Chronic *Serratiaodorifera* Infra-vesical, Extra-peritoneal Pelvic Abscess: an Unexpected Finding in a Healthy 18 year Old Girl.

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Background: ***Serratiaodorifera (S. odorifera), a rare nosocomial human pathogen, is responsible for a few cases and outbreaks of sepsis in very sick hospitalized patients.*** ***Case Report:*** ***We report the case of an 18 year old healthy female patient with a chronic, deep, extra-peritoneal pelvic infection by S. odorifera in a Human Immunodeficiency Virus (HIV) endemic region. She had no constitutional symptoms. In the Serratia genus, Serratiamarcescens is the most pathogenic, infecting virtually all human organ systems, where-as S. odoriferararely infects healthy patients. Our patient presented with chronic mild pelvic pain. Radiological evaluation revealed a cystic mass lesion of 80mm diameter which was thought to be an ovarian cyst. The mass could not be found at laparotomy. Repeat radiological evaluation revealed that the mass was extra-peritoneal with very thick walls. It was located para-vaginally, below and in front of the urinary bladder. Laparoscopic exploration nine months after laparotomy revealed an abscess with 200ml of pus. She was treated with antibiotics. Anaerobic culture yielded a profuse growth of S. odorifera. Histopathological tissue review confirmed a chronic suppurative abscess. We believe this was a community acquired S. odorifera infection affecting an otherwise healthy patient. The patient was discharged home well eight days later.***

Key words: chronic pelvic abscess, community acquired, HIV infection, immunodeficiency, Serratiaodorifera

Introduction

The most virulent of the Serratia species of opportunistic enterobacteriaceae is Serratiamarcescens (S. marcescens). Many cases, including institutional outbreaks, due to S. marcescens are on record. On the other hand, infections by S. odoriferaare rare, and have only been documented in patients with other severe comorbidities.The genus Serratia is characterized by chemoorganotrophic, facultative anaerobic survival pattern[1]. Emerging evidence points to most (65%) infections by Serratia species being community acquired, with a higher prevalence in men over 60 years old[2]. Prior evidence typified Serratia as a nosocomial pathogen particularly amongst neonates in neonatal intensive care units [3]. Serratiaodorifera (S. odorifera) has low community prevalence[2,3]. It has been isolated from plants and the midgut of the Aedes aegypti mosquito[4,5]. S. odorifera has been described as a human pathogen in a few isolated cases and during outbreaks of sepsis in hospitalized patients[6,7,8].There are no reports on prevalence of S. odorifera in areas of high Human

Immunodeficiency Virus (HIV) prevalence. We report the case of a young healthy patient with a chronic deep space infection by S. odorifera who had no constitutional symptoms.

Case Report

A healthy 18 year old female student presented to a gynaecological clinic with recurrent pelvic pain and an ultrasonic scan report detailing an 80mm diameter pelvic mass. She was not sexually active and had no prior history of gynaecological infections. She had neither constitutional symptoms nor laboratory evidence of clinical infection as complete blood count, urine microbiology and high vaginal swabs were non-contributory. She tested negative for HIV antibodies. At exploratory laparotomy no mass could be found. For close to a year she went on with her studies and exams after which she came for further review. On radiological review by CAT scan a retro-peritoneal infra-vesical thick walled unilocular cystic lesion. Additionally, she had congenital absence of the right kidney. In consultation with urology and radiology services no radiological evidence of ectopic renal tissue could be found. Laparoscopic exploration with possible mass excision was planned.

The finding was a big, thick walled chronic abscess located infero-laterally to the urinary bladder just antero-lateral to the uterine cervix and upper vagina. En-block excision could not be accomplished due to the chronic severe fibrosis in the area. Aspiration of the lesion yielded 200ml of thick purulent material. Specimens for microbiology, cytology and histopathology were retrieved. The cavity course ran parallel to the upper vagina. A concerted gynaecological search for a connecting channel was futile. The abscess was marsupialised. A 6mm suction drain was left in the abscess cavity and removed 48hrs later. The main microbiology finding was a profuse growth of S. odorifera identified by the API-20E® kit. Additional bio-group characterization was not possible in our laboratory. Empirical Ciprofloxacin and Doxycyline had been started on day of surgery. These were continued for 14 days when sensitivity to these was confirmed. The patient had an uneventful recovery, was discharged home. At last review 6 months later she was symptom free with no sonographic evidence of the lesion.

All samples were negative for fungal elements and tuberculosis. The abscess wall tissue sections review concluded that this was a chronic suppurative inflammation in keeping with the wall of an abscess with no features of tuberculosis or malignancy. There was no renal tissue or identifiable epithelial elements to suggest any link to the missing kidney.

Discussion

Nosocomial *Serratia* infections are diminishing[9]. This case illustrates a possibly community acquired infection in an otherwise healthy young adult. The infection was well contained in a chronic abscess. Apart from recurring pain the patient was rather well, continuing her life for 9 months after the initial surgery without any need for analgesia. This is against the trend of nosocomial infections described in most instances[6,7, 8,10]. It is impossible to guess how and when our patient got infected.

The presence of viable S. odorifera in the pus with no constitutional symptoms in the patient possibly illustrates that humans with an intact immune system can contain the pathogen. The significance of this apparent carrier status to the wider public health is not known.

The available literature documents nosocomial infections by S. odoriferaas a cause of significant morbidity. While rare, these clinical infections, and the possibility of this happening in immune compromised patients, make its identification in healthy humans in an HIV endemic areaa potential reason to worry. There is just no data on the population prevalence of the carrier status. Does it play a larger pathogenic role in this population? Can healthy adult patients be asymptomatic carriers of this organism? The implications of S. odorifera carrier status in hospitals and other medical institutions as regards nosocomial infections are unknown.

The relative pathologic infancy of S. odorifera probably means not much is known about its virulence in general. The tendency to more community acquired infections in patients with comorbidities is worrying. How this translates in untreated HIV infected patients, both in the community and in hospitals, is unknown. There is a particular lack of information on S. odorifera in the Southern African sub-region where HIV is endemic. Whether this species has been mis-identified with resultant under reporting of its virulence in this population we do not know. It would be revealing to hear from microbiologists practicing in HIV endemic areas on the S. odorifera isolates and the immune status of patients in whom the specimens were retrieved.

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