verändert trotz nachweisbarer Tumorreduktion (4). Dennoch wird man sich als Chirurg manchmal nur schwer dem Operationswunsch eines Patienten entziehen können, zumal nicht selten eine diagnostische Odyssee mit den Folgen einer Kanzerophobie vorausgegangen ist. Die Entscheidung zur Resektion einer bekannten FNH bleibt somit wohl immer eine individuelle Entscheidung. Die Indikation zur totalen Hepatektomie und anschließenden Lebertransplantation bei multifokaler FNH mit Symptomen des progressiven Leberversagens ist sicherlich ein Einzelfall (9).

Literatur

(1) Becker YT, Raiford DS, Webb L, Wright JK, Chapman WC, Pinson CW: Rupture and hemorrhage of hepatic focal nodular hyperplasia. Am Surg 1995;61:210-214.
(2) Belghiti J, Pateron D, Panis Y, Vilgrain V, Fléjou J-F, Benhamou JP, Fékété F: Resection of presumed benign liver tumors. Br J Surg 1993;80:380-383.
(3) Cherqui D, Rahmouni A, Charlotte F, Boulahdour H, Métreau J-M, Meignan M, Fagniez P-L, Zafrani E-S, Mathieu D, Dhumeaux D: Management of focal nodular hyperplasia and hepatocellular adenoma in young women: a series of 41 patients with clinical, radiological, and pathological correlations. Hepatology 1995;22:1674-1681.
(4) Farges O, Daradkeh S, Bismuth H: Cavernous Hemangiomas of the liver: are there any indications for resection? World J Surg 1995;19:19-24.
(5) Motohashi I, Okudeira M, Takai T, Kaneko S, Ikeda N: Morphological differences between hepatocellular carcinoma and hepatocellular carcinomalike lesions. Hepatology 1992;16:118-126.
(6) Pertschy J, Rückert J-C, Manger Th: Diagnostik und chirurgische Therapie benigner Lebertumoren. Zentralbl Chir 1994;119:495-500.
(7) Sandler A, Rivlin L, Filler R, Freedman M, Ky AJ: Polycythemia secondary to focal nodular hyperplasia. J Pediatr Surg 1997;32:1386-1387.
(8) Shimizu S, Takayama T, Kosuge T, Yamamoto J, Kazuaki S, Yamazaki S, Hasegawa H, Makuuchi M: Benign tumors of the liver resected because of a diagnosis of malignancy. Surg Gynecol Obstet 1992;174:403-407.
(9) Tepetes K, Selby R, Webb M., Madariaga JR, Iwatsuki S, Starzl TE: Orthotopic liver transplantation for benign hepatic neoplasms. Arch Surg 1995;130:153-156.
(10) Tung LC, Boese-Landgraf J, Trabhardt St, Weber B, Wondzinski A: Die fokal noduläre Hyperplasie der Leber – Erfahrungen über 25 Jahre. Acta Chir Austriaca 1998;30:235-241.

From the Department of Surgery, National Cancer Institute, Budapest, Hungary

Invited Commentary to: „Die fokale noduläre Hyperplasie der Leber – Erfahrungen über 25 Jahre"

I. Besznyák

Focal hyperplasia of the liver is well known to pathologists under the name of focal nodular hyperplasia (FNH) today. *Edmondson* drew attention to this disease in his fundamental paper (4) summarizing 8 cases from the literature; *Malt* et al. (5) observed only 3 cases in the 22-year material of Harvard Medical School; *Sörensen* and *Baden* (9) compiled 141 cases from the literature until 1975.

FNH is a lesion of the liver that is mostly solitary and well delineated. It is composed of proliferating hepatocytes around the central scar of small bile ducts, has no portal structure but often hyperplastic vascular formations. Generally, it is located subcapsularly and rarely penetrates deep into hepatic substance. Sometimes, a peduncle links it to the liver. Though well circumscribed, the nodules are not encapsulated and scarcely involve bleedings or necrosis (1, 3, 8).

Vascular hepatic malformation, the use of oral contraceptives (2, 6), and choriogonadotropin treatment (10) are considered to be sure causes, yet, the etiology is still unclear.

Differential diagnoses point at hepatocellular adenoma, hamartoma, inflammatory pseudotumor, biliary duct adenoma, hepatocellular carcinoma, and metastatic tumor. Sometimes, macroscopic differentiation of the lesion is difficult but usually microscopic investigation easily provides a clear diagnosis of FNH.

Corresponding address: I. Besznyák, M.D., Department of Surgery, National Institute of Oncology, P.O.B. 21, H-1525 Budapest, Hungary. Fax: ++36/1/224 – 8620
E-mail: besznyák@oncol.hu

The paper of *Tung* et al. (11) covers 48 patients with FNH over 25 years, and summarizes experiences that are significant even at international level. On principle, the essence of the paper can be agreed with.

On the surgical therapeutic practice of the authors, however, we will make some comments. The principles they apply are primarily in accordance with those of the Mayo Clinic. Their practical approach, however, does not always correspond with the principles they laid down in their paper. Resection rates in particular, the authors performed resection in almost half (in 23 of 48) of the patients, can be regarded as excessive. We have to accept that FNH is a kind of lesion

- 1) which is benign in character;
- 2) which rarely causes symptoms or complications;
- 3) whose malignant transformation is not known (7);
- 4) which may spontaneously regress;
- 5) whose correct diagnosis can be established by MRI with 70% sensitivity and 98% specificity, and by hepatocholescintigraphy with 87% sensitivity and 100% specificity;
- 6) whose diagnosis may be further backed by percutaneous fine needle biopsy, or in case it fails by laparoscopic excision.

With the current diagnostic possibilities available to us we are for a conservative surgical solution of FNH. In our opinion, liver resection for FNH is only indicated if

- its diameter exceeds 5 cm;
- the lesion causes symptoms;
- it is subcapsularly situated;
- it is growing;
- it induces complications (bleeding, rupture).

Otherwise we suggest that the lesion should only be observed after diagnosis, and oral contraceptives should be discontinued.

We were compelled to perform extended resection in only 1 of our patients.

The authors' penchant for surgical intervention is possibly due to the fact that their patients were treated during the period of 1969 to 1994, a time at which up-to-date diagnostic procedures did not exist. As mentioned above, we regard their work as significant and valuable.

References

(1) Anthony PP: Focal nodular hyperplasia. In MacSween RNM, Anthony PP, Scheuer PJ, Burt AD, Portmann BC (eds): Pathology of the liver. Edinburgh-London-Madrid-Melbourne-New York-Tokyo, Churchill Livingstone, 1994.
(2) Baum JK, Holtz F, Brookstein JJ, Klein FW: Possible association between benign hepatomas and oral contraceptives. Lancet 1983;II:926-929.
(3) Craig JR, Peters RL, Edmondson HA: Focal nodular hyperplasia. In: Atlas of tumor pathology. Second Series. Fascicle 26. Tumors of the liver and intrahepatic bile ducts. Armed Forces Institute of Pathology, 1989.
(4) Edmondson HA: Differential diagnosis of tumors and tumor-like lesions of liver in infancy and childhood. Am J Dis Child 1956;91:168-186.
(5) Malt RA, Hershberg RA, Miller WL: Experience with benign tumors of the liver. Surg Gynec Obstet 1970;130:285-291.
(6) Nissen ED, Kent DR, Nissen SE: Role of oral contraceptive agents in the pathogenesis of liver tumors. In Lapis K, Johannessen JV (eds): Liver carcinogenesis. Washington DC, Hemisphere Publishing, 1979.
(7) Otto G, Richter GM, Herfarth C: Bedeutung bildgebender Verfahren für die chirurgische Indikationsstellung bei soliden Lebertumoren. Chirurg 1997;68:334-345.
(8) Schaff Zs, Lapis K, Henson DE: Focal nodular hyperplasia. In Henson DE, Albores- Saavedra J (eds): The pathology of incipient neoplasia. Philadelphia-London-Toronto-Mexico City-Rio de Janeiro-Sydney-Tokyo-Hong Kong, 1986.
(9) Sörensen TIA, Baden H: Benign hepatocellular tumours. Scand J Gastroenterol 1975;10:113-119.
(10) Svastics E, Besznyák I: Benign liver tumor after chorionic gonadotropin administration. N Engl J Med 1979;312:1259.
(11) Tung LC, Boese-Landgraf J, Spröder J, Trabhardt S, Rebk E, Weber B, Wondzinski A: Die fokale noduläre Hyperplasie der Leber – Erfahrungen über 25 Jahre. Acta Chir Austriaca 1998;30:235-241.