Case report

Chylous ascites after an H-graft interposition mesocaval shunt

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SUMMARY A case of chylous ascites occurring after an emergency mesocaval shunt is reported. After an attempt at conservative management had failed, the patient was surgically explored. Although a lymphatic leak could not be identified, oversewing the retroperitoneum in the area of previous dissection and reinforcement with an omental pedicle was successful in preventing postoperative reaccumulation of chylous ascites. A review of the 26 reported cases of postoperative chylous ascites indicates a spontaneous resolution rate of 41% with non-operative management including low fat diet, paracenteses, and total parenteral nutrition. If conservative measures fail, surgical repair of the traumatised lymphatic bed has been successful.

We report here the first case of chylous ascites occurring after an H-graft interposition mesocaval shunt for variceal haemorrhage. The 26 reported cases of postoperative chylous ascites, including three cases after portosystemic shunts, are reviewed, and the management of this rare complication is discussed.

Case report

The patient, a 34-year-old man with macronodular cirrhosis established by biopsy and with minimal histological evidence of activity, underwent an emergency H-graft interposition mesocaval shunt for recurrent variceal haemorrhage on 18 September 1979. Examination before surgery revealed good nutrition, several facial spider angiomas, but no icterus or oedema. The abdomen was flat with equivocal findings of ascites. The liver and spleen were not palpably enlarged. Serum bilirubin was 1.1 mg/dl, SGOT 70 IU/l ($n < 40$), alkaline phosphatase 76 IU/l ($n < 80$), serum albumin 3.0 g/dl, and prothrombin time 11.5 s. Postoperatively, the serum

bilirubin transiently rose to 3.8 mg/dl, but the results of several liver function studies determined during subsequent hospitalisations remained near normal. His postoperative course was generally uneventful except for the development of overt ascites. He was discharged 5 October 1979, on diuretics and sodium restriction.

On 28 November 1979, he was readmitted for evaluation of tense ascites, without dependent oedema, which did not respond to treatment with spironolactone 100 mg thrice daily and furosemide 40 mg twice daily. Four spot urinary sodium concentrations ranged from 77 to 187 mmol/l. A diagnostic paracentesis revealed milky fluid with a triglyceride content of 2548 mg/dl and protein, 3.2 g/dl. Initial therapy for chylous ascites included a low fat, low sodium diet supplemented with medium chain triglycerides, spironolactone, and furosemide. Approximately 15 l of ascitic fluid were withdrawn by five alternate day paracenteses. Rapid reaccumulation of fluid was apparent even by the time of discharge on 12 December 1979.

Within 10 days his abdomen was tense again, and he was readmitted for an attempt at surgical repair of the presumed iatrogenic lymphatic leak. Preoperatively 12 l of milky ascitic fluid were aspirated by four paracenteses. On 8 January 1980, an exploratory laparotomy was performed. An additional 2500 ml of chylous ascites was removed

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and the previous operation site was examined. The mesocaval shunt was patent and functional. No specific lymphatic channel leakage was identified. The retroperitoneum in the area of the previous dissection adjacent to the inferior vena cava was oversewn with multiple 4/0 silk sutures. This was additionally reinforced by suturing an omental pedicle over the retroperitoneal site.

In the early postoperative course he gained 1.8 kg (4 lb) and developed ascites. A paracentesis on the sixth postoperative day revealed 500 ml of blood-tinged but otherwise non-turbid fluid. He was discharged on the 16th postoperative day on spirinolactone and furosemide.

There was no clinical evidence of ascites two weeks after discharge and the diuretics were withdrawn. By 11 June 1980 he was still free of ascites.

Discussion

The development of overt chylous ascites after abdominal surgery is a rare event with only 26 cases being reported in the literature (Table 1). Most often the surgical procedures involved extensive retroperitoneal or mesenteric dissection especially for tumour,¹⁻¹⁵ the notable exceptions being four cases of chylous ascites after vagotomy¹⁶⁻¹⁹ and one after peritoneal dialysis.²⁰ Chylous ascites usually occurs in the immediate postoperative period, but the diagnosis may be delayed for several months (Table 1). The pathogenesis is generally thought to be transection of lymphatic channels at the time of surgery. There may be no symptoms apart from intractable ascites, so that paracentesis is essential for diagnosis.

Table 1 Operations involved in development of postoperative chylous ascites

Operation	Cases (no.)	Onset of ascites (weeks)	References
Portosystemic decompression	4	2-7 d	1-3*
Abdominal aortic aneurysm repair	4	2-6	4-7
Retroperitoneal lymph node dissection	6	1-8	8-11
Vagotomy	4	1 d-6	12-15
Miscellaneous			
Coeliac ganglionectomy	1	4 d	16
Repair of malrotation	1	8	17
Small bowel resection	1	12	17
Radical nephrectomy	1	10 d	18
Pancreatoduodenectomy	1	4	19
Peritoneal dialysis	1		20
Unspecified	2		21

* Present case.

Three cases of chylous ascites after portosystemic decompression have been reported: two after distal splenorenal shunt^{2,3} and one after central portocaval anastomosis.¹ We are reporting the first instance of chylous ascites after an H-graft interposition mesocaval shunt. Warren notes the frequent development of ascites after distal splenorenal shunt and warns that intractable ascites after shunting may be due to chylous ascites.²² The incidence of clinically insignificant, transient, lymphatic leakage into the ascitic fluid is unknown. Chylous ascites may occur spontaneously in patients with hepatic cirrhosis,^{13,23} but it is so rare that it is unlikely to be a coincidental postoperative occurrence in patients undergoing a portosystemic shunt.

As the natural history of postoperative chylous ascites is poorly documented, it is difficult to establish a rational approach to management. A low fat diet with medium chain fatty acid supplement has been used to reduce lymphatic flow, and thus to facilitate sealing of the severed lymphatics. This dietary manipulation, with^{6,8} or without^{9,10,14,15} paracentesis, was associated with resolution of the chylous ascites in six of 15 patients (Table 2). Paracenteses alone may have been useful in four of 12 patients,^{1,5,10,16} and recently a favourable response to total parenteral hyperalimentation was reported in two patients.^{3,7} These non-operative forms of therapy usually require weeks to months before resolution of ascites, and their specific contribution, if any, to the healing of the lymphatic leak is not known. Nevertheless, as spontaneous resolutions may occur, an initial attempt at non-operative treatment seems justified.

A peritoneovenous shunt (LeVeen shunt) has been used with apparent success in two patients; one, after retroperitoneal lymphadenectomy¹¹ and the other with intractable congenital chylous

Table 2 Success rate of various treatments in postoperative chylous ascites

Initial operation	Conservative treatment			
	Diet	Para-centesis	TPN*	Surgical repair
Portosystemic decompression	0/2	1/2	1/1	1/1
Aortic aneurysm repair	1/4	1/4	1/1	1/1
Retroperitoneal lymph node dissection	3/4	1/1		
Vagotomy	0/1	1/3		3/4
Miscellaneous	2/4	0/2		2/2
	6/15	4/12	2/2	7/8
Total attempts		12/29		7/8

* TPN: total parenteral nutrition.

ascites.²⁴ A degree of circumspection must be maintained, however, in view of the distressing results of earlier attempts at reinfusion of patients with chylous ascites, including one case of fatal anaphylaxis.^{13 25}

When postoperative chylous ascites persists despite conservative measures, such patients should be considered for surgical exploration in an attempt to identify and seal off the lymphatic leak. Pre-operative intragastric instillation of fat¹⁹ or fat-soluble dyes,^{12 17} might be useful in localising the site of leakage. This was not used in our patient and the specific lymphatic channel leakage was not identified. Nevertheless, oversewing of the retroperitoneal area at the site of previous surgical dissection was sufficient to cure the patient. Similar surgical repair of the traumatised lymphatic bed was successful in seven of eight patients with postoperative chylous ascites reported in the literature.^{4 13 17}

In summary, postoperative chylous ascites is uncommon and requires diagnostic paracentesis for confirmation. A low fat diet, intravenous hyperalimentation, and paracenteses may help in spontaneous sealing of the lymphatic leakage. Patients with intractable ascites may be surgically explored with reasonable expectation of cure.

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