WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 9, Issue 9, 897-903. Case Study ISSN 2277– 7105

A CASE STUDY ON INTERLINK BETWEEN LIVER ABSCESS AND SEPSIS AND THEIR RELATION WITH OTHER DISEASES IN A GERIATRIC PATIENT

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Article Received on
03 July 2020,

Revised on 23 July 2020,
Accepted on 13 August 2020

DOI: 10.20959/wjpr20209-18382

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ABSTRACT

A case of 60 year old male patient diagnosed with complications of DM, TB, sepsis, liver abscess and jaundice collected from Srinivas hospital was analyzed. The purpose of this case study was to find the interlinking relation between the major complications severe sepsis and liver abscess with each other and with other disease in this patient. This was investigated through manifestation and laboratory findings of this patient. The direct extension of an intraabdominal abscess into the liver via the portal vein from an intraabdominal infection, and indirectly from complications of CD (i.e., biliary disease) is thought to predispose the formation of Liver Abscess. Infections in organs in the portal bed can result in a localized septic thrombophlebitis, which can lead to liver abscess. Septic emboli are released into the porta circulation, trapped by the hepatic sinusoids, and become the nidus for micro abscess formation. This patient with compromised immune status due to diabetes, there was an extensive involvement of the liver. Liver disease can also cause hypoproteinemia by decreasing synthesis of albumin and total protein which is stated true by liver function test of this patient. DM has been associated with increased rates of TB, which may be partially explained by a decreased T cell–mediated immune response. Cholestasis is the predominant mechanism by which jaundice develops in sepsis. Thus we concluded in this case study, it is possible that inflammation of ileum and ilea vessels resulted in thrombosis with subsequent septic emboli to the liver via the portal system resulting in multiloculated abscesses.

KEYWORDS: liver abscess, severe sepsis, infection.

INTRODUCTION

Sepsis is a serious body wide response to bacteremia or another infection. Severe sepsis is sepsis plus either failure of an essential system in the body or inadequate blood flow to parts of the body due to an infection.

Liver abscess are purulent collections in the liver parenchyma that results from bacterial, fungal or parasitic infection. Infection can spread to the liver through the biliary tree, hepatic vein, and portal vein by extension of an adjacent infection or as a result of trauma. One or multiple abscess can be present .Fungal liver abscess can occur in immunocompromised hosts .Amoebic liver abscess is a complication of amebiasis.

Diabetes mellitus type 2 (also known as type 2 diabetes) is a long-term metabolic disorder that is characterized by high blood sugar, insulin resistance, and relative lack of insulin. Type 2 diabetes primarily occurs as a result of obesity and lack of exercise. Some people are more genetically at risk than others. Type 2 diabetes makes up about 90% of cases of diabetes.

Tuberculosis, as it's commonly called tb is a contagious infection that usually attacks the lungs. It can also spread to other parts of the body, like the brain and spine. A type of bacteria called Mycobacterium tuberculosis causes it.In the 20th century, TB was a leading cause of death in the United States.

Hypoproteinemia is a condition where there is an abnormally low level of protein in the blood. Decreased serum protein reduces the osmotic pressure of the blood, leading to loss of fluid from the intravascular compartment, or the blood vessels, to the interstitial tissues, resulting in edema.

Need of the study

Sepsis and bacterial infections are responsible for up to 20% cases of liver abscess. pyogenic liver abscess cases are increasing, which is mainly caused by infection or sepsis.so here a detail explanation of pathological relation between sepsis and liver abscess is studied.

Objectives

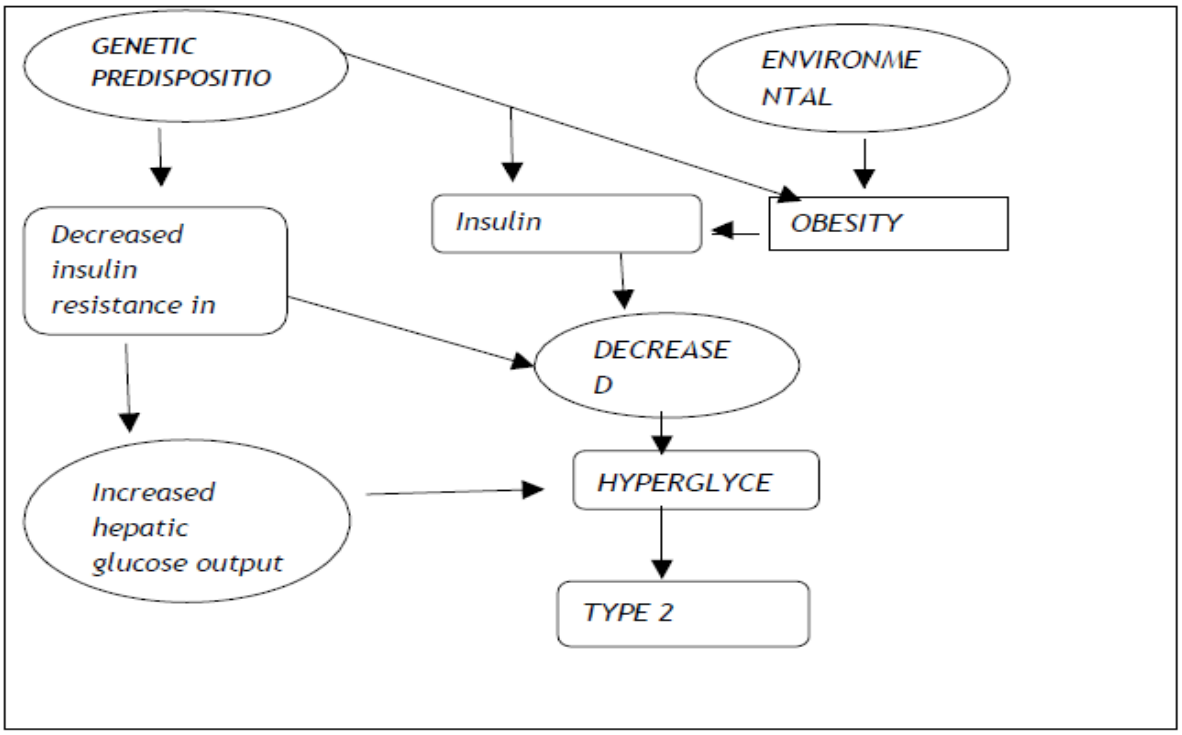
To find the interlinking relation between severe sepsis and liver abscess and their relation with other complication in this patient.

Methodology

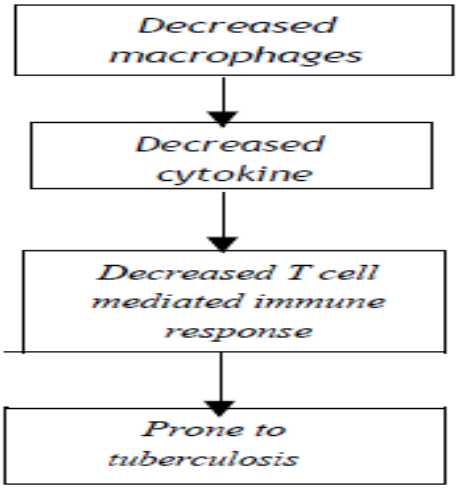
A case of 60yr old male patient with final diagnosis as liver abscess with sepsis, diabetes mellitus, Multidrug resistant tuberculosis, jaundice and hypoproteneimia was collected from Srinivas hospital and was analyzed.

RESULT

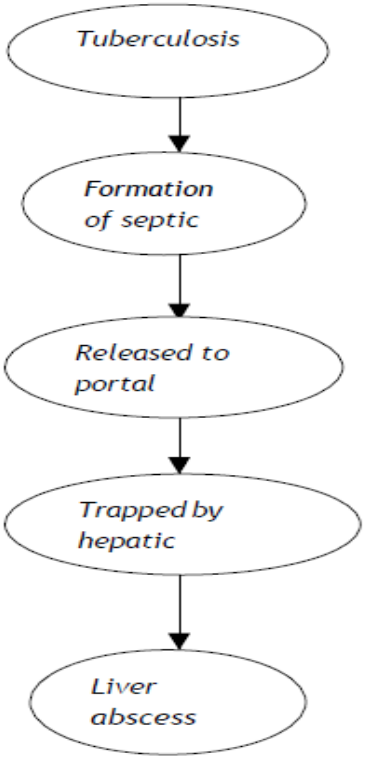
From the complaints on admission it is clear that the patient is having Type 2 Diabetes mellitus from the past years which lead to all other major complications for this patient. People living with type 2 DM are more vulnerable to various forms of both short- and long-term complications, which often lead to their death. The major cause for type2 DM can be due to genetic predisposition which is unknown for this patient and environmental factors like obesity which may lead insulin resistance causing decreased glucose uptake that is hyperglycaemia resulting in type 2 DM .The abnormal increase in random blood sugar above 200mg/dl and BMI in patient profile do support this.



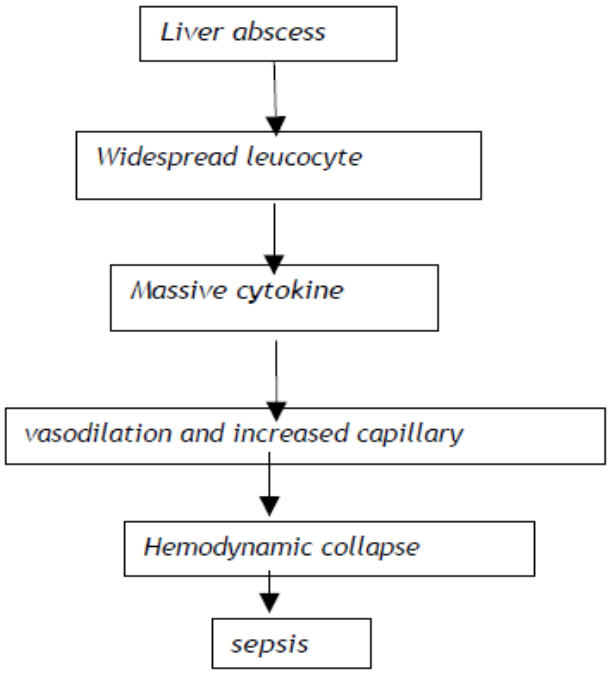
Many studies shows that diabetes is a strong risk factor for pulmonary TB. Poorly controlled diabetes may impair the cell-mediated immune response and neutrophil function and hyperglycaemia alone may provide a better environment for bacterial growth and increased virulence of various.



From the patient profile form it is supposed that the patient might be caused from liver abscess from, as liver abscess is a rare complication of tuberculosis. Infections in organs in the portal bed can result in a localized septic thrombophlebitis, which can lead to liver abscess. Septic emboli are released into the portal circulation. Septic emboli are released into the portal circulation, trapped by the hepatic sinusoids and become the nidus for micro abscess formation. These micro abscess initially are multiple but usually coalesce into a solitary lesion. Micro abscess formation can also be due to hematogenous dissemination of organisms in association with systemic bacteria.



The main complication of Liver Abscess is sepsis, the abscess of the liver may cause widespread leucocyte activation. this may cause massive cytokine release resulting in vasodilation and increased capillary permeability. this lead to hemodynamic collapse, end result is sepsis or blood stream infection.



Clinical jaundice is usually associated with severe Iinfections such as Gram-negative bacterial sepsis, or septic shock. Cholestasis is the predominant mechanism by which jaundice develops in sepsis. Extrahepatic cholestasis is caused by obstruction of the hepatic or common bile duct and directly impedes the flow of bile. This can result from a primary infection such as cholangitis or can become secondarily infected. Specific infections that target the liver may also cause jaundice because of the liver injury associated with hepatic infection.

It has been widely recognized that hypoprotenemia due to decrease in albumin synthesis is frequently found in liver disease. hypoprotenemia that stimulates.

DISCUSSION

The WHO has identified DM as a global epidemic, mostly affecting low and middle income countries where 80% of all deaths due to DM occur. Diabetes is associated with obesity and is more prevalent among middle aged patients and about 10% of global TB cases are linked to diabetes. Simultaneously, TB continues to be a major cause of death worldwide despite the

fact that the epidemic appears to be on the verge of declining.

The global burden of disease due to DM and TB is immense. In 2010, there were an estimated 285 million people living with DM. In 2011, the International Diabetes Federation (IDF) estimated that about 366 million people worldwide had DM, a number which is expected to grow to at least 439 million by the year 2030, with approximately 4 million deaths (International Diabetes Federation 2009). Eighty percent (80%) of these people live in low and middle income countries where tuberculosis (TB) is highly prevalent. In 2007, there were an estimated 14.4 million people living with TB, 9.2 million new cases and 1.7 million deaths. Patients with T2DM are at an increased risk of developing TB. The disease itself compromises the prevention and treatment of infections in diabetic patients. Therefore, studies on the management of TB in patients with DM are warranted.

According to article "tuberculosis as an etiological factor in liver abscess in adults" tubercular liver abscess in itself is a rare entity. The disease mimics liver abscess of other etiology and the diagnosis will be frequently missed due to lack of suspicion. The present study was designed to define role of mycobacterium tuberculosis is the etiological agent for liver abscess in this patient with no evidence of active tb elsewhere in the body and According to" liver abscess caused by tuberculosis and meliodosis" there seems to be a rise in liver abscess caused by mycobacterial organisms probably by increasing number of immunocompromised and elderly patients. According to an article acknowledgement of liver disease as an immunocompromised host and identification and treatment of complications can positively change the outcome of sepsis in liver disease.

According to an article sepsis and bacterial infections are responsible for 20% of cases of jaundice.

CONCLUSION

Our study concluded regarding the case of the patient that Diabetes is associated with an increased risk of the combined outcomes of treatment failure and death during TB treatment as well as relapse. Considering the increasing disease burden of DM, particularly in areas with highly prevalent TB, TB control programs will need to expand their efforts and focus on treating and monitoring patients with DM and TB disease.

The prognosis of a hepatic tubercular abscess is excellent for the majority of patients if

diagnosed early. Attenuating liver injury and restoring the balance of liver pro inflammatory and anti-inflammatory responses will lower sepsis rate by regulating systemic immune response.

Therefore here a routine screening of patients should be implemented to avoid complications which may even lead to death of the patients.

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