ADENOMA OF THE LIVER*

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PRIMARY benign tumours of the liver are rare except for the unimportant hæmangiomas. Adenomas derived from liver cells, the hepatomas of Morier-Vinard,[1] are uncommon, as are also those derived from bile ducts designated cholangiomas by Swalm[2] and Morrison. There is a third group in which derivatives of both liver cells and bile ducts, as well as vascularized stroma, are found. These mixed tumours are often considered to be hamartomas. The latter may occur in infancy, and such a case was recently reported by Benson[3] and Penberthy. The term hamartoma refers to a developmental defect in tissue co-ordination (hamartia, defect) and such embryonic rests are thought to have a more limited capacity of growth potential than do true encapsulated neoplasms (Boyd[4]).

If the term hepatoma is retained it would be less confusing if it was confined to its original use, for benign liver cell adenoma and not made to include primary carcinoma, which latter classification was used by Ewing.[5] And further, it would seem preferable not to apply the term hamartoma but rather to subdivide these adenomas into (1) the cholangiomatous type; (2) the parenchymatous type depending on whether the predominant pattern resembles bile ducts or the liver columns; and (3) those in which both types of structure occur. These may be termed adenomas of mixed types.

The case here reported is an adenoma of the mixed type. Hoffman[6] has recently reported a case of adenoma of the liver and cited 58 others from the literature, 55 of which were tabulated in 1908 by Keller[7] under the general heading of adenoma. These benign tumours of the liver seldom cause symptoms unless they are extremely large and produce pressure symptoms. They may be associated with a concomitant cirrhosis of the liver. Most cases have been found accidentally at autopsy or on laparotomy for a mass in the right upper abdomen as in our case, where the pre-operative diagnosis was mesenteric cyst. In Keller's series the age incidence was from nine to eighty; there was associated cirrhosis of the liver in 10 cases; symptoms of portal obstruction with ascites was present in 11 instances; and many of the tumours were multiple. The tumours occur chiefly on the inferior surface of the right lobe, sometimes near the gall bladder. In one of the cases, (Glennon[8] and Byrne) in which a very large tumour was present in the left lobe there was recurrence five years after the original operation and again after the second operation, which was a complete lobectomy including the tumour. At autopsy six months later, a large, retroperitoneal, microscopically similar mass was found with no evidence of further growth in the liver or any metastases elsewhere.

CASE REPORT

Mrs. A.J.L., aged 32, was admitted to the General Hospital in April, 1943, complaining of fatigue, loss of weight and occasional sharp abdominal pain. She had been in good health until after the last of her four normal pregnancies when she lost weight and showed a definite but moderate degree of hypochromic, microcytic anæmia. For some time the patient had had sharp abdominal pain, and about a week ago she had found a lump in the right side of her abdomen. The patient herself noticed that this moved toward the midline as she changed position in bed. With a provisional diagnosis of nephroptosis she was admitted to hospital for investigation.

Physical examination revealed a pale, undernourished, female weighing 110 pounds with normal pulse and temperature. On examining the abdomen a firm smooth round mass was palpated below the right costal margin situated entirely to the right of the recti muscles when the patient was flat on her back. This tumour was about as large as a moderate-sized lemon. It moved toward the midline as the patient rolled on to her left side, and with digital pressure it could be forced to the left of the midline just above the umbilicus. It was not tender.

Laboratory examinations were negative except for the moderate anæmia mentioned above.

X-ray.—Intravenous pyelogram showed normal kidneys. On these films the circular shadow which seemed to represent the tumour was seen to be below and entirely separate from the right kidney. G.I. series showed no lesions of the gastro-intestinal tract.

Operation.—The abdomen was opened on May 6, with a preoperative diagnosis of mesenteric cyst. The right lobe of the liver was found to be markedly elongated, thinned out and unusually mobile. The anterior surface was normal in appearance but on examining the inferior or posterior surface of this lobe a well-localized, large, smooth, light-brown coloured tumour was seen half projecting from the posterior surface. Thorough exploration revealed no other tumours nor other pathological lesion. To obtain an inch of normal liver tissue above the tumour it was necessary to resect the liver through the gall bladder region. The next step was to divide the cystic duct and cystic artery and to free the proximal half of the gall bladder from the liver. The fundus of the gall bladder was left attached to the liver. After placing four interlocking mattress sutures across the narrowed right lobe of the liver, most of this lobe, with the tumour and the attached gall bladder was removed. There was very little hæmorrhage and the operation was completed by placing the omentum against the cut liver

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surface. Convalescence was uneventful. The recovery from her fatigue and anæmia, is of course assumed to have no direct relation to the operation.

Pathological report.—Gross: the specimen consists of a portion of normal-appearing liver with the attached gall bladder. Projecting from the inferior surface of the liver near the gall bladder is a rounded, brownish-red mass slightly paler than the normal liver. The tumour measures 6 cm. in diameter, and section shows it to be encapsulated, light brown in colour and resembling liver tissue but in comparison with the adjoining normal liver it is paler and firmer. The gall bladder is not involved in the growth.

Microscopic.—There is a narrow but complete fibrous capsule between the tumour and the normal liver tissue. The tumour is composed of masses of liver cells but not showing the regular structure of cords of parenchyma surrounded by sinusoids which characterizes the histological structure of normal liver. The individual cells of the tumour closely resemble normal liver cells, but the cytoplasm stains more lightly, probably due to a large amount of glycogen present. There is also a proliferation of bile ducts in some fields. The ramifications of duct tissue gives an appearance of lobulation suggestive of cirrhosis. This similarity is even more marked in some areas where centrally situated veins are also present. The stroma is limited except around the bile ducts where there is also a lymphocytic infiltration.

Pathological diagnosis. — Adenoma of liver (mixed type).

DISCUSSION

The points of interest in these tumours can best be grouped under three headings, namely, clinical manifestations, operative problems and pathological diagnosis.

Benign liver tumours seldom grow sufficiently to produce symptoms but if they do become large there is a definite tendency, as noted in this case, for the right lobe of the liver to become either elongated or pedunculated. The resulting mobile intraperitoneal swelling may then produce pressure symptoms.

If operation is necessary it may be relatively easy, due to the tendency of the tumour to become pedunculated, except for the fact that a number of these tumours have been noted in infants[3] in which case the dangers of such an operation are greatly increased. The only notable feature in this operation was the fact that the right lobe of the liver had been elongated and narrowed sufficiently to facilitate resection at the level of the gall bladder.

The pathology of primary liver tumours would seem to have been confused by the introduction of two unnecessary terms, hepatoma and hamartoma and by the use of these terms with more than one meaning. Hepatoma was first introduced to designate benign parenchymatous adenoma of the liver but later applied to all primary liver tumours whether benign or malignant, whether derived from liver cells or from duct cells. The term hamartoma has been applied to developmental errors in various sites. In contrast to a true neoplasm made up of one type of tissue, in the liver hamartoma has been used for embryonic rests showing all the different liver structures, lacking only pattern or co-ordination. The importance attached to this distinction depends on the belief that the growth potential is not so great in a hamartoma as in a true neoplasm. In that sense this case would be a hamartoma, because biliary ducts are seen in the tumour as well as liver parenchyma. But if we classify benign liver tumours as parenchymatous adenomas, cholangiomas and mature mixed tumours, this case would belong to the latter.

SUMMARY

1. A mobile upper abdominal tumour diagnosed before operation as a mesenteric cyst was found to be a large adenoma in a grossly elongated right lobe of the liver.

2. The right lobe of the liver with the tumour was removed at the level of the gall bladder, with uneventful recovery.

3. The suggestion is made that the designation of these tumours as hamartoma be discontinued, and that if the term hepatoma be retained it should be used exclusively for the benign parenchymatous adenomas and not for the carcinomas.

4. The adenomas of the liver may be classified as cholangiomatous, parenchymatous or mixed.

REFERENCES

1. MONIER-VINARD, R.: Sur un nouveau type de tumeur primitive du foie; l'hepatome, Henri Jouve, Paris, 1910.
2. SWALM, W. A. AND MORRISON, L. M.: Tumours of the liver, in: Cyclopædia of Medicine, Surgery, and Specialties (Piersol-Bortz), 9: 121, 1939.
3. BENSON, C. D. AND PENBERTHY, G. C.: Surgical excision of primary tumour of liver (hamartoma) in infant seven months old with recovery, *Surgery*, 12: 881, 1942.
4. BOYD, W.: Textbook of Pathology, Lea and Febiger, Phila., 1938.
5. EWING, J.: Neoplastic diseases, Saunders Co., Phila., 1940.
6. HOFFMAN, H. S.: Benign hepatoma; Review of the literature and report of a case, *Ann. Int. Med.*, 17: 130, 1942.
7. KELLER, R. M.: Zusammenstellung der wahrend der letzten 50 Jahre in der Literatur beschriebenen Falle von Leberadenom mit Berucksichtigung der Beziehungen zur knotigen Hyperplasie und zum Carcinom der Leber, N. Seubert, Wursburg, 1908.
8. GLENNON, W. P. AND BYRNE, R. V.: Hepatoma with late dissemination, *J. Missouri State Med. Ass.*, 1933, 30: 142, 1933.