Infection. In this case report, we highlight the retrieval of Staphylococcus aureus from midstream urine sample in a male patient with chronic alcoholism.

Key words: urinary; Staphylococcus; alcohol

Introduction:

Urinary tract infection(UTI) is rare in male patients. Risk factors of UTI in males usually include benign prostatic hyperplasia and others like obstruction, catheterization and congenital anomalies. Alcoholism irritates bladder and also increases frequency and urge of urination, thus increasing chances of urinary tract infections(1).

Case report:

A 40 year old unmarried male presented to the OPD of urban health unit and training centre with a 3-week history of lower abdominal pain and burning micturition. He was a chronic alcoholic but had left alcohol since the last 2 months. No history of smoking was available. There was no history of fever. History of sexual promiscuity was not elicited by the patient. He was a wall painter by profession. He was advised culture and sensitivity of midstream urine sample. He submitted his sample to the OPD on 2 occasions, 1 week apart. Samples were transported within 2 hours to the laboratory. On both occasions the urine was visibly cloudy and pinkish. Wet mount examination revealed copious erythrocytes and leukocytes. On both occasions, on overnight aerobic culture, his urine sample grew pure growth of low convex, opaque colonieson CLED (with Bromothymol blue and Andrade's indicator).The isolate was identified as Staphylococcus aureus based on Gram stain findings (Gram positive cocci in chains), positive catalase with 3% Hydrogen peroxide andpositive slide coagulase test with pooled human plasma.Antibiotic susceptibility was carried out by Kirby- Bauer's disk diffusion method. The isolate was susceptible in vitro to Tetracycline and Amikacin and resistant to Ciprofloxacin, Cefotaxime and Methicillin. The patient was also having simultaneous lung infection, for which he was advised tablet Azithromycin. He did not test his blood sugar level, HBsAg and HIV serostatus. He later also developed pallor, icterus and dizziness. The patient took antibiotics and painkillers intermittently, did not share his contact details and was lost to follow up.

The image of the colonies from urine, and of antibiogram of the isolate on Muller Hinton agar, with golden yellow colonies of S. aureusare appended below.

Figure 1: *Pigmented opaque low convex colonies of S. aureus from urine sample*

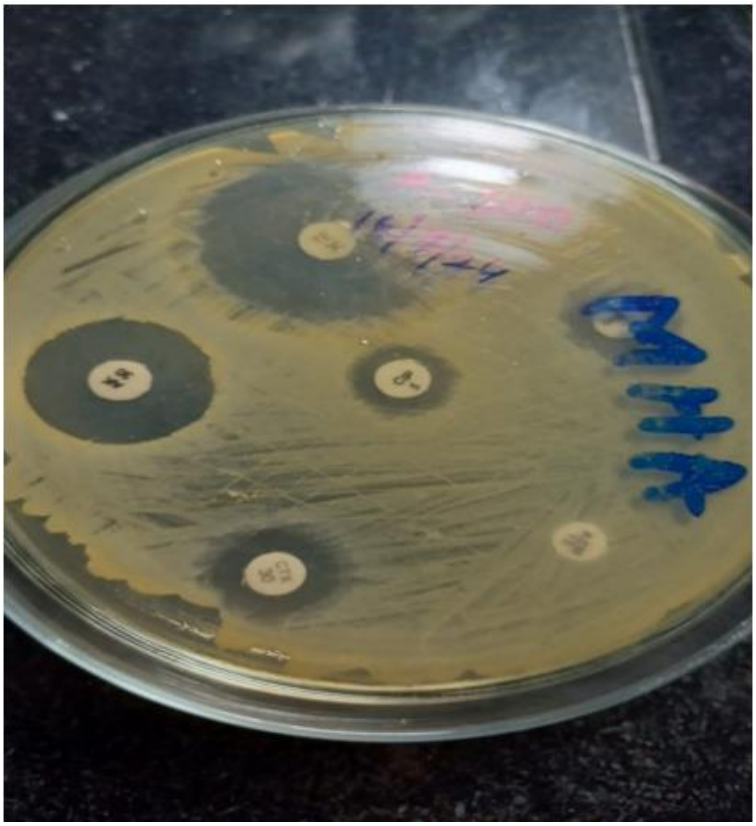

Figure 2 :*Staphylococcus aureus colonies with golden yellow pigment, subjected to antibiogram by disk diffusion method*

The isolate also showed biofilm formation by test tube method, the results of which are shown in Figure 2 below

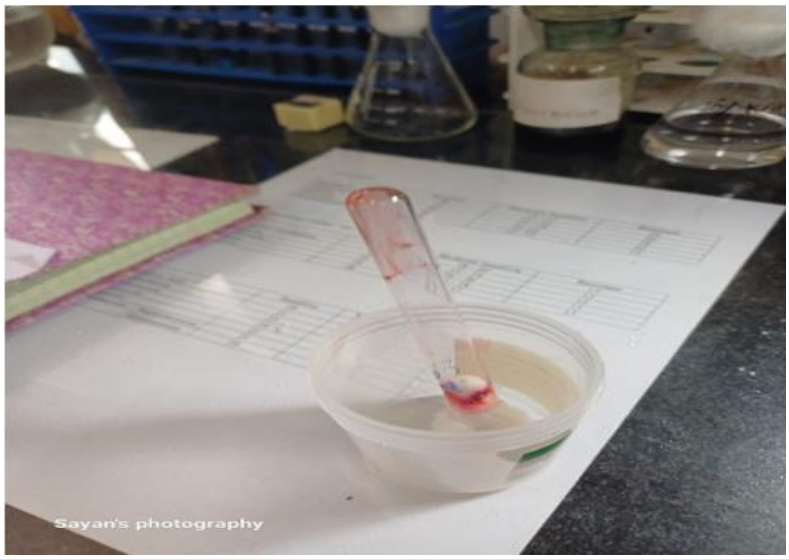

Figure 3: *Positive biofilm formation by Test tube method in the isolate*

Discussion:

UTI is rare in males. Prostatic hyperplasia can be a cause of UTI in males, but alcoholism is also an important but rare cause. Alcohol causes irritation of the lining of urinary bladder, and also indirectly increases chances of UTI by enhancing sexual promiscuity. In this patient, later dizziness, ictertus and pallor were found, which may indicate ensuing septicemia. *Staphylococcus aureus* is a relatively rare cause of urinary tract infections (UTIs) in the general population. Although rare, *S. aureus*-induced UTIs are prone to potentially life-threatening invasive infections like bacteremia(2). Sometimes some strains of Staphylococcus aureus produce more urease enzyme, which elevates urinary pH and releases ammonia, that further favours bacterial biofilm formation and epithelial damage(2). *Staphylococcus aureus* can be isolated in about 0.2%–4% of positive urinary cultures, and more commonly in long-term care, urological abnormalities and procedures, male sex, older age and comorbidities(3). *Staphylococcusaureus* as uropathogen is found most commonly in diabetics and is the commonest uropathogen in diabetic individuals, among Gram positive bacteria(4). Although most *S. aureus* bacteriuria cases are asymptomatic, when symptoms appear, the most common symptom of *S. aureus* UTI is fever. Other symptoms are hematuria, altered mental status , suprapubic pain, dysuria and less commonly, flank pain(5). However, fever was notably absent in our patient. In a study by Demuth *et al* , way back in 1979 from the USA, patients with *S. aureus* bacteriuria had fever in only 39% cases and pyuria in 71% cases(6). The prevalence of MRSA is also very common (42.59% according to one study), among patients with UTI caused by MRSA(7).Alcoholism is also linked to renal papillary necrosis(8). UTI is rare in males, due to longer length of urethra and also due to the antimicrobial action of Prostatic secretions, which contain Zinc salts(9). However, this defence may be weakened in chronic bacterial prostatitis. Also in males older than 50 years UTI is more common(10). One limitation of this case report is the paucity of history of predisposingfactors due to the reluctance of the patient. The present report emphasizes the fact that UTI due to *Staphylococcus aureus* is not so uncommon in males. Our own experience shows that *E. coli*, *S. aureus* and *Enterococcus* spp. are common as aetiological agents of UTI in males. So one should never disregard the occurrence of *Staphylococcus aureus* in urine in male patients, and try to corelate with clinical conditions and predisposing factors. The poor response due to antibiotics could be either due to biofilm formation in vivo, improper antibiotic consumption by the patient, or alcohol-induced hastened drug metabolism. These are very important form public health viewpoint.

Conclusion:

The case report stresses the fact that *S. aureus* can be an important aetiological agent of UTI in alcoholic male patients with no otherwise evident predisposing factors.

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