Staphylococcus Aureus Meningitis in a Post Splenectomy Patient

Saleem Sharief,Majeed Memon,Arif R Sarwari (Department of Medicine, Aga Khan University, Karachi.)

Patients who have undergone a splenectomy are recognized to be at higher risk for fulminant sepsis, especially with encapsulated organisms[1]. Fulminant Staphylococcal infection is not characteristically associated with the late post splenectorny state. The patient described here presented with S. aureus meningitis ten years after splenectoniy.

Case Report

A 49-year-old male was admitted with a seven day history of backache and intermittent high-grade fever. Eight hours prior to presentation, the patient developed altered mentation with irritability and restlessness. He had a past history of abdominal trauma related splenectomy ten years ago and had remained asymptomatic thereafter. Physical examination revealed a temperature of 38°C, blood pressure of 120/60mrnHg, pulse of 140/min respiratory rate of 40/rn in, and oxygen saturation of 93%. He was jaundiced and chest auscultation showed coarse crepitations in the right mid and lower zones. The patient was very restless and disoriented but was moving all 4 extremities. His pupils were dilated, sluggishly reactive to light and fundoscopy showed papilloedema. Neck rigidity was not obvious but kernig's sign was positive.

Laboratory studies revealed Hemoglobin, 11 . gm/dl: white blood cells count (WBC), 50,100/mm^3 (with 90% polymorphonuclear leukocytes); platelets. 87,000/mm^3: blood urea nitrogen, 96 mg/dl; creatinine 5.6 rng/dl; total bilirubin, 5.4 mg/dl (direct bilirubin 3.7 mg/dl): prothrornbin time, 19.4 sec (INR, 2.48): D-Dimer, 2.0: Random blood sugar, 16 mg/dl. Arterial Blood Gases showed compensated metabolic acidosis. Examination of the cerebrospinal fluid (CSF) showed WBC, 49,500/mm^3 (with 90% polymorphonuclear leukocytes): proteins 1,576mg/dI; glucose, 2 rng/dt; Red blood cells, l0,800/mm^3. Latex agglutination tests for S. pneumoniae, H. influenza and N. meningitidis were negative on the CSF. Gram stain showed gram positive cocci. Later CSF as well as blood cultures were positive for Staphylococcus aureus. Lumbo-sacral spine x-rays, C.T scan of brain and ultrasound of abdomen were all normal. The patient was started on intravenous cloxacillin, ceftriaxone and benzyl penicillin. He was electively intubated but expired within 10 hours of hospitalization.

Discussion

Post-splenectorny infections are primarily associated with encapsulated bacteria like S. pneumoniae, H. influenzae and N. meningitidis. The majority of infections are due to S.pneumoniae (50-60% in most series) and carry a mortality rate of upto 60%[2,3]. Infections with Escherichia coli and Pseudornonas aeruginosa are also associated with high mortality, though much less common[4]. Other infections associated with the post-splenectorny patient are malaria[5] babesiosis[6] and Capnocytophaga canirnorsus, originally called Dysgonic fermenter 2 (DF2). In the asplenic patient. the latter has been associated with severe sepsis. frequently after trivial bites and scratches by dogs[7,8]. A search of the literature failed to reveal any reports of post splenectorny fulminant meningitis and sepsis secondary to S. aureus. The patient described presented with sepsis and multi-organ dysfunction due to S. aureus infection a severely advanced disease state possibly contributed to by the absence of splenic function. It is well known that S. aureus is a frequent cause of bacteremia with resulting metastatic infections at sites distant from the primary site of infection. Staphylococcal bacterernia can result from blood-stream invasion via catheter sites or minor skin lesions leading to the infections of lungs, heart, Central Nervous System, bones, joints and muscles[9,10]. Community acquired S. aureus bacteraemia is a much

more serious infection than hospital-acquired infection. Staphylococcal aureus meningitis itself is a rare disease accounting for only 1-9% of all bacterial meningitis[11]. It is usually seen either in the post-operative period (following neurosurgical interventions) or following hematogenous spead from a distant focus. The latter, which carries a higher mortality, is mainly associated with infective endocarditis and osteomyelitis. Though the primary route of entry is the skin but in the majority of eases the initial focus remains unknown.

The primary focus of infection in the patient presented could have been a vertebral osteomyelitis, too early to reveal changes on plain radiographs. To our knowledge there hasn't previously been any association between S. aureus sepsis (meningitis) arid the post splenectomy state.

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