

An Autopsy Case of a Cavernous Hemangioma with Solitary Fibromatous Fibrosis within the Cavernous Space in the Liver of an Adult

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Introduction

It is well known that hemangioma occurs in the liver of man, among which the cavernous type has the largest frequency. According to Anderson et al.¹⁾, fibrosis is frequently discovered in the hemangioma. In the present case, a solitary fibrosis was also discovered in the hemangioma as a tumorous mass which was suspected to be a tumor, fibroma at the first glance. In this case, the hemangioma of the liver had no relation to the cause of death, but was found accidentally in the course of medico-legal autopsy. But the cases showing fibromatous fibrosis at the solitary state in the hemangioma seem to be rare. Hemangiomas in the liver are not rarely found by autopsy of the legal medicine, especially those less than 1 cm in diameter can be often detected. On the other hand, there was reported a case of a huge hemangioma occupying both lobes of the liver which was the cause of death by a large quantity of bleeding in the abdominal cavity due to the needle biopsy performed as one of the examinations of the liver function.²⁾

(Report of a Case)

A master of a snack bar died from stabwounds made by a drunkard after he had received surgical treatment for 7 days.

External Examinations :

The body was of well-nourished and well-developed Japanese male, 57.9 kg in weight and 165 cm in stature, and appeared to be approximately 58 years old as stated. The skin was generally pale. There was a wound of 3.8 cm length, with 3 sutures, on the right hypochondrium, which did not open spontaneously because of the fibrinous adhesion, even if the sutures were removed. However it was opened by a slight manual traction. The body was unremarkable except for those surgical wounds of 25.5 cm length on the midline, of 11 cm length directed to the right which was perpendicular to the above line on the abdomen, and of 2.5 cm length on the right side of the abdomen.

Internal Examinations :

The stabwound mentioned above was directed downward, slightly backward and to the left side of the body through the subcutaneous tissue and musculature of the chest, scraping off the anterointerior part of the 7th costal cartilage, running through the diaphragm into abdominal cavity. There were penetrating wounds of 3 cm length on the

diaphragmatical surface of the left lobe of the liver and of 3 cm length at the fissure of ligamentum teres hepatis on the opposite surface near the anterior margin of the same lobe. Fibrino-purulent exudates covered the visceral surface of the peritoneum which was slightly hyperemic. Fibrinous adhesions between anterior wall of the peritoneal cavity and the intestines were recognized. The stucked intestinal loops were also seen. Purulent exudates on the serosal surface of the major omentum and the mesenterium were also recognized. Based on the findings mentioned above, it was decided that the man had died of peritonitis purulenta. There was an egg-sized part of the liver showing a dark purple reddish color, which was located directly below the capsule of the visceral surface of the lateral part of the right lobe. It was softly palpable and showed dark reddish brown on the cut surface with the mesh-like structure and the flowing out of blood from the tissue. At the center of this part, a tumorlike mass was found as an unusual finding, which was pale yellowish and clearly defined from the surrounding tissue. At first it was suspected to be a fibroma of 1.5 cm in diameter (Fig. 1). The other pathological findings were end to side anastomosis of the intestine after the resection of a part of the intestine, which was probably injured by the stab already mentioned, abscess in the right side of the retroperitoneal part and bile stones.

Histological Examination :

The sections from the part of the liver tissue showing dark reddish brown color on the cut surface revealed the typical histological findings of hemangioma cavernosum which was made up of an interlacing network of mostly thin connective tissue. It enclosed different size of spaces covered by flattened single layered endothelial cells and filled with blood (Fig. 2). It was found that the tumorous mass, mentioned above, which was solitary in the hemangioma mainly consisted of collagen fibers stained blue and red by the methods of Mallory-Heidenhain and van Gieson. Bundles of collagen fibers either thin or thick, were irregularly intricate and moderately dense in the peripheral part but scanty in the central portion (Fig. 3). Compared with this, the peripheral portion is rich in cellular and fibrous components. They are connected with mesh-like network by radial projection of the connective tissues covered by the single layered endothelium (Fig. 4). Small blood vessels covered by flattened endothelial cells and containing red corpuscles were also seen in the peripheral zone (Fig. 5), but none of them in the central region. By the examination of the serial sections of the portion near the mass, a formation of thrombi was discovered (Fig. 6). Some spaces of the network were filled up with thrombi, some of which contained a part of the septal wall. The formation of fibrin network containing blood corpuscles was clearly seen in the thrombi by the staining method for fibrin (Fig. 7). Further, in a certain part where the blood flow appeared to be in a congestive state, a simple structure stained pale red by hematoxylin and eosin was observed. In this area a small amount of fibrin formation was also discovered (Fig. 8).

Discussion

Hemangioma of the liver is rather frequently observed and found accidentally by post-mortem examination. Most of the cases show the cavernous type in terms of

histology. There are many clinical reports on the large hemangiomas occupying the major part of the liver tissue³⁻⁹). Generally, hemangioma is considered to be a hamartoma and, in this sense, it is not necessarily a rare example. Fibrosis or organization resulted from the thrombosis due to the congestive state in the hemangioma is also occasionally recognized^{1,9}). Among these, a case in which the whole hemangioma was completely replaced by the fibrous tissue was reported¹⁰). In the present case, the tumor-like nodule in the hemangioma revealed collagen fibers in irregularly intersecting appearance, which showed deep blue tone and red by the Mallory-Heidenhain's and van Gieson's staining methods (Fig. 9). The bundles of collagen fibers in the nodule give the impression of the connective tissue septa covered by the endothelial cells and the septa appear to be remained almost unchanged morphologically in the fibrous tissue. The appearance mentioned above can be found out in various parts of the nodule, especially in the peripheral zone of the nodule (Fig. 10). In this zone, the basis of septum of the connective tissues protrudes radially and shows hyaline degeneration in some parts. It may be quite natural that the blood flow decreases its velocity in the vessels such as the labyrinth, meandering and crooking. In such a state of congestion, the formation of fibrin and proteins, hyaluronic acid and chondroitin for example, might be accelerated by the alteration of physiological conditions such as pH, absorptive mechanism of the tissue and so on. In addition to this, mechanism of the intravascular coagulation might have participated in the formation of thrombus^{11,12}).

Summary

An autopsy case of a cavernous hemangioma in the liver found accidentally in an adult was reported. It is not so rare to find the small sized hemangioma but unusual to discover a tumorlike fibrous nodule in a solitary state in the central part of the hemangioma.

The origin and formation of the fibrous nodule were discussed.

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Legends for Figures

- Fig. 1** Cut surface of hemangioma in the liver in which the fibromatous nodule appeared in the central part. Figs. 2-10 are the photomicrographs of the sections from the hemangioma and nodule.
- Fig. 2** Photomicrograph showing cavernous type of hemangioma including blood within the space enclosed by the interlacing network of various sizes. Septa are mostly thin and are lined with flattened single layered endothelial cells. Hematoxylin and Eosin. $\times 60$.
- Fig. 3** A part of the central region of the fibromatous nodule. H-E. $\times 150$.
- Fig. 4** A part of the periphery of the nodule in which septa are projecting radially and connected with those of the interlacing network of the cavernous type of hemangioma. H-E. $\times 60$.
- Fig. 5** A higher magnification of the periphery of the nodule showing small spaces including blood corpuscles and fibrocytes. H-E. $\times 150$.
- Fig. 6** Thrombus-formation in a part of cavernous space containing partly septa and showing partly lamellar structures. H-E. $\times 60$.
- Fig. 7** Fibrin formation at a part which appeared to be merely in a congestive state showing homogeneously pale red in a section stained by hematoxylin and eosin. Mallory-Heidenhain. $\times 150$.
- Fig. 8** Focal formation in a small amount of fibrin. Mallory-Heidenhain. $\times 150$.
- Fig. 9** A part of the nodule near the periphery. Bundles of collagen fibers seem to have been the connective tissue septa. Mallory-Heidenhain. $\times 150$.
- Fig. 10** A part of the nodule at the basis of septum of connective tissue projecting radially. Mallory-Heidenhain. $\times 60$.



Fig. 1

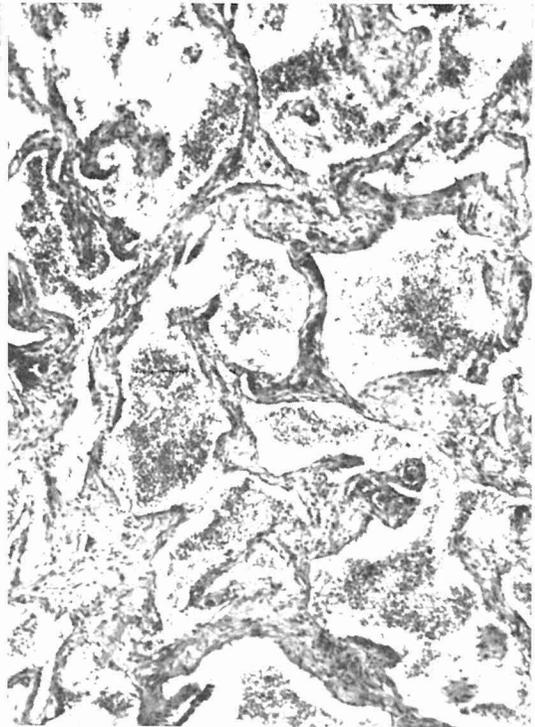


Fig. 2

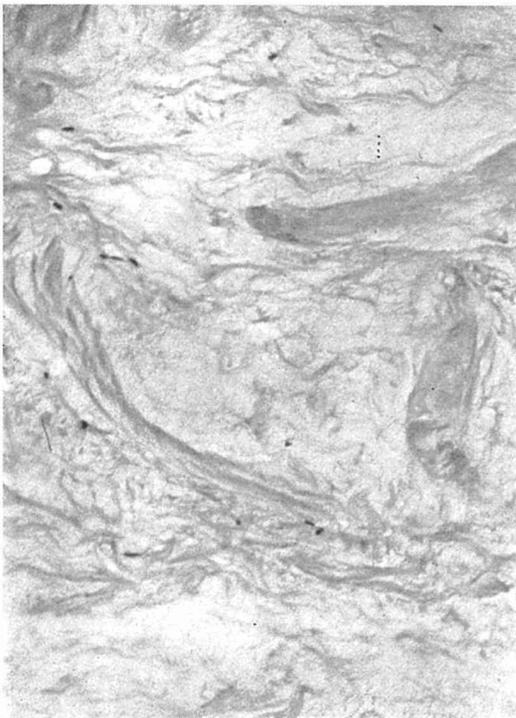


Fig. 3



Fig. 4



Fig. 5

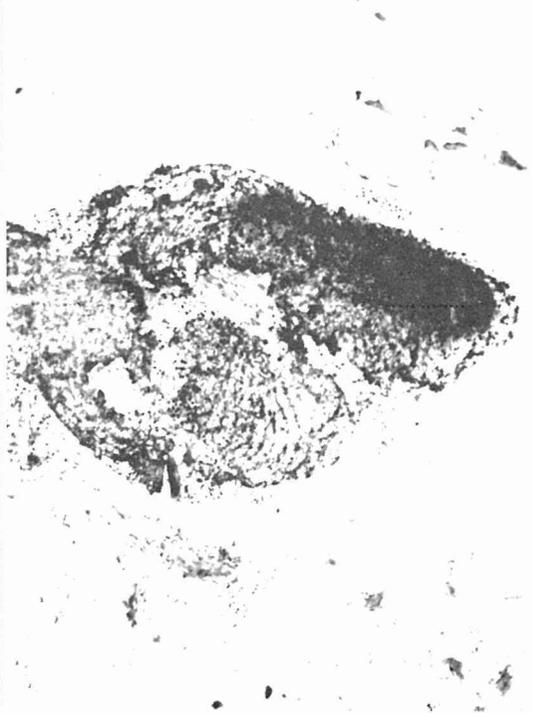


Fig. 6

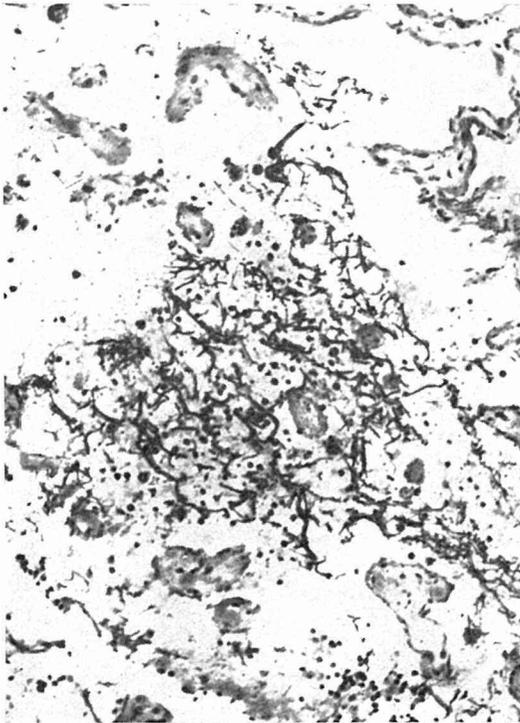


Fig. 7

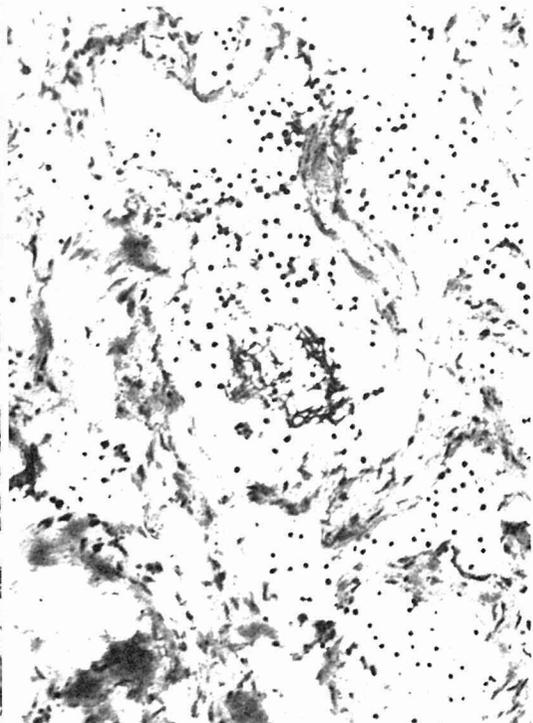


Fig. 8

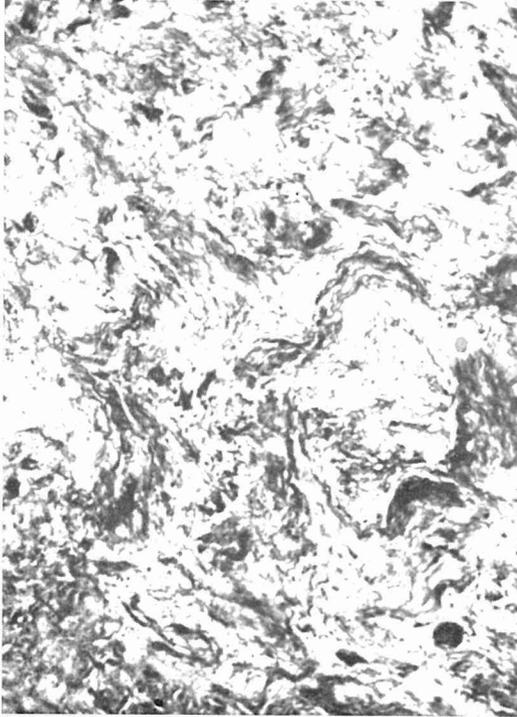


Fig. 9

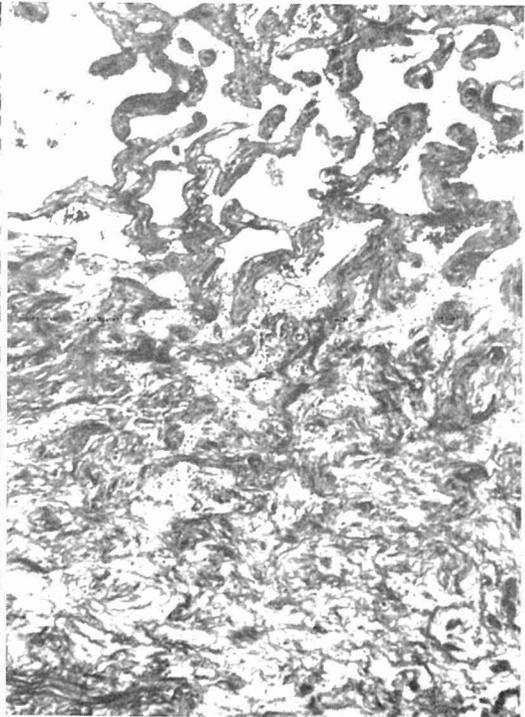


Fig. 10