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Liver Abscess Caused by *Morganella morganii* Subspecies *sibonii* Biogroup G in a Chronic Alcoholic Patient.

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ABSTRACT

Morganella morganii is a bacterium belonging to family enterobacteriaceae, causing usually urinary tract infections. It is a non Lactose-fermenting pathogen belonging to Tribe Proteae. Liver abscess due to this species is very rare. We here report a case of Liver abscess caused by *Morganella morganii* subspecies sibonii , Biogroup G in a chronic alcoholic patient.

Keywords: *Morganella morganii*, liver abscess, biogroup G.

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INTRODUCTION

Morganella morganii is a Gram negative , facultatively anaerobic bacterium causing mostly urinary tract infections [1]. Other infections are also frequently reported, like skin and soft tissue infections, female genital tract infections and others [2]. Despite its ubiquitous presence, it is considered a rare cause of human infections, although it is an important opportunistic pathogen [3]. We here report a case of liver abscess in a patient with chronic alcoholism.

Short case description

A 78 year old male patient, resident of Patna, Bihar, presented in the Out Patient Department of the institute on 16th March this year, with chief complaints of fever and right-sided dull upper abdominal pain. The patient was alcoholic for last 10 years and had no underlying illnesses like diabetes mellitus or HIV infection. He was referred to the Department of Radiodiagnosis for radiological evaluation. Ultrasonography of the abdomen revealed a large (about 2 cm diameter) abscess in the right lobe of liver. Under ultrasonic guidance, pus was aspirated from the lesion and sent to Microbiology laboratory for routine bacteriological culture and susceptibility. Gram stain was performed from the sample, which revealed many pus cells (polymorphonuclear leucocytes) and copious Gram negative bacilli. Sample was inoculated on 5% Sheep Blood agar and Mac Conkey agar and the plates were incubated at 37^{o}C overnight, aerobically. The next day, translucent, low convex, non-hemolytic colonies grew on Blood agar, and Non Lactose-fermenting colonies on Mac Conkey agar. Gram stain from both plates showed uniformly staining Gram negative bacilli having parallel sides and round ends. The isolate was Catalase positive (with 3% H_2O_2) and Oxidase negative. Biochemical tests showed the following: Fermentative on O/F medium, Indole positive, Urease negative, Citrate not utilised, TSI a/a with gas and no H_2S production. The isolate was motile in semisolid agar, fermented trehalose, and was positive for Ornithine Decarboxylase and negative for Lysine decarboxylase and Arginine dihydrolase. Thus it was identified as *Morganella morganii*, Subsp. sibonii, biogroup G [4]. Antibiotic susceptibility was performed according to Kirby Bauer Disc diffusion as per CLSI protocol, with *P. aeruginosa* ATCC 27822 as control strain [5]. The isolate was sensitive to Piperacillin-Tazobactum and Chloramphenicol, moderately sensitive to Gentamicin and Resistant to Cotrimoxazole and Ciprofloxacin. The patient did not turn for follow up, although oral Metronidazole and Ciprofloxacin had been prescribed pending the results of culture and sensitivity.

DISCUSSION

Morganella morganii is a member of the Family Enterobacteriaceae, closely related with the genera *Proteus* spp. and *Providencia* spp. [6]. It was initially associated with illnesses like “Summer diarrhoea”. Winslow named it “*Bacillus morganii*” after Morgan, but the nomenclature was later changed to *Proteus morganii* due to the organism’s ability to swarm on electrolyte-containing media and other similar phenotypic features like KCN tolerance [6]. It differs from *Proteus* spp. in being non-H_2S producer on TSI and Citrate non-utilising. Years later, the separate genus *Morganella* was created to accommodate this pathogen. It contains only one species, *M. morganii*, which can be conclusively differentiated into 2 subspecies, *M. morganii* subspecies *morganii* and subspecies *sibonii*, based on negative and positive breakdown of Trehalose, respectively, and other tests like motility and glycerol breakdown [6]. In the Subsp. *sibonii*, Biogroup G is usually positive for ornithine decarboxylase and negative for Lysine decareboxylase and Arginine dihydrolase. *M. morganii* has usually been incriminated in gastroenteritis and occasionally upper urinary tract infections, although cases like neonatal sepis and diabetic foot infection have also been reported [6]. Very few reports of infection due to *Morganella* spp. from sites other than urinary tract have been reported in India. One report from Chandigarh, North India, mentions its isolation from a case of septic arthritis in a Diabetic patient [7]. A case of brain abscess has also been reported from Karnataka, caused by *M. morganii* subsp. *morganii* [9]. The bacterium expresses several virulence factors like Urease and Hemolysin, and is often resistant in vivo, as well as in vitro, to Fluoroquinolones, Tetracyclines, Beta-lactam antibiotics and Cotrimoxazole, and possesses many inducible beta-lactamases [8]. As far as we know, this is the first report of isolation of *M. morganii* subspecies *sibonii*, Biogroup G from a case of liver abscess. Any non-lactose fermenting Gram negative bacterial isolate recovered from such lesions should be carefully identified by full battery of biochemical tests and reported, since it can often be misidentified.

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