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Histopathological assessment of the pattern of liver cirrhosis in a tropical population

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Summary
This study aims at establishing the pattern of liver cirrhosis. Histology slides and duplicate copies of reports were retrieved and re-examined while fresh sections were processed from original paraffin blocks when necessary. Cirrhosis was the second commonest cause of chronic liver disease after hepatocellular carcinoma. The commonest morphological type was macronodular cirrhosis. Micronodular cirrhosis is not as common in black Africans as among the Caucasians. This is not unexpected since alcoholic liver disease that is of aetiopathogenetic importance is also not as common as what is often found in Causasians. Biliary cirrhosis was reported in an 8months old girl consequent upon congenital absence of gallbladder and biliary tree. There was male preponderance in the occurrence of cirrhosis with a male, female ratio of 2.5:1. The incidence gradually increased from early adult life but was highest in the middle age especially between the age group of 51-60years and subsequently dropped sharply. Adequate diagnostic facilities should be provided to determine the incidence of hepatotropic viruses and their contribution to the incidence of chronic liver diseases. Case-controlled studies should be carried out to determine the role of local cultural practices on hepatocellular injury and the development of chronic liver disease.

Keywords: *Liver cirrhosis, hepatotropic viral hepatitis, histopathological assessment, macronodular cirrhosis, tropics.*

Résumé
Cette étude a pour but d' etablir la frequence de la cirrhose de foie. Les films histologiques et les rapports etaient retirés et re-examinés Durant des nouvelles sections precedé du blocque de paraffin original..La cirrhose etait la second commun cause de maladie de foie chronique après hepatocellulaire. Le ttype de morphlogie commun etait la cirrhose macro-nodulaire. La cirrhose micronodulaire n est pas commun chez les noir Africans comme parmi les blans. Ceci n est pas expecte etant donne que la maladie de foie due a la alcoolisme. L importance de l aetiopathogenetique n est pas comme celui trouve souvent chez les blancs. La cirrhose biliare etait reportee chez l une des filles agé de 8 mois consequence de l absence de vessie congénitale et des branches biliare.Il avait une ocurence préponderante de cirhose chez la ratio de male et female 2.5:1.L' incidence augmenteant graduelleent etait elevé avec l' age adulte mais était elevé a l age moyenne entre 51-60 ans et succcessivement dimunie rapidement. Les facilités de diagnostie adequate pourrait aider a determiner les incidences des maladies des virus hepatotropiques et leur contribution a l' incidence des maladies de foie chronique. Des études des cas et control pourraient être faite to determiner le role des pratiques culturelles locales sur les blessures hepatocellulairess et le development de la cirrhose du foie.

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Introduction
Cirrhosis is a final common pathway of chronic liver diseases that lead to end stage liver disease or primary liver cancer. It is basically a histopathological diagnosis although there are recognizable clinical signs.

In Nigeria, as in other parts of sub-saharan Africa, the major causes of liver cirrhosis include infections particularly chronic hepatitis B virus (HBV) infection [1,2] and hepatitis C virus infection [3]. The study by Ojo et al. [4] in Ile-Ife showed a low prevalence of hepatitis D virus (HDV) infection in the south-western part of Nigeria. However other studies [5] have revealed strong regional variability in the distribution of HDV in many parts of Africa. HDV co-infection with or superinfection on HBV infection may accelerate progression from chronic hepatitis B infection to cirrhosis and hepatocellular carcinoma.

The exact prevalence of these viral infections may be underestimated because of paucity of facilities for detection of serological markers of these viruses in many centres in Nigeria. Screening for hepatitis C infection is not yet done on routine basis even in specialized centres. The contributions made to hepatocellular damage and ultimate development of chronic liver diseases by such cultural practices like tattooing, scarification as well as ingestion of herbs and local concoction have not been well documented. These may either act synergistically with other agents to establish hepatic injury or may serve to accelerate or aggravate an already developed chronic liver disease.

Materials and methods
All the liver specimens from which diagnosis of cirrhosis were made in the Department of Pathology of University of Ilorin Teaching Hospital, Ilorin, Nigeria from January 1979 to December 1996 formed the materials analysed in this study.

The slides, request forms and duplicate copies of reports on all the cases were retrieved and carefully studied. These slides included those of haematoxylin and eosin (H&E), Masson's trichrome (MT), reticulin and periodic acid Schiff (PAS) stains. These were used to characterize the morphological features and thereby establish the diagnoses of cirrhosis. Demographic data were extracted from patients case files, histopathology request forms and duplicate copies of reports. Photomicrography was also done for illustration.

Results
Cirrhosis of the liver was diagnosed in 35 out of the 251 liver specimens from which definitive histopathological diagnoses were made within the period under review. This mean that cirrhosis accounted for 13.9% of the diagnoses from liver specimens. It was the second commonest cause of liver disease after hepatocellular carcinoma which constituted 91(36.3%) of the cases. Overall 15(42.9%) cases were simply diagnosed as cirrhosis, 14(40.0%) as macronodular cirrhosis (Fig. 1), 4(11.4%) as micronodular cirrhosis while 2 (5.7%) were diagnosed as biliary cirrhosis. One of the two patients with biliary cirrhosis was an 8 months old girl. She presented with history of abdominal distension and failure to thrive. Operative findings

were congenital absence of gall bladder and the biliary tree. She died shortly after surgery.

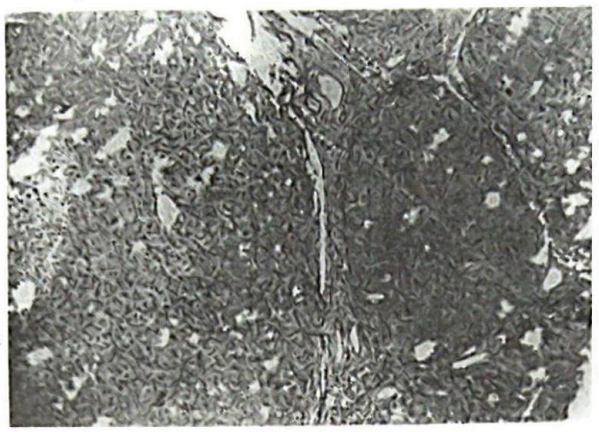

Fig. 1: Liver cirrhosis Nodules of regenerating hepatocytes are separated by bands of fibrous connective tissue (H&E, x50)

There were 25 males and 10 females giving a male, female ratio of 2.5:1 (Table 1). The age range was from 8 months to 78 years. The highest incidence occurred in the age group 51 – 60 years although steady rise occurred from the fourth decade. As a matter of fact over 50% of cases occurred in patients between 30 – 60 years of age.

Table 1: Age and sex distribution of patients with liver cirrhosis

	Sex pattern			
Age	Male	Female	Total	%
0-10	-	2	2	5.7
11-20	3	1	4	11.4
21-30	3	1	4	11.4
31-40	4	2	6	17.1
41-50	4	1	5	14.3
51-60	5	2	7	20.0
61-70	3	-	3	8.6
71-80	-	1	1	2.9
Age unspecified	3		3	8.6
Total	25	10	35	100.0
%	71.4	28.6	100.0	

Discussion

The incidence as well as pattern of liver cirrhosis vary from one locality to another as do the various aetiological agents/factors. Report from Ibadan [6] showed that liver cirrhosis was the second most commonly diagnosed liver disease (27.9%) after hepatocellular carcinoma (33.1%) from liver biopsy histopathology. It was also the second most common cause of hepatic encephalopathy from chronic liver disease [7] and the second most common cause of death from liver disease [8]. The histological pattern in Ibadan agrees with our findings in Ilorin as cirrhosis also ranked second after hepatocellular carcinoma among the chronic liver diseases. The proximity of the two centres will suggest similar aetiopathogenetic factors and/or agents. However in a cohort study [9] of patients with chronic liver disease from the northern part of Nigeria, the commonest chronic liver disease was liver cirrhosis followed by hepatocellular carcinoma. Unravelling reasons for this varying epidemiological patterns are subjects for collaborative research.

The pattern found in northern Nigeria is similar to what has been documented in the Middle East. In separate studies at different localities al-Quorain *et al.* [10] and al-Mofleh [11] found cirrhosis to be the leading cause of chronic liver disease constituting 17.3% and 17% respectively. Northern Nigeria and the Middle East are Moslem-dominated regions where alcohol consumption is prohibited and it is said that most people abide by this especially in the latter area. This may well affect the pattern in these areas. However, apart from aetiology, other factors that may contribute to the different epidemiological patterns include awareness/literacy level, availability/affordability of medical services and personnel as well as adequate/proper usage of the facilities and resources. Reporting promptly in the hospital will no doubt enable early diagnosis of cirrhosis to be made before possible conversion/progression to hepatocellular carcinoma occurs.

It has been amply documented in Nigeria [2,3,12] that cirrhosis is usually of the macronodular or postnecrotic/posthepatitic type. The present study also revealed a preponderance of the macronodular type among the cases wherein such classification was possible. The study by al-Mofleh [11] from Riyadh (Saudi Arabia) showed that the aetiology of cirrhosis was posthepatitic in 8 patients (all HBsAg positive), cryptogenic in 7 patients and alcoholic in 2 patients. Morphologically macronodular cirrhosis was found in 45%, micronodular in 32% and mixed in 23% of patients and similar results were reported from Jeddah [13] and Beirut [14]. In contrast to the western countries where hepatitis and alcohol are the main aetiological factors [15], alcoholic cirrhosis was not common in the Middle East due to religious principles as mentioned above.

In the Caucasians, chronic alcoholism is generally considered to be a significant pathogenetic factor in the production of cirrhosis [16]. Postnecrotic cirrhosis (PNC) is frequently associated with chronic alcoholism. MacDonald *et al* [17] and Popper *et al* [18] reported history of chronic alcoholism in approximately 50% of patients with PNC, and they discovered alcoholic hyaline of Mallory in nearly one-half of the livers with PNC. These reports suggest that PNC may be a late stage of alcoholic liver disease. Yet the concept subsists that PNC represents only a late stage of viral hepatitis with submassive necrosis, regeneration and fibrosis [19].

In conclusion it is pertinent to note that many of the postnecrotic cirrhotic livers progress to hepatocellular carcinoma. The study by Ojo *et al* [12] reported "active" cirrhosis in which there was rapidly progressive hepatocellular damage and inflammation with evolution to hepatocellular carcinoma in 11.4% of cases. However, workers in other centres have reported up to 50% conversion rate in such livers [20].

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