Pneumococcal bacterial peritonitis in an AIDS patient following esophageal endoscopic variceal sclerotherapy. Case report and recommendations for antibiotic prophylaxis

Peritonite batterica pneumococcica associata a scleroterapia endoscopica di varici esofagee. Descrizione del caso e raccomandazioni per l’antibiotico-profilassi

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INTRODUCTION

Although fever is reported 24-48 hours after esophageal endoscopic variceal sclerotherapy (EVS) in 20-40% of patients, it is not always bacteria-correlated. Asymptomatic bacteremia associated with esophageal endoscopic sclerotherapy has been reported in 50% of patients with higher incidence compared to 8% reported in common endoscopic procedures. Streptococcus viridans, Group D streptococi, Staphylococcus aureus originating from bacterial flora of oro-pharynx and skin, are commonly isolated in most of cases of bacteremia [1].

The major complications of esophageal endoscopic sclerotherapy are mostly recurrent bleeding, perforation, bronchus-esophageal fistula, sepsis, cardiac and respiratory complications. Underlying disease of patients, emergency, instruments and length of needle are important variables influencing the rate of complications. Length injection needles minor than 5 mm is associated with low incidence of bacteremia. The mortality rate of major complications ranges from 2 to 11.8% [2]. Although the high rate of bacteremia, a low incidence of septic complications has been reported: bacterial peritonitis complicate 0.5% of elective procedures and 3% of emergency endoscopic injection sclerotherapy [1]; endocarditis is rare and depends on pre-existing cardiac condition that may not be checked in emergency.

Amongst central nervous system (CNS) infections, 4 cases of solitary cerebral abscess, 2 cases of meningitis and 1 case of multiple cerebral abscesses with meningitis have been reported [3, 4]. Although bacterial flora from oropharynx has been isolated from the blood in patients with septic complications and asymptomatic bacteremia, intestinal bacterial flora is the most frequent source of bacterial peritonitis following esophageal endoscopic sclerotherapy.

We describe a case of post-sclerotherapy bacterial peritonitis occurred in an AIDS patient with severe co-morbidity due to decompensated hepatic cirrhosis HCV-related and esophageal variceal bleeding.

CASE REPORT

A 41-year-old woman with HIV-infection and history of alcohol and intravenously drug ad-
diction and decompensated ascitic liver cirrhosis HCV-related presented with hematemesis underwent an emergency endoscopic variceal sclerotherapy; antibiotic prophylaxis was not administered; at the admission physical and laboratory examinations showed splenomegaly, cutaneous spider angiomas; anemia, leucopenia, piastrinopenia, low serum albumin; six days after esophageal variceal sclerotherapy, she developed abdominal pain with high fever.

The laboratory investigations showed Hb 12.8 g/dl; Hct 38%; GB 4.410/mm$^3$ (N 81.3%, L10.9%, M7.2%), PLTS 102.000/ mm$^3$; ERS 46 mm. Electrolytes, liver enzymes, coagulation parameters, bilirubinemia, serum creatinine, alpha-fetoprotein and serum ammonium were normal. Total proteins were 63 g/L and serum albumin 26.2 g/L. Blood and urine cultures were negative. Chest X-ray was negative. The CD4 lymphocyte count was 80 x 10$^6$/L and the viral load was 5.8 log$_{10}$ (NASBA). The patient was neither taking antiretroviral therapy nor opportunistic infections chemoprophylaxis.

The abdomen echography showed marked splenomegaly, generalised echodisomogeneity of liver with epatomegaly and ascitis. Paracentesis revealed ascitic fluid with 350 cells/mm$^3$ total white cell count of which 80% PMNs and protein concentration of 1g/dL. The ascitic fluid cultures yielded growth of *Streptococcus pneumoniae* sensitive to penicillin. Cefotaxime 2 g intravenously 8 hourly as empirical antibiotic therapy, later confirmed by antimicrobial susceptibility tests, was administered for 14 days with prompt decrease of temperature and abdominal pain.

**DISCUSSION**

Risk factors of infections were associated both with immunosuppression condition of patient because of overt AIDS, hepatic cirrhosis, esophageal bleeding and with emergency endoscopic sclerotherapy.

Cirrhotic patients may develop severe bacterial infections including spontaneous bacterial peritonitis (SBP), CNS infection, endocarditis because of their immunosuppression condition, independent of HIV infection and of presence or absence of ascites.

Besides immunodeficiency due to HIV infection, in cirrhosis the efficiency of phagocytic activity of reticulo endothelial system in removing bacteria from blood is compromised; serum complement level factors, neutrophils chemotaxis, macrophages FC-γ receptors are also impaired. Moreover, porto-systemic shunting decreases the hepatic clearance of bacteremia. Hemorrhagic shock due to upper gastrointestinal tract bleeding worsens the hepatic reticulo-endothelial system efficiency and predisposes to the transmural migration of bacteria through the intact bowel wall into the peritoneal cavity because of hypotension, tissue hypoxia, mucosal edema, impaired local IgA immunity and altered intestinal transit [5].

The case of decompensated liver cirrhosis and esophageal variceal bleeding we describe, presented with high temperature 6 days after emergency EVS, the serial blood cultures that were done and didn’t yeld any growth. We suppose that the probable route of infection of ascitic fluid was the transmural migration of bacteria through the bowel wall rather than the bacteremia of pathogens from oro-pharynx.

Bac D J et al. have reported 39 cases of bacterial peritonitis post-EVS out of which 61,5% were caused by enteric bacteria gut derived while in remaining 15,5% ascites culture were negative [1]. They suggest that the pathogenesis of bacterial peritonitis EVS-related resembles what occurs in SBP. Enteric Gram-negative bacteria are the most frequent causative pathogens of SBP with *Escherichia coli* and *Klebsiella pneumoniae* found in more than 60% of cases. Amongst Gram-positive bacteria *S. pneumoniae* is the most frequent pathogen found while *Enterococcus* spp. is found in 6-12% of patients with SBP [5]. *S. pneumoniae* is known to be isolated with high incidence in respiratory tract of AIDS patients and the pneumococcal vaccination is actively recommended in HIV-infected patients. Moreover the presence of blood in stomach may lead to spread and overgrowth of bacterial flora from oro-pharynx including anaerobic bacteria such as *Bacteroides non-fragilis* spp. and *Fusobacterium*. In compliant patient, before endoscopic procedures, clorexidine mouth-wash could be useful in order to reduce the overgrowth of oro-pharynx bacterial flora.

Severe sequelae of chronic hepatitis are increasingly observed in Italian HIV-patients; cirrhosis and hepatocellular carcinoma have become the most important predisposing risk of morbidity and mortality.

In immunocompromised patients with various predisposing factors for development of infections such as HIV-infection, decompensated cirrhosis, esophageal bleeding, intestinal bacte-
Chronic viral hepatitis is a common co-morbidity in Italian HIV-infected patients. It represents a major emerging associated risk of mortality in patients with HIV infection whose survival has increasingly improved through highly active antiretroviral therapy. In such patients further infectious predisposing factors, related to hepatic failure and esophageal haemorrhage, worsen the immunodeficiency due to HIV infection. Bacterial peritonitis was reported in 3% of patients after esophageal endoscopic injection sclerotherapy emergency and in 0.5% of an elective procedure. Combined antibiotic prophylaxis with amoxicillin-beta-lactamase inhibitor and fluoroquinolone should be regularly given to AIDS patients with decompen-sated liver cirrhosis who have esophageal variceal bleeding. We report a case of pneumococcal bacterial peritonitis following emergency esophageal endoscopic sclerotherapy for variceal bleeding in a patient with AIDS and liver cirrhosis with ascites.
REFERENCES