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CASE REPORT

The use of autologous rectus facia sheath for replacement of inferior caval vein defect in orthotopic liver transplantation

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Summary

Occasionally, during liver transplantation, vascular reconstructions have to be performed. Donor vessels can be harvested for this purpose. However, when these are lacking, alternatives should be available. A possible alternative can be the use of autologous rectus fascia sheath, folded as a tube with the mesothelium on the inside. Earlier experimental studies from our centre showed the successful use of the rectus fascia sheath graft in vascular defects in animal experiments. This report describes the first use of this autologous tubular graft for replacement of the inferior caval vein interponate during liver transplantation in men.

Introduction

Occasionally, during liver transplantation vascular reconstructions have to be performed. When donor or autologous vessels are lacking alternatives should be available.

Case report

A 28-year-old woman was referred for transplantation because of a Budd–Chiari syndrome. An ABO identical donor liver became available but, the donor inferior caval vein (ICV) segment was short. Explantation of the huge (4.7 kg) native liver was technically demanding, resulted in a larger than expected defect in the recipient ICV.

Because suitable vascular grafts were not available an autologous rectus fascia sheath (ARFS) was harvested from the recipient abdominal wall. A 3.5 cm long tubular interponate was constructed with the mesothelium at the inner side and anastomosed to the infra hepatic ICV of the donor liver. The implantation was performed according to standard techniques. Immunosuppression consisted of tacrolimus and prednisolon and the patient was put on anticoagulation with dalteparin-sodium (5000 IU/day, Fragmin, Pharmacia, Ravensburg, Germany). The postoperative course was uneventful. Repeated Doppler ultrasound investigations showed a normal flow rate of 35 cm/s in the ICV and interponate. The diameter of the interponate (10 mm) was narrower as compared with the native ICV (18 mm) without signs of thrombosis. After 3 weeks the patient was discharged. Cavography at 3 months showed a further narrowing of the ARFS to 7 mm, however with the same adequate flow. To prevent further narrowing an expandable metal stent (Wallstent, Boston Scientific, Galway, Ireland) was placed (Fig. 1).

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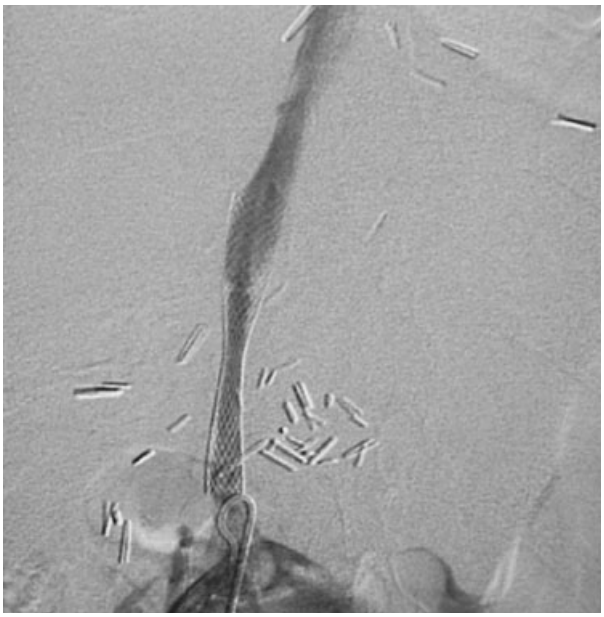

Figure 1 Cavography after the stent implantation (3 months postoperatively).

More than 1 year (15 months) update with interval now after transplantation the patient is doing well with normal blood flow in the ICV.

Discussion

For vascular reconstructions donor and autologous vessels are the preferred interponates during liver transplantation [1,2]. The results with these vascular grafts are acceptable [1–3]. Cryopreserved grafts are used as well, but the quality and size of these vessels varies [4]. Interposing of a ringed polytetrafluorethylene (PTFE) prosthesis can be used as well, if there is no sign of infection [5,6]. Another successful alternative for vena cava reconstruction can be the use of a vena saphena magna spiral graft [7,8].

Cousar and Lam reported the first use of the rectus fascia in experimental surgery [9]. Clinical series were reported, mostly in pediatric congenital heart defect repairs [10]. Experiments were carried out with the ARFS as an aortic replacement in which parallel growth with the aorta was described [11]. The idea to use ARFS in liver transplantation was based on the above described observations. For experimental investigations arterial interponates constructed from ARFS were examined under immunosuppression [12,13]. The reported results showed an acceptable patency rate of these grafts with low thrombogenicity. This favorable outcome of our experiments justified the use of ARFS graft in the presented clinical case.

In conclusion, this report shows that the ARFS tubular graft is easy to obtain, has so far not created extra morbidity and can be used in liver transplantation in cases when no other alternatives are available. Furthermore, never can be better than a fresh auto or allogenous vascular graft.

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