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Case Report

Stenotrophomonas maltophilia: A rare bug isolated from pancreatic necrosis

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Abstract

Stenotrophomonas maltophilia is an aerobic, non fermentative, Gram-negative bacterium. It is an uncommon bacterium and human infection is difficult to treat. Pancreatic necrosis infected by *Stenotrophomonas maltophilia* is extremely rare. To our knowledge there is only one case have been reported in the literature. We present a case of pancreatic necrosis infected by *Stenotrophomonas maltophilia*.

Keywords: *Stenotrophomonas maltophilia*; Pancreatic necrosis

1. Introduction

Stenotrophomonas maltophilia (SM) is an uncommon bacterium. Human infection caused by the organism is difficult to treat.[1] Isolation of *S. maltophilia* in human specimens may represent colonization rather than infection. Being an opportunistic pathogen, the relationship between host and organism is important, with immunocompromised hosts and hospitalized patients being predisposed to infection. The ability to survive in biofilms and respond to environmental stressors makes *S. maltophilia* persistent and adaptable pathogen. Biofilm production is caused by the interplay of multiple contributory virulence factors including the flagella fimbriae, pili and a fimbrial adhesin and the outer-membrane lipopolysaccharide layer.[2,3]

Predisposing factors for the infection are malignancy, immunosuppression, mechanical ventilation, intensive care unit, IV drug abuse, indwelling catheter and previous antibiotic exposure.[4,5,6] Infection with the organism have been associated with meningitis, pneumonia, conjunctivitis, soft tissue infection, endocarditis and urinary tract infections.[7] The problem arises as it is resistant to 3rd generation cephalosporins and prophylactic antibiotic in pancreatitis i.e. imipenem-cilastatin.[8] We present a 30 year old patient diagnosed as pancreatic necrosis infected by *Stenotrophomonas maltophilia*. To our knowledge this is the second case overall and first case from Indian literature.

2. Case study

A 30 year old male patient presented with chief complaints of pain in abdomen, fever, vomiting, generalized weakness and loss of appetite since 15 days. He was chronic alcoholic. On examination he was in altered sensorium, pale, febrile and tachycardic. He was in the state of shock. Icterus was present. On abdominal examination there was generalized tenderness all over the body with features of peritonitis. His chest was bad.

His blood investigations were Hb: 5.8, Total Count:14,200, Blood urea:70, Serum creatinine: 2.1, Amylase: 59.3, Lipase: 83.4, Na: 123, Total Bilirubin: 4.3, Direct bilirubin -2. His erect X-ray abdomen was normal. Ultrasound abdomen revealed features of pancreatitis with peripancreatic fluid collection. CECT Abdomen revealed severe Necrotizing pancreatitis with pseudocyst formation in the region of tail of pancreas with peripancreatic fat stranding with modified CT severity index of 9. (Figure 1) Ultrasound guided aspiration of peripancreatic fluid was done which later revealed infection with *Stenotrophomonas maltophilia*.

Resuscitation was done. Blood transfusions were given. Emergency exploratory laparotomy was done. Intraoperatively there was collection of purulent intraperitoneal fluid with pancreatic abscess with pancreatic necrosis. Pancreatic necrosectomy was done and through wash was given with warm saline and povidone iodine.(Figure 2 and 3) Drains were kept. Patient was started with antibiotics like imipenem-cilastatin, piperacillin tazobactam and metronidazole. Patient was not extubated and shifted to Intensive care unit on ventilator support. His General condition was poor. According to antibiotic sensitive report he was later started with antibiotics like ceftazidime, levofloxacin, co-trimoxazole and antifungal. In between patient was out from ventilator support but again went for the support. He had multiorgan failure due to septicemia later and expired in few weeks.

Figure 1– CECT abdomen- Pancreatic necrosis

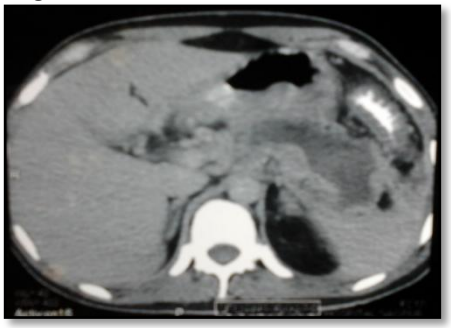


Figure 2- Pancreatic necrosectomy

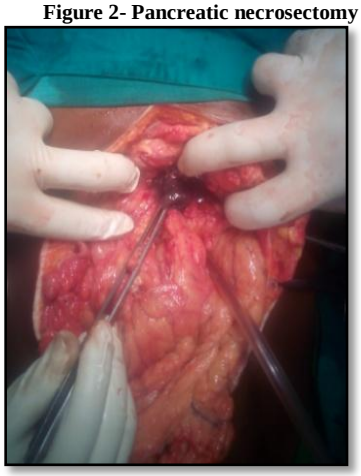
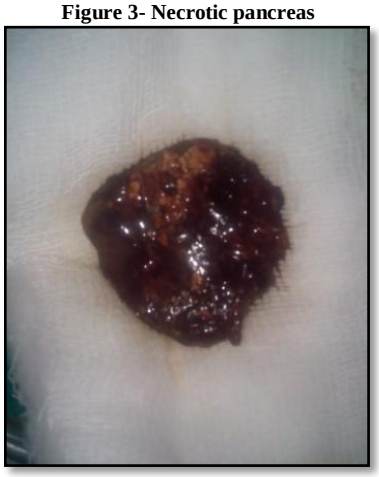


Figure 3- Necrotic pancreas



3. Discussion

Iain *et al*[9] discussed key issues which need special mention and reproduced here once again. *Stenotrophomonas maltophilia* has emerged as an opportunistic pathogen of increasing relevance to immunocompromised and hospitalized patient populations. Examples of at-risk populations include patients in intensive care environments and patients with hematologic disorders or cystic fibrosis. Biofilm production by S. Maltophilia is an important virulence mechanism contributing to enhanced surface spread and adhesion, resistance to phagocytosis and shielding from antimicrobial activity. A focus upon biofilm disruption is required for newer therapies, especially for infections associated with indwelling medical devices.

Molecular diagnostic techniques for S. Maltophilia have the potential to improve clinical outcomes. However, further validation and investigation of clinical correlates (viable bacterial load, antibiotic susceptibility profiles, virulence factor expression and clinical outcomes) is required before routine application. Intrinsic, inducible and acquired mechanisms of resistance are well described for S. maltophilia. However, standardization is required for reporting susceptibility of clinical isolates.

The recommended first-line therapy for S. Maltophilia infection is trimethoprim–sulfamethoxazole, supported by a high rate of in vitro susceptibility (>90%) to this agent. Alternative therapies include ticarcillin–clavulanic acid and newer fluoroquinolone agents, which may be used as components of combination regimens. Tigecycline and colistin have also been used in therapy for trimethoprim–sulfamethoxazole-resistant isolates, although a more defined therapeutic role for these agents is yet to be established. Controversy remains regarding the use of ceftazidime – the European Committee on Antimicrobial Susceptibility Testing reports S. Maltophilia to be intrinsically resistant to ceftazidime even if in vitro testing suggests susceptibility.

In clinical practice, combination antibiotic therapy is generally reserved for severe sepsis and patients with neutropenia, or when trimethoprim–sulfamethoxazole is contraindicated. However, compelling clinical evidence for combination therapies is lacking.

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