INTRODUCTION

There are a large variety of causes of liver cirrhosis and numerous classifications, as related to the present disease, have been adopted in foreign countries, and among them a purely morphological, an etiological and a functional classification of liver cirrhosis are to be mentioned.

In the Pan American Congress of Gastroenterology held at Havana in 1956, the morphological classification concerned was finally established as follows: 1) portal cirrhosis, 2) postnecrotic cirrhosis, and 3) biliary cirrhosis.

On the other hand, since Nagayo (1914) designated the most frequent pattern of liver cirrhosis of unknown etiology as atrophic liver cirrhosis and divided it into 2 types, type A and type B. This system of classification was modified later by Mitamura and Ishikawa (1940), and by Miyake (1960) and has been commonly used in this country, while it is still uncommon in other countries.

In recent years the aforementioned Havana classification is also being employed in our country. The author has attempted to make a comparative study on the Nagayo and Miyake's classification and the Havana classification using autopsy, as well as biopsy materials, in addition reference is to his own classification.

MATERIALS AND METHODS

The subject of study consisted of 33 autopsies and 8 biopsies suggestive of the typical case of atrophic liver cirrhosis.

Besides celloidin serial sections, paraffin specimens were prepared from the autopsy material. Sections of the liver biopsy were all embedded in paraffin, and stained with hematoxylin and eosin, and with azan stain (Heidenhain). In addition, Weigert's elastic fiber staining and Gomori's silver impregnation were also conducted.

RESULTS AND DISCUSSION

1. Liver cirrhosis type A (Nagayo)

A secondary liver cirrhosis, following the primary high disturbance of liver
parenchyma was designated by Nagayo as liver cirrhosis type A. The cases examined were composed of 26 autopsies and 5 biopsies and they generally corresponded to the postnecrotic cirrhosis in the Havana classification. As to the morphogenesis of postnecrotic cirrhosis, Popper and Baggenstoss believe that the disease in question can develop not only after massive and submassive necrosis, but after repeated focal necrosis. They regard the aggregation of more than 3 portal triads in the same stroma as its histological characteristic, while Gall seems to limit postnecrotic liver cirrhosis only to that kind of liver cirrhosis which occurs after submassive necrosis. Thus there is a large disparity in opinion between them.

2. Liver cirrhosis type B

In 1914, Nagayo gave liver cirrhosis originating in the inflammatory infiltration of interstitial connective tissues of the liver, as well as in the proliferation of connective tissues the term "Liver cirrhosis type B". Our cases consist of 7 autopsies and 3 biopsies. They correspond to a part of the portal cirrhosis in the Havana classification and to the posthepatic cirrhosis of Gall. Miyake established type B' as the preceding stage of type B. The present author subdivided type B into 3 forms: type B I, B II and B III. Type B I corresponds to Miyake's type B' and belongs not so much to liver cirrhosis as to fibrosis, in which the septum formation from the portal triad and the central vein is observable, but no pseudolobules have formed.

In type B II, the pseudolobules are formed by the septum, but their annular tendency is not distinct. They are principally multilobular, in which the normal portal triad and the central vein are observable. The width of the stroma is very narrow and the development of elastic fibers is good. Type B III corresponds to Nagayo and Miyake's type B, in which the pseudolobules show an annular structurer and are multilobular. The width of the stroma is generally narrow, but in its wider portions isolated or grouped liver cells falling into degeneration and necrosis can be seen. Besides, cell infiltration is constant, but sometimes the pseud-ductules are found. Though the development of elastic fibers is generally good, it is poor in the comparatively wide stroma. Often the aggregation of more than 3 portal triads, in addition to degeneration and necrosis of liver cells and cell infiltration can be observed. From the concept of Papper and Baggenstoss, these findings correspond to postnecrotic liver cirrhosis. However, as in the case of type B with a secondary necrosis occurring in the progress of liver cirrhosis it should not be postnecrotic cirrhosis, even if necrosis may be present in it. Accordingly, whether this necrosis is a secondary one or not was determined by the staining results of the elastic fibers. In type B, the development of elastic fibers proved to be excellent. A study of Tobaru of our department (unpublished) indicate that one biopsy case corresponding to type B II was detected during an autopsy made 2 1/4 years after a patient had undergone transition into type B III (according to Popper and Baggenstoss, it belongs to postnecrotic liver cirrhosis). Moreover, studies of Toyonaga of our department (unpublished) confirmed this on the basis of the histological findings of 80 cases of liver carcinoma in which majority of the liver cirrhosis associated with primary carcinoma of the liver (hepatoma) belong to type B in accordance our system of classification. On the contrary, in the concept of Baggenstoss and others who regard the aggregation of more than 3 portal triads in the same stroma as a characteristic of postnecrotic liver cirrhosis, type B III comes for the most part within the category of postnecrotic liver cirrhosis and the of liver cirrhosis associated with hepatoma is wi-
dely distributed from portal cirrhosis to postnecrotic cirrhosis.
If so, contrary to the fact, the close relation between Nagayo's liver cirrhosis
type B and hepatoma becomes dim.

3. Fatty liver cirrhosis
This disease is an exceedingly frequent liver cirrhosis in Western countries and
belongs to the portal cirrhosis. It is interpreted by some authors as a precise
equivalent for the word, which is, however, very rare in this country except within
persons living under special circumstances.

4. Undetermined liver cirrhosis.
Among the so-called general liver cirrhosis there are forms which do not belong
to type A and B, as described above. The present author believes that this type of
liver cirrhosis is an undetermined type, but this matter is not discussed in this paper.

CONCLUSION

Observation was made pathomorphologically on 41 cases of both autopsies and
biopsies. Nagayo and Miyake's classification of type A and B and the Havana
classification were comparatively studied. From the peculiarity of highly frequent
occurrence of liver carcinoma in Japan, it may be concluded that the classification
of type A and B is most adequate for the classification of an ill-defined general
liver cirrhosis.

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Explanation of figures

**Fig. 1.** Autopsy. Liver cirrhosis type A.
An extensive degeneration and necrosis of liver cells, a pronounced cell infiltration and formation of numerous pseudo ducts in stroma.

**Fig. 2.** Autopsy. Liver cirrhosis type A.
A moderate fatty degeneration of liver cells in pseudolobule.

**Fig. 3.** Autopsy. Liver cirrhosis type A presumably due to repeated or progressive focal necrosis.

**Fig. 4.** Autopsy. Liver cirrhosis type B I.
The width of septum is narrow and pseudolobule formation is not yet visible.

**Fig. 5.** Autopsy. Liver cirrhosis type B II.
Pseudolobules are present, but no annular structure can be seen.

**Fig. 6.** Autopsy. Liver cirrhosis type BIII.
Pseudolobules show an annular structure and secondary necrosis of liver cell are observable.