CONDITION OF THE LIVER IN PATIENTS WITH TOXIC CUTANEOUS PORPHYRIA *

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Human porphyrias can be divided into two main groups : erythropoietic porphyria and hepatic porphyria. This classification is based on the location of the metabolic derangement, whether it is to be found in the bone marrow or in the liver. [1] In the rare erythropoietic form, porphyrin formation is believed to originate mainly in the developing normoblasts in the bone marrow. In the far more common hepatic form, the amounts of porphyrin, or porphyrin precursor, in the liver are increased while the bone marrow porphyrin content remains normal. In the hepatic form, functional impairment of the liver is often found. [1,3]

Enlargement of the liver has been a common finding in the cases of toxic cutaneous porphyria arising subsequent to hexachlorobenzene ingestion in southeastern Turkey. The degree of liver enlargement in nineteen of these cases, together with the results of thymol turbidity tests and total protein, albumin and globulin, is set forth in table 1.

Electrophoretic examination in five cases showed unusual elevation of gamma globulin but these results are not included as they will be dealt with in a separate report.

As can be seen from the table, the liver was found to be enlarged in thirteen out of the nineteen cases on admission. In time, the size of the liver decreased in some patients and in certain of these cases was no longer palpable five to six months after admission (Cases 2, 10, 12 and 13). Tenderness was found to be more pronounced in the early stages of the disease whereas, conversely, firmness in consistency on palpation was more noticeable as cases entered the chronic stage. In one case (Case 7, B.K.) the liver was not enlarged but was reported by the surgeon performing a biopsy to be very firm in consistency, giving the impression of being cirrhotic.

Open liver biopsy was performed in another case (Z. K., Case 19 in table 1).

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This patient was an 18 year old female who had been taken ill with porphyria four years previously. She had displayed typical manifestations of active cutaneous porphyria, including hydroa, arthritis and hypertrichosis, with accentuation of symptoms each summer. On admission her liver was tender and was found to extend 3 cm. below the costal margin. Excretion of urinary uroporphyrin was at the rate of 2070 gammas per day; excretion of coproporphyrin was 585 gammas per day.

Liver Biopsy: Examination of the biopsy specimen revealed alteration of the lobular structure. (Figure 1.) The periportal spaces showed marked mono-

Fig. 1.
(Z. K., Case 19 in table 1.) Periportal fibrosis and chronic inflammatory reaction. Magnification 250.

nuclear cell infiltration. Here and there focal intralobular inflammatory cell infiltrates, consisting largely of mononuclear cells with a few polymorphonuc lear leukocytes, were also seen. (Figure 2.) In the infiltrated areas a minimal

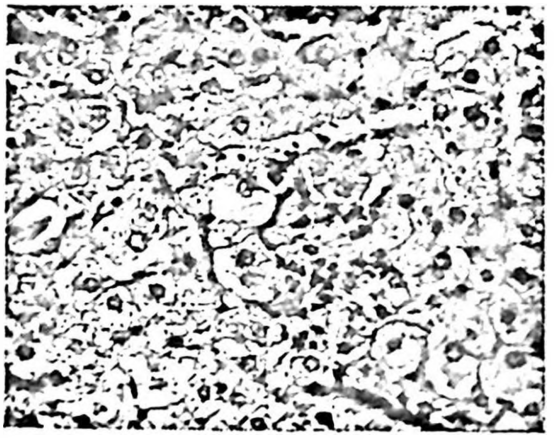

Fig. 2.
(Same Case.) Intralobular inflammatory infiltration. Magnification 430.

amount of liver cell necrosis was present. In other areas the liver cells occasionally showed swelling and clearing of the cytoplasm. Quite a number of hepa-

tocytes with double nuclei were seen. The amount of collagenous connective tissue in the portal spaces was increased. No apparent bile duct proliferation or bile stasis was noted. Some regenerated liver lobules were seen. (Figure 3.) Staining with phosphotungstic acid hematoxylin revealed an abnormal pinkish-red coloration of the cytoplasm in certain liver cells with random distribution.

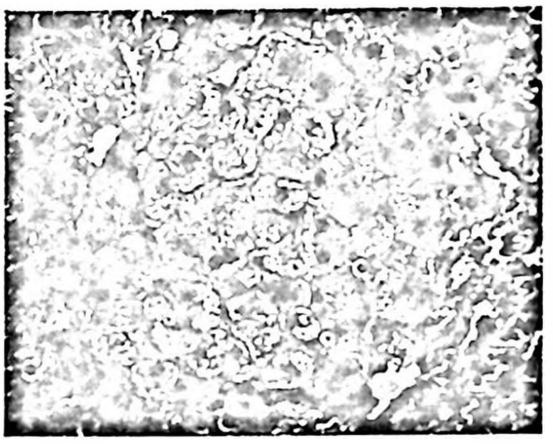

Fig. 3.
(Same Case.) Regeneration of liver lobule.
Magnification 430.

Fluorescence Microscopy: An unstained frozen section of the biopsy specimen was studied in a fluorescent microscope. Diffuse red fluorescence was observed in the parenchymal tissue. No fluorescence was observed in the portal connective tissue. Unstained bone marrow from the same patient failed to show red fluorescence.

It is interesting to note that a frozen section of liver from another patient (B. K., Case 7 in table 1), who had been free of symptoms for the previous five months, failed to show fluorescence.

Summary and Conclusions

Clinical and laboratory findings in nineteen patients with toxic cutaneous porphyria revealed some derangement of liver function and enlargement of the liver in the majority of cases.

In one case, examination of a liver biopsy specimen indicated the presence of chronic hepatitis and a resemblance to liver at the pre-cirrhotic stage was noted. Fluorescent microscopy of the same specimen showed diffuse red fluorescence of the parenchymal tissue but no fluorescence of normoblasts was seen in bone marrow from the same patient.

These findings indicate to the authors that the current cases of porphyria in southeastern Turkey are of the hepatic type.

TABLE 1: LIVER ENLARGEMENT, THYMOL TURBIDITY AND PROTEIN VALUES

	CASE	AGE IN YEARS	SEX	LIVER ENLARGEMENT ON ADMISSION	THYMOL TURBIDITY (UNITS)	TOTAL PROTEIN gm./100 ml.	ALBUMIN gm./100 ml.	GLOBULIN gm./100 ml.
1—	A. T.	7	F.	+++	4.5	7.3	3.8	3.5
»	»	»	»	»	7			
2—	N. G.	11	M.	+++	3.5	6.6	2.6	4
»	»	»	»	»	4			
3—	N. T.	12	F.	—	—	7.5	4.7	2.8
4—	H. S.	12	F.	+—	3	6.6	4.5	2.1
5—	G. S.	11	F.	++	4.8	6.1	2.6	3.5
6—	A. Ö.	14	M.	+++	2.5	7.5	3.8	3.7
7—	B. K.	35	F.	—	8.3	7	4.4	2.6
»	»	»	»	»	6			
»	»	»	»	»	10.5			
8—	S. A.	10	F.	—	5.9	5.9	3.5	2.4
9—	Ç. T.	9	M.	—	2.5	7.5	3.9	3.6
10—	S. A.	13	M.	++	7.3	7.3	4.5	2.8
11—	V. C.	13	F.	+	5.6	8	4.8	3.2
12—	Ş. G.	13	M.	+	5.9	8	4.2	3.8
13—	Ş. Ç.	7	M.	+	7	8	4.3	3.7
14—	E. A.	14	F.	—	2.5	6.8	3.5	3.3
15—	İ. K.	11	M.	++	5	7.4	4.8	2.6
16—	M. T.	11	M.	++	4	6.8	3.9	2.9
17—	M. B.	12	M.	+	4	6.8	3.9	2.9
18—	A. H.	13	M.	—	4.5	7.8	4.5	3.3
»	»	»	»	»	10			
»	»	»	»	»	3			
19—	Z. K.	18	F.	++	7.6	8.8	3.7	5.1

+ = 2 cm., ++ = 3-4 cm., +++ = 6-8 cm.

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TURKISH PROVERBS

Doğum tabibinin gözü parmağının ucunda olmalı, fakat parmağını asla gözüne sokmamalıdır.

The eye of an obstetrician must be in his fingertip, but he must never put his finger in his eye.

Uyumayan gençle, uyuyan ihtiyar hastadır.

A young person who does not sleep and an old one who does are both ill.

Yeni doğan, üstüne yazı yazılmamış bir sahifedir.

A newborn baby is a blank page.

En ziyade güneşe muhtaç çiçek, insan çiçeğidir.

The flower most in need of the sun is the human flower.