

Does Paracentesis Treatment of Ascites Increase the Risk of Spontaneous Bacterial Peritonitis in Cirrhosis of Liver?

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Abstract

Paracentesis (with diuretic therapy) has obvious advantages over diuretic therapy alone. The aim of this case report is to draw attention to possible increased risk of spontaneous bacterial peritonitis (SBP) with paracentesis. With diuretic therapy alone, protein in ascitic fluid increases and perhaps decreases the risk of SBP.

Introduction

Occurrence of ascites is an important and serious event in the life history of cirrhosis of liver; the expected survival is 50% and 30% at 2 and 5 years respectively.¹ Treatment options available are: diuretic therapy, paracentesis (small or large volume), transjugular intrahepatic portosystemic shunt (TIPS), peritoneovenous shunt (PVS) or surgery (shunt or transplantation).

Case Report

Forty-six year old male consuming more than 80 gm alcohol per day for more than 10 years, presented with history of mild jaundice since 7 months, oedema feet and swelling of abdomen for 1 month. There was no history of abdominal pain, fever, oliguria, haematemesis, melaena or altered sensorium. Examination revealed deep icterus, spider naevi, and bilateral pedal oedema. Spleen was palpable 3 fingers and moderate ascites was noted.

Investigations: Haemoglobin 11.9 gm%, Whole blood count 5960/cum, Platelet count 1,30,000/cum and INR of 3.4. Total (Direct) bilirubin 8.1 mg/dL (5.6 mg/dL), Serum (albumin) protein 8 g/dL (2.8 g/dL), AST 129 U/L, ALT 41 U/L, alkaline phosphatase 169 U/L. Serum creatinine 0.6 mg/dL. Ultrasonography of abdomen showed hepatomegaly with coarse

echotexture and nodular surface, spleen size 18 cm, gross ascites and left sided pleural effusion. His Alpha foetoprotein was normal and viral markers for Australia antigen, anti-HCV was negative. Isotope liver-spleen scan showed enlarged liver with extremely poor liver uptake "medical hepatectomy", splenomegaly with marked colloidal shift and bone marrow visualized.

Discussion

Small or large volume (with albumin infusion) paracentesis is the most popular treatment. It is easy to perform, without appreciable risk, cause minimal side-effect, widely available, not requiring admission in a hospital and is cheaper than TIPS or surgical intervention. The well recognized disadvantages of this method are possible increase in serum creatinine (especially without albumin infusion), electrolyte imbalance and the high cost of 20% human albumin (6 g/litre) required. Whether paracentesis also increase the risk of SBP is discussed.

Our patient showed the development of spontaneous bacterial peritonitis (SBP) after two paracentesis performed within two weeks. Ascitic fluid albumin was less than 1 g since admission. Repeated small or large (5 litres or more) volume paracentesis depletes

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Table 1 : Ascitic fluid protein and cell count

Date	14.03.06	20.03.06	22.03.06	25.03.06	31.03.06	0.04.06
Amount (ml)	30	80	3000	2300	30	05
Total cells (P/L %)	430 (20/80)	330 (15/85)	160 (20/80)	264 (60/40)	5480 (85/15)	7750 (85/15)
Protein	1.4	1.2	1.2	1.0	1.8	1.9
Albumin	0.6	0.5	0.5	0.5	0.7	0.7

Culture was negative, P=Polymorph; L=Lymphocytes

*Intravenous albumin received from 13.03.06 onwards.

protein from a patient whose serum albumin is low due to poor synthesis in the liver. Since opsonic activity of peritoneal fluid is directly proportional to the albumin level in ascitic fluid, repeated paracentesis is likely to increase the risk of SBP.²⁻⁴ In contrast, when ascites is controlled with adequate doses of diuretic therapy (spironolactone and furosemide), albumin content of ascitic fluid increases⁵ and hence perhaps reduce the risk of SBP. Ascitic fluid IgG, IgA and C3 concentrations significantly increased on diuretic therapy alone.^{1,6}

In our patient, it is difficult to conclude whether SBP occurred during life history of cirrhosis or was precipitated by repeated paracentesis. The observations in our patient emphasise the need to assess the incidence of SBP in patient treated with repeated paracentesis (with diuretic therapy) versus those treated with diuretic therapy alone.

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References

1. Cardenas A, Gines P. Management of refractory ascites. *Clinical Gastroenterology and Hepatology* 2005; 3 : 1187-91.
2. Ljubicic N, Bilic A, Kopjar B. Diuretics vs paracentesis followed by diuretics in cirrhosis: Effect on ascites opsonic activity and immunoglobulin and complement concentrations. *Hepatology* 1994; 19 : 346-53.
3. Llach J, Rimola A, Navasa M, *et al.* Incidence and predictive factor of first episode of spontaneous bacterial peritonitis in cirrhosis with ascites: relevance of ascetic fluid protein concentration. *Hepatology* 1992; 16 : 724-7.
4. Llach J, Rimola A, Navasa M, *et al.* Incidence and predictive factors of first episode of spontaneous bacterial peritonitis in cirrhosis with Ascites: relevance of ascitic fluid protein concentration. *Hepatology* 1992; 16 : 724-7.
5. Andreu M, Sola R, Sitges-Serra A, *et al.* Risk factor for spontaneous bacterial peritonitis in cirrhotic patients with Ascites. *Gastroenterology* 1993; 104 : 1133.
6. Runyon BA, Antillon MR, Montno AA. Effect of diuresis versus therapeutic paracentesis on ascitic fluid opsonin activity and serum complement. *Gastroenterology* 1989; 97 : 158.

EXPRESS TREATMENT AFTER TIA AND MINOR STROKE

There is a high risk of recurrent stroke in the week after a transient ischaemic attack (TIA) or minor stroke. Existing preventive treatments could reduce the risk by 80-90% but, in the absence of evidence, many healthcare systems make few such provisions.

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