

MASSIVE HEPATOMEGALY FOLLOWING SPLENECTOMY FOR MYELOID METAPLASIA

To the Editor:

We read with great interest the article by Towell and Levine (*Am J Med* 1987; 82: 371-375) concerning a case of massive hepatomegaly after splenectomy for myeloid metaplasia. We have recently observed a similar case. A 51-year-old man was first hospitalized in our department in October 1986, complaining of postprandial fullness and mild weight loss (3 to 4 kg). He had a past medical history of typhoid fever and malaria, but denied recent fever. On admission, physical examination showed a protuberant abdomen due to massive splenomegaly, which spanned the entire left abdomen; the liver was not enlarged on palpation; no superficial lymph node enlargement was observed. Laboratory data on admission were as follows: sedimentation rate normal, hemoglobin 10.2 g/dl, hematocrit 29.6 percent, white blood cell count 13,900/mm³, platelet count 350,000/mm³. The peripheral blood smear showed many anisocytes, teardrop poikilocytes, and giant platelets. Other laboratory values included serum glutamic oxaloacetic transaminase 24 units/liter, serum glutamic pyruvic transaminase 40 units/liter, lactic dehydrogenase 236 units/liter, alkaline phosphatase 352 units/liter, and bilirubin 0.9 mg/dl. A bone marrow biopsy specimen showed diffuse severe depletion of the myeloid and erythroid elements, abundant fibrosis, and clusters of megakaryocytes. ⁵⁹Fe and ⁵¹Cr erythrokinetic study showed reduced skeletal erythropoietic activity with major splenic uptake. A diagnosis of myelofibrosis with myeloid metaplasia (MMM) was made and the patient was discharged without therapy. In June 1987, the patient was re-hospitalized for increasing abdominal pain, with major weight loss and abdominal swelling. Physical examination showed impressive splenomegaly with the median edge palpable in the right lower abdomen. No changes in laboratory data were observed. On June 20, 1987, the patient underwent elective splenectomy and a 6,000-g spleen was removed; at laparotomy the liver was noted to be not enlarged. Pathologic examination of the spleen showed myeloid metaplasia. (Liver biopsy was not performed.) On immediate postoperative days, the platelet count rose to 1,000,000/mm³ and white blood cell count increased to 31,700/mm³ with 64.3 percent neutrophils, 23 percent lymphocytes, and 8.5 percent monocytes. Abdominal echoscan revealed a silent portal vein thrombosis. The patient was discharged on the ninth postoperative day; he was well, taking no medication, and on a normal diet. In September 1987, the patient complained of asthenia, malaise, and abdominal swelling. On readmission, physical examination showed pallor, mild pedal edema, and liver edge palpable 15 cm below the right costal margin, no ascites, no pleural effusion, and no lymph node enlargement was present. His hemoglobin level was 5.6 g/dl, hematocrit 19.6 percent, white blood cell count 198,000/mm³ with 27 percent neutrophils, 44.8 percent lymphocytes, 1.7 percent eosinophils, 1.5 percent basophils, 11.0 percent metamyelocytes, 7 percent myelocytes, and 35.0 nucleated red cells per 100 white blood cells. Other laboratory data included the following: albumin 3.4 g/dl, plasma

iron 69 μmol/liter, ferritin 174.65 ng/ml, total cholesterol 138 mg/dl, total serum bilirubin normal, serum glutamic oxaloacetic and glutamic pyruvic transaminase normal, prothrombin time 14.8 seconds, partial thromboplastin time 29.4 seconds, lactic dehydrogenase 1,382 units/liter (normal, 230 to 460), alkaline phosphatase 1,806 units/liter (normal, 98 to 279). Chromosomal pattern was normal. A liver scan with ⁹⁹Tc revealed massive hepatomegaly with heterogeneous uptake. The patient underwent transfusion of two units of blood and received oral therapy with folic acid, vitamin B₆, and iron, with prompt hematologic recovery. At discharge, his hemoglobin level was 10.1 g/dl, hematocrit 38 percent, white blood cell count 181,000/mm³ with normal peripheral smear, platelet count 1,000,000/mm³, and reticulocyte count 22 percent. Bone marrow aspiration demonstrated stromal proliferation with normal myeloid series, erythroid hyperplasia, and mild dyserythropoiesis. One month later the patient was in good health. The hemoglobin level was 13.0 g/dl, hematocrit 48 percent, white blood cell count 35,000/mm³, platelet count 600,000/mm³, and alkaline phosphatase level 1,082 units/liter; results of liver function tests were normal, with persistent hepatomegaly.

Symptomatic splenomegaly is the most common indication for elective splenectomy in MMM [1]. Development of hepatomegaly after splenectomy in patients affected by MMM is less common; when it occurs, the liver's growth develops over many months or years and any element could preoperatively predict the development of this event [2]. Post-splenectomy leukocytosis is a common feature in patients with MMM and may cause difficulties in diagnosis of infectious complications [3] or malignant evolution. In our patients, no infection or malignant disease was found: the leukemoid reaction and dyserythropoietic anemia, resolved by medical therapy, were probably due to a massive compensatory hepatic myeloid metaplasia.

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POOR SURVIVAL OF PATIENTS WITH IDIOPATHIC CARDIOMYOPATHY CONSIDERED TOO WELL FOR TRANSPLANTATION

To the Editor:

I read with interest the recent article by Stevenson et al (*Am J Med* 1987; 83: 871-876) on the survival of patients

with idiopathic cardiomyopathy, but wondered about the generalizability of their conclusions. It seemed likely that their patients' survival would not be statistically different from the survival of patients in whom the only selection criterion was the presence of an ejection fraction of less than 0.25.

To examine this hypothesis, a 5,000-record adult echocardiography data base was used to retrieve 130 records of patients whose mitral E point septal separation (EPSS) [1] was greater than 20 mm. A cutpoint of 20 was selected because prior work had demonstrated the correlation of an EPSS of greater than 20 mm with an ejection fraction less than 0.25 [1]. EPSS was chosen as the inclusion criterion rather than ejection fraction because of the ease of measurement of the EPSS, even in patients in whom echocardiography is not easy to perform. Time zero was the date of echocardiography. Information regarding survival was available for all Miami patients. Possible prognostic variables that we considered were: age, history of coronary artery disease, history of ventricular tachycardia, EPSS dimension, presence of a low cardiac output on two-dimensional echocardiography [2], and presence of aortic regurgitation by pulsed Doppler echocardiography. Since three of Stevenson et al's patients were withdrawn for emergency transplant surgery but the time of withdrawal was not reported, we ran our statistical tests twice: first, we assigned three nine-month survivors as "withdrawn from the study," then we re-ran the analysis with the three withdrawn patients listed as "deaths." BMDP statistical software was used. Survival curves were calculated for two groups: Stevenson et al's patients, and Miami patients. Cumulative survival was calculated by the life-table method. Breslow's version of the generalized Wilcoxon statistic was computed to test the equality of survival curves of the two groups of patients. The correlates of survival in Miami patients were assessed via Cox survival analysis. A p value <0.05 was defined as statistically significant.

The results showed that survival curves for the two groups of patients were not significantly different from each other, although there was a trend, albeit not statistically significant, for shorter survival in Stevenson et al's patients beyond three months. The results were unchanged whether we coded the three emergency transplant recipients as withdrawn or dead. In Miami patients, the only variable significantly related to survival was the age of the patient, such that the relative risk of death for a 50-year-old patient was 1.8 times that of a 30-year-old patient, and the relative risk of death for a 70-year-old patient was 3.4 times that of a 30-year-old patient. Age was not analyzed by Stevenson et al, but unless there was a very narrow range of age in their patients, age would likely be an important prognostic factor in their patients also.

These data suggest: (1) survival in Stevenson et al's patients was not significantly different from that in Miami patients, (2) Miami patients represented a broad cross-section of patients with very poor left ventricular systolic function, and (3) since relative risk increases sharply with age in such patients, consideration should be given to further relaxing the upper age limit for cardiac transplantation.

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The Reply:

It is interesting that Dr. Kinney has found a survival curve similar to ours in his patients with E-point septal separation (EPSS) of 20 mm or greater. However, his population was slightly different than ours. Although increased E-point septal separation, after exclusion of mitral stenosis and aortic insufficiency, has correlated well with angiographic ejection fraction for a heterogeneous population, only nine patients in that study had EPSS of 20 mm or more, five of whom had ejection fraction of more than 25 percent [1]. Although severity of illness may thus have been lower in Dr. Kinney's group, the comparable mortality may be due to his inclusion of a large number of older patients, as he suggests. At the time of our study, the upper age limit for cardiac transplantation referral ranged from 55 to 60 years. We did include age in our Cox regression and it did not predict survival, hemodynamic failure, or sudden death.

We agree that the upper age limit for cardiac transplantation should be liberalized. The University of Arizona has shown good survival in patients over 50 [2] and we have accepted five patients over 60 years, who have done well. However, some factors that influence mortality of older patients may be noncardiac and must be carefully investigated prior to selection for transplantation.

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FINE NEEDLE ASPIRATION OF THE THYROID

To the Editor:

We fully agree with the conclusions of Asp et al (*Am J Med* 1987; 83: 489-493) regarding the feasibility of fine needle aspiration of the thyroid (FNA) in an average health care facility. In our own initial experience with 183 patients studied over a period of five years (Liel Y, Zirkin HJ, Sobel RJ: Fine needle aspiration of the thyroid. Five years' experi-