Disclosures

- No disclosures
53 M presents with sudden onset of upper abdominal pain

PMHX
- 12 lb weight loss over 3 months
- HTN
- Basal cell carcinoma
- Kidney stones
- No ETOH or hepatitis
Labs

- 8 > 46 < 273
- PT – 13.2
- Albumin – 4.4
- Total Bilirubin – 0.4
- Cr – 1.6 mg/dl

CT scan was obtained
Biopsy

- Presence of intra-nuclear cytoplasmic inclusions in an epithelial tumor
- Canalicular pattern of CEA staining
- Non-cirrhotic background

Dx- hepatocellular carcinoma – fibrolamellar variant
Fibrolamellar Hepatoma

- 0.9% of all HCC cases reported
- Mean age 39 years
- Occurs in non-cirrhotic livers
- No AFP elevation
- More indolent with slower growth
- Vascular invasion and/or positive lymph nodes is predictive for recurrent disease after resection

Stage

- **I** – any size – no vascular or nodal involvement
- **II** – single tumor < 5 cm // + vascular invasion // - nodes
- **III** – multiple tumors or > 5 cm // + vascular invasion and nodes
- **IV** – metastatic disease

Live Donor Liver Transplant

- Unsuitable for partial hepatectomy
- Transplantation with complete resection of the tumor and retrohepatic vena cava
- Curative procedure
- 27 yo son volunteered for right hepatectomy and live donation
12.5 cm tumor involving both right and left lobes as well as caudate lobe and encasing retrohepatic vena cava

Adventitia of vena cava infiltrated with tumor but did not extend through vena caval wall

Hilar lymph nodes negative for tumor
MIDDLE HEPATIC VEIN RECONSTRUCTION IS NOT ESSENTIAL FOR RIGHT HEPATIC LOBE LIVE DONOR LIVER TRANSPLANTATION

SINGLE CENTER EXPERIENCE OF 109 CASES
Introduction

- Surgical approach to the MHV in right hepatic lobe ALDLT is controversial

- Some centers outside the United States report
  - the MHV should be included in the graft
  - drainage of the MHV is required to prevent graft congestion

• We include only the right middle hepatic vein branch(es) (RMHVB) that drain segments 5 and 8
• Transect these branches at their junction with the MHV or as they enter segment 4
• RMHVB are oversewn without reconstruction
Methods

• 109 ALDLT with right lobes
• 1997-2005
• 1st ten transplants did not include the RMHVB
• Next 99 transplants included the RMHVB
ADULT LIVING DONOR LIVER TRANSPLANTATION USING A RIGHT HEPATIC LOBE

MICHAEL E. WACHS, THOMAS E. BAK, FREDERICK M. KARRER, GREGORY T. EVERS ON, ROSHAN SHRESTHA, THOMAS E. TROUILLOT, M. SUSAN MANDELL, TRACY G. STEINBERG, AND IGAL KAM

Background. Living donor liver transplantation has gained wide acceptance as an alternative for children with end-stage liver disease. The standard left lateral segment used in this operation does not provide adequate parenchymal mass to broaden its application to larger children or adults.

Methods. We report two cases of adult to adult living donor liver transplantation using a right hepatic lobe in patients with chronic liver disease.

Results. Both recipients experienced excellent initial graft function and have normal liver function 4 and 9 months postoperatively. Both donors are alive and well and returned to normal life 4 weeks postoperatively.

Conclusions. Our initial experience suggests that this technique is a safe and reliable option for adults with chronic end-stage liver disease. A conservative application of this procedure in the adult population could significantly reduce the mortality on the adult waiting list.

CASE REPORTS

Case 1. The first recipient was a 44-year-old Caucasian female with end-stage liver disease caused by hepatitis C infection. At the time of presentation, she was 162.5 cm tall and weighed 60 kg. Her liver volume by computed tomography (CT) scan was 1050 ml. Her prothrombin time was 20.5 sec, bilirubin 4.0 mg/dl, and serum albumin 2.5 mg/dl. A liver biopsy confirmed cirrhosis. Her symptoms included fatigue, ascites, and peripheral edema responsive to diuretics. Her blood type was O+, and, after completion of her evaluation, she was placed on the cadaveric waiting list.

While on the waiting list for 1 year, the patient developed worsening fluid retention, encephalopathy and profound hypersplenism (white blood cell count of 2000 and a platelet count of 1400). Despite her worsening condition, she did not meet the criteria for either “hospital-bound” or “intensive care unit-dependent.” Her deteriorating condition prompted discussions with the patient and her family regarding the option of living donor liver transplantation. Two siblings were interested in donation, but only her sister was ABO compatible. She was evaluated as a potential living liver donor.
Donor Operation – Initial Experience (10 cases)

This dissection did not include the RMHVB in the graft.
Shift – to run left of the RMHVB that drain segments 5&8.
Adult-to-Adult Living Donor Liver Transplantation
Using Right-Lobe Grafts: Results and Lessons Learned
From a Single-Center Experience

Thomas Bak,* Michael Wachs,* James Trotter,† Gregory Everson,†
Thomas Trouillot,‡ Marcelo Kugelmas,† Tracy Steinberg,* and Igal Kam*

Living donor liver transplantation (LDLT) for adults is now a practical alternative to cadaveric liver transplantation. Use of right-lobe grafts has become the preferred donor procedure. Because of the complexity of this operation, a learning curve is to be expected. We report the outcome of our first 41 LDLTs at the University of Colorado Health Sciences Center (Denver, CO). We also discuss the lessons learned and the resultant modifications in the procedure that evolved during our series. Patient records were retrospectively reviewed between August 1997 and February 2001 for the following endpoints: recipient survival, graft survival, and donor and recipient complications. Thirty-eight of 41 living donor liver transplant recipients (93%) are alive and well postoperatively with a mean follow-up of 9.6 months. Four patients required retransplantation secondary to technical problems (9.8%); all 4 patients were in our initial 11 cases. Modification of the donor liver plane of transection resulted in venous outflow improvement. Also, biliary management was modified during the series. Donor complications are listed; all 41 donors have returned to normal pretransplantation activity. Our results indicate that LDLT can be performed safely with excellent donor and recipient outcomes. Dissemination of our experience can help shorten the learning curve for other institutions. (Liver Transpl 2001;7:680-686.)
Donor Operation- Current Experience (99 cases)

- Right lobe is resected to include RMHVB
- Line on transection runs left of the gallbladder fossa and right of the MHV
- RMHVB are transected before they enter segment 4
Recipient Operation: Hepatic Venous Drainage

- Piggy Back
- The graft’s RHV anastomosed to the recipient's extended RHV orifice
- Reversal of flow
Recipient Operation: Hepatic Venous Drainage - POD 1
Results

• No donor deaths from surgery

Recipients:
• 3 month survival is 107/109 - 98%
• 1 year survival is 98/103 - 96%
• Overall survival is 86%
Results

• First ten transplants were without RMHVB
• 3 month re-transplant rate was 3/10
• Two of these transplants were for acute graft failure secondary to venous congestion
Results

• Next 99 transplants included RMHVB in the graft
• 3 month re-transplant rate was reduced to 8%
• There were no grafts lost to venous congestion in this second group
Conclusions

1. A normal sized RHV (>1 cm) can obtain adequate graft outflow
2. There is reversal of flow from the RMHVB to the RHV systems from venous collaterals
3. There is no need for complex venous reconstructions using this technique which allow for a shorter, safer operation