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Right lobe living-related liver transplantation in a Jehovah's Witness

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Dear Editors:

Jehovah's Witnesses (JWs) refuse transfusions of homologous and autologous blood and blood products that have been removed from continuity with the body. They accept crystalloid solutions, synthetic colloid solutions, hemoglobin substitutes such as perfluorocarbons or artificial hemoglobin solutions, and recombinant proteins such as erythropoietin or recombinant factor VIIa. Individual decisions need to be made regarding administration of purified fractions of plasma, such as immunoglobulins and albumin, or solid organ transplants. Liver transplantation (LT) has been performed in some highly selected and prepared JW recipients [1]. In this report the authors describe the successful transplantation of a young adult using a right liver lobe harvested from her father.

A 17-year-old JW girl (60 kg, 180 cm) was suffering from end-stage liver disease secondary to cirrhotic autoimmune hepatitis. Liver failure was complicated by severe portal hypertension, hypersplenism, thrombocytopenia (15,000 platelets/mm^3), and refractory ascites. She refused the use of any blood product other than purified albumin. In preparation for LT, she underwent iron, folic acid, and erythropoietin therapy, and spleen embolization (Fig. 1), as described [1], to increase hematocrit and platelet count, respectively. At first, she was listed for cadaveric whole liver transplantation. Her condition deteriorated to Child–Pugh C liver failure, and living-related LT was considered. Her father (90 kg, 190 cm) proposed himself for donation and was compatible. Right lobe procurement was considered to provide sufficient liver mass to allow immediate liver function, and the procedure of living-related LT was performed on 1 March 2002, using the described technique [2]. For right lobe harvesting, hemostasis of the cut surface of the liver was achieved by contact radiofrequency (TissueLink Floating Ball, Tissuelink, Dover, N.H.). The right lobe (segments V–VIII) weighed 1244 g, i.e., 2% of the recipient body weight. In the recipient procedure, 20 μg/kg recombinant activated factor VII (Novoseven, Novo Nordisk, Denmark) was injected at the beginning of dissection and at reperfusion. A temporary surgical end-to-side portocaval shunt was created to decompress the splanchnic circulatory bed during dissection [3]. Continuous-circuit cell salvage, high-dose aprotinin, and argon beam coagulation were also used to limit blood loss during the procedure. Right lobe graft function was immediate. No transfusion of allogeneic red cells, platelets, or fresh frozen plasma was needed either in the donor or the recipient, in accor-

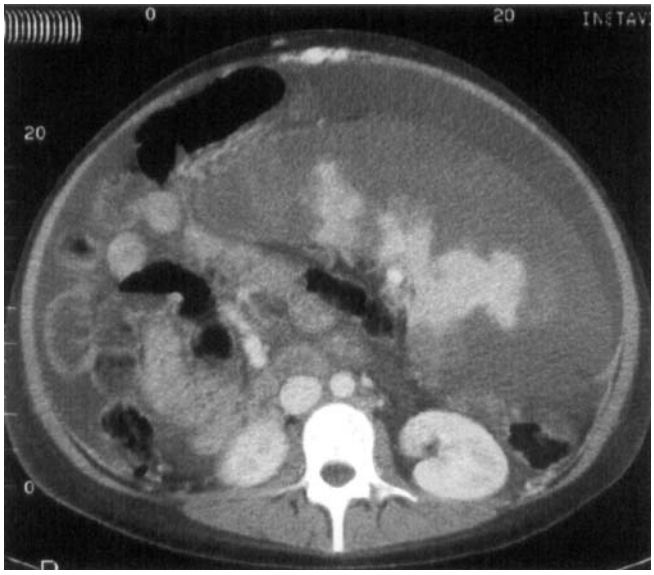

Fig. 1 Abdominal computed tomodensitometry showing 80% spleen embolization of the enlarged spleen and ascites

dance with the patients' beliefs. Both patients left the ward on postoperative day 14, without any complication, and both were in perfect condition with normal liver tests at 1 year of follow-up.Patients undergoing LT suffer from severe multiple coagulation disturbances [4] and often require the use of large amounts of blood products. Preparation of JWs for LT may include erythropoietin therapy and subtotal arterial spleen embolization to increase hematocrit and platelet count [1]. Aprotinin showed efficacy in reducing bleeding during LT [5]. The intraoperative use of recombinant factor VIIa, which was shown to correct coagulation in cirrhotic patients [6], may in part substitute for fresh frozen plasma or other coagulation factors. Bypass avoidance and surgical portal decompression may also reduce intraoperative blood loss. Living-related LT allows the procedure to take place at the best time for both donor and recipient, and this is particularly crucial in JW patients. Particularly, the most experienced surgeons and anesthesiologists may then all be present in the operating room.In JWs particularly, living-related LT requires the harvesting of sufficient liver mass to avoid small-for-size syndrome and primary graft dysfunction, as no coagulation factors or blood may be used in the early postoperative period. The relatively large liver mass provided in this case may have been a key factor for the success of living-related LT in a JW.

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