

**Original Research Article****Role of Saphenoperitoneal Shunt in Management of Refractory Ascites**Ibrahim SMA<sup>1</sup> (✉), Harunarashid H<sup>2</sup><sup>1</sup>Vascular Unit, Khartoum Teaching Hospital, Khartoum, Sudan<sup>2</sup>Department of Surgery, Universiti Kebangsaan Malaysia Medical Centre, 50600 Cheras, Kuala Lumpur, Malaysia**Abstract**

Refractory ascites is difficult to treat by restriction of salt and repeated paracentesis which have been the mainstay of treating it for a long time. Sapheno-peritoneal shunts have been performed in patients with refractory ascites. Here, we evaluated the use of saphenous vein to be anastomosed to the peritoneum to drain the refractory ascites. Nine patients (7 male, median age 45 years, range 17 - 69) with tense refractory ascites associated with liver cirrhosis, periportal fibrosis and end stage renal diseases underwent sapheno-peritoneal anastomosis by mobilizing and rotating the proximal vein in order to be anastomosed to peritoneum in the lower abdomen. All procedures were performed under local anaesthesia. Thirty-day mortality was 22% (2) patient. Morbidity included fluid leakage in 1 (11%), and wound infection in 1 (11%). Hospital stay (median) was 16 days (range 11 to 23). In the short term (median of 2 months) significant reduction in body weight and abdominal girth was seen in 9 (90%), 6 (60%) were not on diuretics while 3 (30%) continued to remain on reduced doses of diuretic. Furthermore, 7 (70%) did not require paracentesis. At 2-year follow-up, 5 (45%) patients died and 3 succumbed during follow-up. The remaining 3 were all in active employment, 1 was off diuretics, and 2 were on reduced doses. All 3 patients maintained reduced body weights and abdominal girths compared with preoperative values. Saphenous-peritoneal shunt appears a simple, safe, and cost effective method of achieving long-term control of refractory ascites. The use of autogenous shunt is an added advantage over prosthetic shunts for drainage of ascitic fluid.

**Keywords:** Ascites, sapheno-peritoneal shunt, anastomoses, peritoneum, abdomen.**Correspondence:**

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Date of submission: 27<sup>th</sup> March 2011Date of acceptance: 16<sup>th</sup> Sept 2011Date of publication: 3<sup>th</sup> Oct 2011**Introduction**

Sapheno-peritoneal shunt plays a major role in management of refractory ascites secondary to liver cirrhosis, periportal fibrosis or ESRD (1, 2, 3, 4). It is a drainage procedure with return of the ascetic fluid into the circulation depending on pressure gradient between the peritoneal cavity and the venous system, there some system which permit active flow management like denevers shunt) (5,6). However, the only disadvantage is the higher cost. Sapheno-peritoneal shunt is an option where the native long saphenous vein is used as a

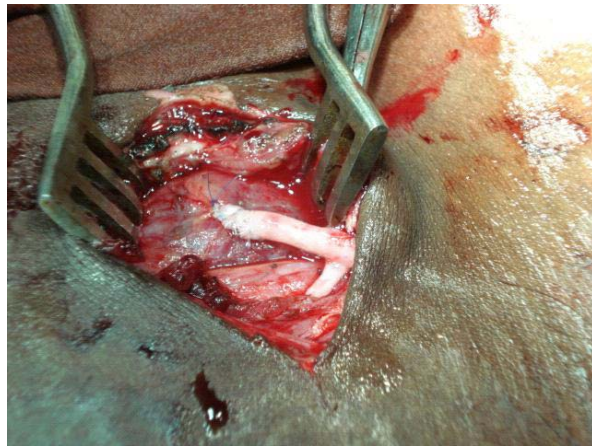
drainage procedure with one way ascites flow guarded by the natural saphenous vein valves (7,8).

**Materials and Method**

Between 2009 and 2011, we performed -peritoneal shunts in 9 patients (7 patients with liver cirrhosis and 2 with end stage renal disease) (Fig1). The criteria considered for performing SFS included assessment of patency of the femero-iliocaval venous system and a good length of the long saphenous vein with sufficient, competent valves.



**Figure 1:** A patient with refractory ascites



**Figure 2:** The saphenous vein being anastomosed to the peritoneum

The procedure was performed under local anaesthetic infiltration using marcaine and lidocaine according to the body weight. All patients received antibiotics preoperatively; the long saphenous vein was exposed through a vertical incision. All branches were ligated and divided about 15- 20 cms from the sapheno-femoral junction, then flushed with heparin- saline and competence of the valves was checked by absence of retrograde flow.

The peritoneal cavity was approached through a small oblique lower abdominal incision, dividing the external, internal oblique and transverse abdominis muscles till the parietal peritoneum was exposed. A tunnel was made between the two incisions bringing the long saphenous vein towards the abdomen, avoiding any bend. The peritoneum was opened and anastomosed with the spatulated saphenous vein using prolene 6/0. This procedure was facilitated by

positioning the patient in Trendelenburg's position (Fig 2, 3).

The wounds were closed in layers without any drain. Follow up of the patients were done by assessing the symptoms:- dyspnoea, abdominal distension in the ability to perform daily activity and signs abdominal girth, vital signs, blood pressure, urine output renal profile and total protein and albumin level, and the need for paracentesis.

## Results

SFS was performed in 9 patients, 7 of them were males and 2 were females (age range from 17 - 65 years). Seven of them were having liver cirrhosis and periportal fibrosis and 2 with end stage renal diseases. Procedures were successful in all patients, one patient hds leak from the wound. Three patients died, 2 of them due to liver failure and septic shock 2 weeks following the procedure, while the 3<sup>rd</sup> one after 3 month due to end stage renal disease and abdominal tuberculosis. All patients showed remarkable improvement regarding their symptoms with sound decrease in the abdominal girth and improvement in the urine output, blood pressure, and level of consciousness, renal profile and liver function.

One patient had a leak from the anastomosis site which required a revisionary exploration 6 patients discharged in 3<sup>rd</sup> post operative day in a good condition. Short term followup within 3 months showed functioning shunt in 5 patients without any need for paracentesis. Only in one patient the shunt was blocked after 10 weeks and required paracentesis.

## Discussion

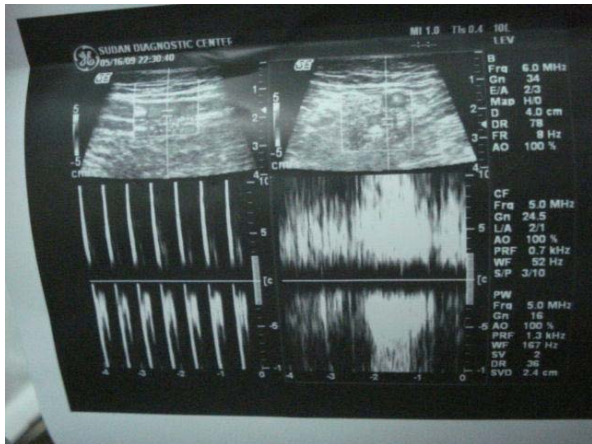
Refractory ascites is a clinical condition for which a few number of therapeutic options may be offered such as; diuresis and sodium restriction, paracentesis and surgical shunts (Le veen shunt, Denever shunt and saphenoperitoneal shunt (2, 3, and 4).

The absence of a single, effective treatment for this condition is due to the complexity of its nature (3, 4).

saphenopertoneal shunting has been mentioned in the literature as an effective procedure with many physiological benefits in term of increasing renal blood flow, retaining albumin and nutrients and improving nutritional status, encouraging mobility and respiration, increasing diuresis, decreasing attempts of paracentesis, hospital stay and risk of infection (7,8).



**Figure 3:** Groin and abdominal incisions with the vein being tunneled



**Figure 4:** Doppler ultrasound showing flow in the sapheno-peritoneal shunt

saphenoperitoneal shunt seems to be as a safe, simple and effective method for management of refractory ascites, the use of the autogenous saphenous vein for drainage adds more advantages over the synthetic ones (8).

Here in our study, the patients are selected, history and physical examination are obtained, doppler ultrasound for the saphenous vein, femoral vein to rule out any disease or occlusion. Post operatively patients are followed up by serial measurement of the abdominal girth, blood pressure, urine output, full blood count and liver function tests and doppler ultrasound to assess the patency of the shunt (Fig 4).

Thirty-day mortality was 22%. Morbidity included wound leak 11% and wound infection in 11%.

Hospital stay was 7 days (range 3 to 21). Compared with the other studies, hospital stay in our study is a little bit shorter (9), there is also remarkable improvement in urine output, blood pressure and the blood parameters and a decrease in morbidity (8). These complications are preventable and do not affect the general outcome. Zervos et al reported loss of function due to occlusion in 52 %, infection in 18% and in other series mortality rate was 60 % (9).

### Conclusion

Sapheno-peritoneal shunt seems to be a good procedure for management of refractory ascites, it is cheap, effective and convenient for the patient besides being done under local anaesthesia. Further comparative studies are required to validate these results so as to encourage using this technique.

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