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Recurring Fever in a Cancer Patient – "Light at the end of the Tunnel" – Case Report

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Abstract
Recurrent fever can be the manifestation of autoimmune disease, malignancies and infections. Working up the cause of fever in a patient with underlying malignancy and under treatment can be a challenging task. We present a case of 46 years old female with breast carcinoma, who presented with recurrent fever episodes. The patient was evaluated and found to have catheter (tunnelled) related septicaemia, septic emboli and endocarditis. Device related infections need high index of suspicion and treatment should be planned based on the type of catheter and organisms.
Keywords: *Right sided infective endocarditis, septic emboli, tunnelled catheter, device related infection.*

Introduction

Recurrent fever can be the manifestation of a wide range of diseases including autoimmune disease, malignancies and infections. A recurrent fever is defined as >12 episodes over a period of 12 months with a minimal interval of seven days between episodes. Such cases are approached by taking a comprehensive history, detailed physical examination and relevant laboratory investigations. Most unexplained fever are often diagnosed within one week of hospital evaluation or 3 outpatient visits. We present a case of breast carcinoma who has completed a course of chemotherapy and under radiotherapy for the past 1 month.

Case Report

A 46 year old female with left breast carcinoma who underwent modified radical mastectomy and on chemotherapy through a chemo-port in right internal jugular vein presented with complaints of intermittent fever with chills and rigors for one and half a month and altered behavior since 2 days and was treated elsewhere with 5 days course of

IV antibiotics (Piperacillin, cefotaxime) on two occasions without a culture taken. Patient was temporarily afebrile and fever recurred on stopping antibiotics and she also received 2 units of packed RBC and 4 units of platelets for anemia and thrombocytopenia. She also had nausea and loss of appetite, and dry cough. She was recently diagnosed to have type 2 diabetes mellitus and was on oral hypoglycemic agents. She did not have any cardiac ailments either. On physical examination, on admission she was conscious but drowsy, had a body temperature of 100.7°F, Respiratory rate of 24 per minute,heart Rate of 126 per minutes, Blood pressure of 130/80 mmHg ,oxygen saturation of 92% on room air, requiring 4 L of supplemental oxygen to maintain saturation at 100%. She was anaemic, mildly icteric and tongue was dry. Chemo-port was visible on the right side of the chest wall. No sign of catheter site infection was observed. On clinical examination, she had tachycardia and fine crackles were present bilaterally. She was anxious, restless, slowly responding to oral commands, no neck stiffness and no focal neurological deficit. She was investigated further to find out the cause and source of sepsis. Her complete blood count showed anemia (7.8 g/dl), leucocyte count was 5,OOO cells/cumm, polymorphs – 83% ,thrombocytopenia (23,000 cells/cumm), ESR – 60 mm/1 hour, Arterial blood gas showed Respiratory alkalosis, Dengue serology, Scrub typhus antibody, Leptospira antibody, MP/MF, Malarial antigen were turned out to be negative. Peripheral smear was showing microcytic hypochromic anemia with neutrophilic preponderance, thrombocytopenia and no hemoparasites. HIV/HBsAg/HCV (ELISA) were negative, Sputum culture showed commensals of throat and no AFB seen. Blood culture showed growth of Pseudomonas aeruginosa sensitive to gentamicin, tobramycin, amikacin, meropenem, imipenem, ciprofloxacin, Piperacillin. Chest X ray PA view showed chemo-port in right chest wall (figure 1). Her USG- ABDOMENshowedenlarged spleen of 13.6 cm. Trans thoracic echocardiography revealeda Vegetation attached to the septal leaflet of tricuspid valve (7.8mm) with mild Tricuspid Regurgitation and minimal pericardial effusion (figure 2). CT- THORAX PLAIN showed multiple pulmonary nodules in both the lungs. Cavity with surrounding consolidation and sub segmental collapse in posterior basal segments of right lower lobe with surrounding consolidation and sub-segmental collapse gave an impression of cavitating pneumonia/cavitatory metastasis with Right mild pleural effusion (figure 3).Culture of the aspirate from chemo-port showed Pseudomonas aeruginosa (figure 4). At this point, it became necessary to remove the chemoport. Catheter chemo port tip culture showed Pseudomonas aeruginosa consistent with blood culture reports. Finally diagnose was made as Chemo-Port Related Right Sided infective Endocarditis (Tricuspid Valve) with Septic Emboli of Lung with Right Basal Pneumonia and Pseudomonas Septicemia in a case of Left Carcinoma Breast on chemotherapy. She was treated by removing the source (chemo-port removal from right IJV), Culture sensitive antibiotic (ceftazidime) was started and continued for 6 weeks and other supportive measures were given. Patient started to improve after 48 hours and remained afebrile.On follow up, a repeat CT-THORAX after 2 weeks of antibiotic therapy showed significant reduction in the size of right lateral basal segment lesion when compared to previous CT and the right upper lobe nodules show evidence of cavitation in the present CT were consistent with septic emboli. Repeat 2D echo after 4 weeks showed no evidence of vegetation/thrombus.

Discussion

Work up for the cause of fever can sometimes be time consuming and frustrating to the treating physicians as well as patients. Most falls are due to uncommon presentations of a common disease or due to uncommon diseases.

This patient who was diagnosed to have breast cancer and has a tunnelled chemoport in situ. In a

patient with malignancy the usual causes of fever could be infections, medications, blood transfusions and thrombosis. Fever can be a paraneoplastic manifestation in a patient with malignancy.[13] Possible risk factors for infections in patients with malignancy are venous catheters, chemotherapy induced mucositis which leads to bacterial translocation with Gram negative bacteria and microaerophilic streptococci.[7] Placement of indwelling catheter either for chemotherapy or for parenteral nutrition, make a cancer patient vulnerable for blood stream infections.

Our patient was diagnosed to have Pseudomonas septicaemia after blood culture and evidence of Right sided vegetations and Septic emboli in the lungs. Aspirate from the port also demonstrated the same organism. There will always be a hesitation as the part of the physician and patient, due to cost factor and surgical procedure involved in its placement. Antibiotic lock therapy along with systemic antimicrobial therapy for a period of 7-14 days may help to salvage a catheter.[1] The indication for removal of catheter in this case includes presence of severe sepsis, endocarditis and blood stream infections lasting for more than 72 hours of antimicrobial and infection due to Pseudomonas aeruginosa.

Biofilms are formed on the abiotic surface of indwelling medical devices.[11] Indwelling device related infections cause chronic and recurrent infections and commonly cause haematogenous seedling of bacteria to another site. Presence of malignancy, gastrointestinal tract disorders, pulmonary hypertension, End stage renal disease, Diabetes mellitus, extremes of age, prolonged hospital stay, bone marrow transplant, total parenteral nutrition and type of catheter, site and condition of insertion all contribute to development of catheter related infections.

Clinical manifestation caused by right sided Infective endocarditis are usually subtle and easily missed as evidenced by absence of new murmur in this case. Right sided infective endocarditis cause less cutaneous and cardiac symptoms.[12] Pseudomonas and candida infections produce extracellular polysaccharides (biofilm) which favour increased virulence, adherence to catheter surface and resistance to antimicrobial penetration by creating an altered chemical microenvironment within the biofilm.[11]

Conclusion

Recurrent fever in patients with malignancy pose diagnostic challenge and in any patient with implanted catheter, device related infection should be considered as cause of fever and worked up accordingly.

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