Intrahepatic bile duct strictures after human orthotopic liver transplantation

Recurrence of primary sclerosing cholangitis or unusual presentation of allograft rejection?


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Abstract. One of 55 patients transplanted for sclerosing cholangitis during the cyclosporin-steroid era (March 1980–June 1986) developed intrahepatic biliary strictures in the absence of allograft rejection within the 1st year posttransplantation. Although many causes underlie biliary pathology in the postoperative period (i.e., arterial injury, ischemia, chronic rejection, cholangitis), recurrent disease remains a possibility.

Key words: Human orthotopic liver transplantation - Complications - Biliary tract - Primary sclerosing cholangitis - Recurrent disease - Rejection.

Biliary tract complications after orthotopic liver transplantation (OLT) are frequent; they are mostly due to inappropriate reconstruction of the extrahepatic bile duct [1]. Recurrent disease in the allograft is common after OLT in malignant biliary tract disease but is very rare in benign biliary tract disease [2–6]. A patient presenting with a possible recurrent sclerosing cholangitis some months after liver transplantation is discussed.

Case report

On August 21, 1984, a 34 year-old male underwent OLT with a graft of identical blood group, type A, for end-stage primary sclerosing cholangitis (PSC) (Fig.1). He had been under medical management for severe ulcerative colitis since the age of 21. His past medical history revealed an uncomplicated cholecystectomy at age 27 and an appendectomy for perforative appendicitis 2 years later. During the latter postoperative recovery he presented with jaundice, attributed to sclerosing cholangitis. Because of persistence of the jaundice, percutaneous biliary drainage was attempted in 1982 and 1983. Finally, a choledochojejunostomy was carried out using a transhepatic, transanastomotic U-tube, which was removed 4 months later. Repeated evaluations showed a progressive worsening of the liver disease, justifying a recommendation for treatment by OLT. The cholestasis worsened (total bilirubin, 23 mg%; alkaline phosphatases, 2020 IU). Osteoporosis was responsible for compression fractures of thoracic vertebrae 8–10 and an aseptic necrosis of the left femoral head. Gastrointestinal bleeding due to portal hypertension also occurred.

The liver grafting was uneventful: the allograft had a single arterial supply, the liver was reperfused after the completion of all four vascular anastomoses, and cold and warm ischemic times were within normal limits. The former Roux-en-Y-jejunal loop was reused for the end-to-side choledochojejunostomy. The anastomosis was carried out using a 12 French-feeding-tube stent and interrupted, absorbable 5-0 vicryl sutures. An intraoperative cholangiogram showed a normal intra- and extrahepatic biliary tree, an absence of leakage, and a patent anastomosis. The postoperative course was uneventful and the patient was discharged 20 days later with nearly normal liver function tests (LFT) [total/conjugated bilirubin (bil.t/conj), 1.7/0.9 mg%; alkaline phosphatase (alk.phos.), 17/9.9 mg%; alkaline phosphatase (alk.phos.) 228 IU; transaminases (SGPT/SGOT), 150/25 IU/l; Gamma-glutamyl-transpeptidase (GGTP), 64 IU; protime (PT), 11.4 s]. The rapid postoperative normalization of transaminases precluded major ischemic injury to the allograft during procurement and reimplantation.

On January 11, 1985, the patient was readmitted due to abnormal LFT (bil.t., 1.4 mg%; alk.phos., 725 IU; SGPT/SGOT, 400/268 IU/l; G GTP, 204 IU; PT, 12 s). The patient had no cholestatic symptoms. The biochemical abnormalities were attributed to impaired cyclosporin absorption due to large amounts of diarrhea associated with a flu. Adjustment of the cyclosporin dose was made to normalize liver function (bil.t./conj, 0.5/0.1 mg%; alk.phos., 341 IU; G GTP, 257 IU; SGPT/SGOT, 51/28 IU/l). A liver biopsy showed early changes of bile duct obstruction, such as duct dilatation, portal edema, marginal duct proliferation, and ductal ectasia. There were no remarkable signs of rejection, viral infection, or drug toxicity.

On February 20, 1985, the patient was rehospitalized due to persistent liver function abnormalities in the absence of clinical symptoms (bil.t./conj, 1.8/0.2 mg%; alk.phos., 587 IU; SGPT/SGOT, 462/321 IU/l; G GTP, 365 IU; PT, 11.4 s). A liver

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biopsy confirmed changes consistent with biliary obstruction; portal fibrosis had worsened. There were almost no signs of graft rejection. Direct visualization of the biliary system by transhepatic cholangiography revealed poor filling of the peripheral ducts and alternation of biliary tract strictures and dilatations. The extrahepatic biliary tract and choledochojejunostomy were normal. Brush cytology of the intra- and extrahepatic bile ducts was negative for tumor cells. Repeated Doppler ultrasonography showed normal arterial and venous allograft vascularization.

Beginning April 1985 the patient underwent a new transhepatic cholangiogram due to the development of cholangitis. The anastomosis was widely patent. On April 19, 1985, the stent was removed. A cholangiogram carried out at that time (Fig. 2) confirmed peripheral intrahepatic biliary strictures in the presence of a patent biliodigestive anastomosis. The internal stent migrated into the jejunal limb.

Histological examinations showed progression of the biliary obstruction and advancing portal fibrosis without evidence of graft rejection (Fig. 3). On one occasion, a lymphogranulomatoid nodule was seen near an interlobular bile duct (Fig. 4). Portal inflammation was otherwise minimal. More than 3.5 years posttransplantation, the graft is still functioning well, which precludes a further histological examination of the organ as well as modification of the low-dose steroid-cyclosporin therapy.