

ROLE OF HEPATIC PATHOLOGY IN THE STRUCTURE OF MATERNAL MORTALITY BASED ON THE RESULTS OF PATHOLOGIC ANATOMICAL STUDIES

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✓ **Resume**

The aim of the study was to study the role of liver diseases in the structure of maternal mortality. The article presents data from 37 postmortem autopsies of pregnant women, women in labor and parturient women who died in Tashkent for the period from 2007 to 2020. In the group of direct obstetric causes of maternal mortality (MS), eclampsia / preeclampsia / HELLP-syndrome and AHH are ranked first. Eclampsia and HELLP syndrome are considered critical forms of the same pathology - preeclampsia. It was found that HELLP syndrome is characterized by widespread hepatocellular necrosis.

Key words: maternal mortality, HELLP-syndrome, acute fatty hepatosis of pregnant women, preeclampsia, postmortem diagnosis.

РОЛЬ ПЕЧЕНОЧНОЙ ПАТОЛОГИИ В СТРУКТУРЕ МАТЕРИНСКОЙ СМЕРТНОСТИ ПО РЕЗУЛЬТАТАМ ПАТОЛОГОАНАТОМИЧЕСКИХ ИССЛЕДОВАНИЙ

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✓ **Резюме**

Целью исследования явилось - изучить роль заболеваний печени в структуре материнской смертности. В статье приведены данные 37 патологоанатомических вскрытий беременных, рожениц и родильниц, умерших в г. Ташкенте за период с 2007 по 2020 гг. В группе прямых акушерских причин материнской смертности (МС) первое место занимают эклампсия/преэклампсия/HELLP-синдром и ОЖГБ. Эклампсия и HELLP-синдром считаются критическими формами одной патологии — преэклампсии. Установлено, что для HELLP-синдрома характерен распространенный гепатоцеллюлярный некроз.

Ключевые слова: материнская смертность, HELLP- синдром, острый жировой гепатоз беременных, преэклампсия, патологоанатомический диагноз.

PATOLOGIK ANATOMIK TADQIQOTLARNING ASOSIDA MADDALIK MORALIYASI TUZILISHIDA GEPATOTIK PATOLOGIYANING ROLI

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✓ **Rezyume**

Tadqiqotning maqsadi onalar o'limi tarkibida jigar kasalliklarining rolini o'rganish edi. Maqolada 2007 yildan 2020 yilgacha bo'lgan davrda Toshkentda vafot etgan homilador ayollar, tug'ruqdagi ayollar va tug'ruqdan keyingi ayollarning 37 ta o'limdan keyingi otopsi ma'lumotlari keltirilgan. Onalar o'limining bevosita akusherlik sabablari (MS), eklampsiya / preeklampsiya / HELLP- sindrom

va AHH birinchi o'rinda turadi. Eklampsiya va HELLP sindromi bir xil patologiyaning muhim shakllari - preeklampsiya hisoblanadi. HELLP sindromi keng tarqalgan gepatotsellulyar nekroz bilan ajralib turishi aniqlandi.
Kalit so'zlar: onalar o'limi, HELLP-sindrom, homilador ayollarning o'tkir yog'li gepatozi, preeklampsi, o'limdan keyingi tashxis.

Relevance

The maternal mortality rate is directly related to from its structure, as it reflects the state of the service protection of motherhood and childhood, medical care in the whole.

The current maternal mortality rate is the same in Western Europe and the USA (2-10 per 100 thousand roubles. live births) [2]. The nosological structure of maternal mortality throughout the world has changed in the last decade. Earlier among causes of maternal mortality, for example, in Russia in 1st place there were obstetric bleeding (24-25%), the 2nd - preeclampsia (20-25%), the 3rd - extragenital diseases (16-18%), which varied depending on the region of the country [3-5].

Hepatic pathology in obstetrics is one of the most severe complications in pregnant women and constantly attracts the attention of researchers of various specialties. Even with a physiologically ongoing pregnancy, the functional state of the liver changes, which is expressed in a decrease in the level of albumin, antithrombin III, protein C, protein S, haptoglobin, an increase in the content of alkaline phosphatase, transferrin and bile acids. Altered liver tests occur in 3-8% of all pregnancies [8, 10]. The main causes of liver pathologies are very diverse. Traditionally, they are subdivided into pregnancy related and non-pregnancy related.

Causes of PP associated with pregnancy include:

- excessive vomiting of pregnant women;
- intrahepatic cholestasis of pregnant women;
- liver damage associated with preeclampsia;
- HELLP syndrome;
- acute fatty hepatitis of pregnant women (AGBH).

Undoubtedly, the main attention is paid to such causes of liver pathology as preeclampsia, HELLP-syndrome and AFHP, since they determine high rates of maternal and perinatal mortality, and have much in common in pathogenesis and treatment tactics. In the overwhelming majority (up to 80–90%) of cases, severe preeclampsia and HELLP syndrome are combined with each other and are considered as a whole, so we have combined them into one section [3, 8, 9].

The incidence of HELLP syndrome in the general population of pregnant women is 0.5-0.9%, and in severe preeclampsia and eclampsia, it occurs in 10-20% of cases.

The aim of the study was to study the role of liver diseases in the structure of maternal mortality.

Material and methods

The material of the study was the data of 37 postmortem autopsies of pregnant women, women in labor and parturient women who died in Tashkent for the period from 2007 to 2020. The autopsies were performed at the Republican Pathological Center of the Republic of Uzbekistan. The age of women ranged from 16 to 41 years; the average age was 26.3 ± 6.9 years. Half of the cases of maternal loss occurred in the 20-29 age group. Of the 37 women, 12 died from acute fatty hepatitis (AGBH), 6 women from HELLP syndrome and 19 women from complications of acute viral hepatitis. In the first trimester of pregnancy, 6 (7%) women died, in the second - 22 (25.6%), in the third - 41 (47.7%) and in the postpartum period - 17 (19.7%).

Autopsies of pregnant women, parturient women and parturient women were performed according to generally accepted methods (Abrikosov A.I., 1948; Medvedev I.I., 1969; Avtandilov G.G., 1994), 12-24 hours after the ascertaining of biological death. When conducting pathological studies, we adhered to the principles of a systematic approach [2, 3, 7]: the most complete autopsy, a thorough macro- and microscopic examination of the reproductive system organs with targeted study of the placental bed of the uterus, etc. Pathological diagnosis was formulated in a commission, with the participation of chief freelance pathologist's city and regional level.

Each case of maternal death was examined at treatment and control commissions, clinical and anatomical conferences and at obstetrics boards. When analyzing the causes of maternal death, in accordance with the WHO recommendations [1], only the initial causes of death were used, and groups of direct and indirect obstetric causes of MS, direct and indirect obstetric causes of MS were identified.

Result and discussion

When familiarizing with the numerous literature on this problem, the contradictory information on the nature of liver damage in HELLP syndrome draws attention. Some authors consider the classical morphological sign of liver damage in this pathology to be periportal or focal parenchymal necrosis with fibrin deposits in the lumen of sinusoidal capillaries, while others talk about the similarity of morphological changes in the liver in HELLP syndrome and AUHH and the impossibility of morphological differential diagnosis of these diseases. In our opinion, the differences in morphological changes in the liver in HELLP syndrome are determined by its form.

Complete HELLP syndrome is characterized by widespread hepatocellular necrosis. Macroscopically, such a liver is enlarged in size, light brown in color, variegated from the surface and on sections due to multiple, different-sized, irregularly shaped, merging subcapsular and parenchymal foci of dark red color.

Histological examination in the hepatic parenchyma reveals subcapsular, centrilobular, periportal and multilobular foci of necrosis, hemorrhages, massive deposits of fibrin in sinusoidal capillaries, plasma impregnation of arteriole walls (Fig. 1).

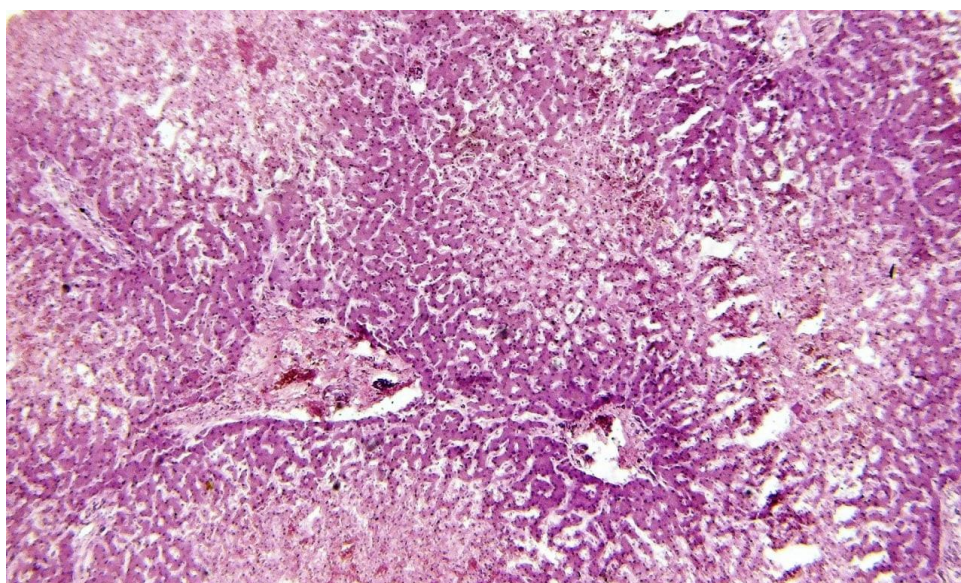


Fig. 1 Deposits of fibrin in capillaries in HELLP syndrome.

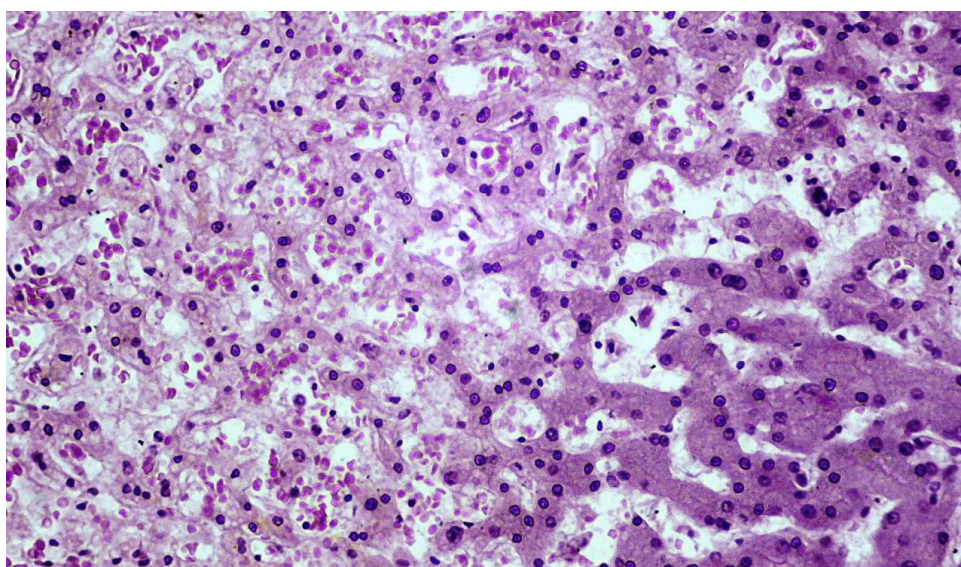


Fig. 2. Subcapsular, centrilobular and periportal foci of necrosis.

The nature of the morphological changes in the liver in acute fatty hepatosis has a pronounced similarity with changes in the eclamptic liver. This fact is obvious, since both eclampsia and HELLP syndrome are currently considered critical forms of one pathology - preeclampsia. In addition to liver damage,

complete HELLP syndrome is also characterized by kidney damage in the form of hemoglobinuric nephrosis due to intravascular hemolysis and the presence of megakaryocytosis of the microvasculature of the lungs, which acts as a morphological marker of thrombocytopenia (Fig. 3).

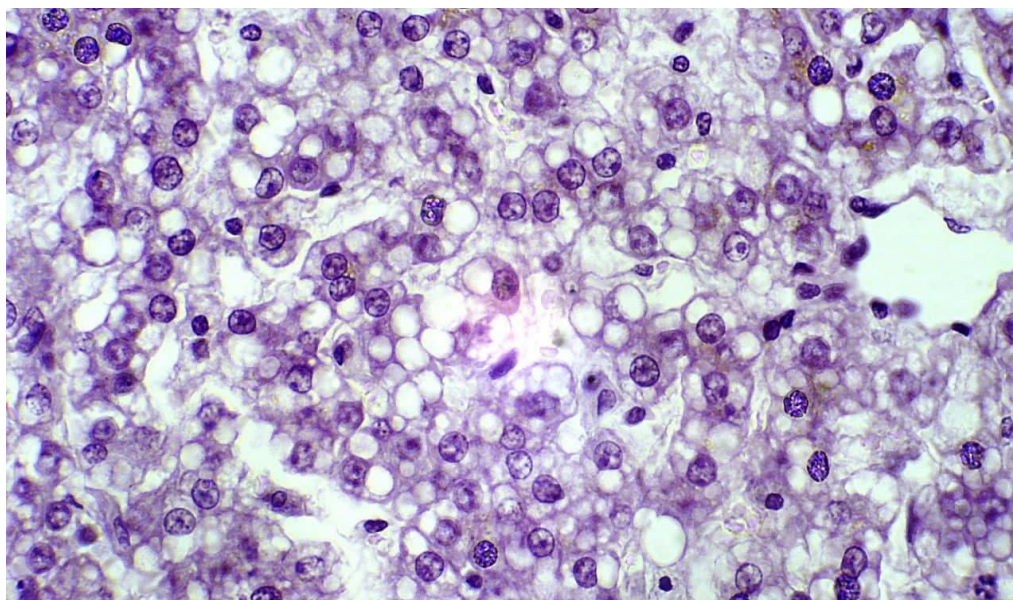


Fig 3. Microvesicular liver steatosis with acute fatty hepatosis.

Morphological changes in the liver in fatty hepatosis macroscopically, regardless of the cause that caused it, were stereotyped and characterized by an increase in the size of the liver with rounding of its edges, yellow color from the surface and on the section, and a flabby consistency (Fig. 2). On microscopic examination, fatty hepatosis was characterized either by diffuse obesity of hepatocytes, which corresponded to "goose" liver, or by uneven obesity of liver cells located mainly along the periphery of the lobules, corresponding to the histological picture of pseudo-nutmeg liver.

The lobular pattern of the structure of the liver in fatty hepatosis of the "goose" type of liver was erased, and hepatocytes with optically empty cytoplasm and the nucleus shifted to the periphery. With pseudo-nutmeg type of fatty hepatosis, the center of the lobules looked

normal, and the periphery of the hepatic lobule acquired a yellowish-brownish color, as a result of which the liver looked motley. So, fatty hepatosis of the "goose" liver type was histologically typed in 14 cases, in 10 cases - as a pseudo-nutmeg liver, and in 1 case it was not related to any type of fatty hepatosis.

In the age groups from 25 to 40 years, the prevalence of cases of fatty hepatosis of the "goose" type of liver was 2, 25 times (9 cases) than of the type of pseudo-nutmeg liver (4 cases). In addition, fatty hepatosis was accompanied by perivenular fibrosis (14 cases) and mesenchymal reaction in the portal tracts (17 cases). Perivenular fibrosis was characterized by moderate, in some cases, pronounced proliferation of connective tissue fibers around the central veins of the hepatic lobules. In most cases of goose-type fatty hepatosis (10 cases), perivenular fibrosis was observed, compared with pseudo-nutmeg type (4 cases) (Fig. 4).

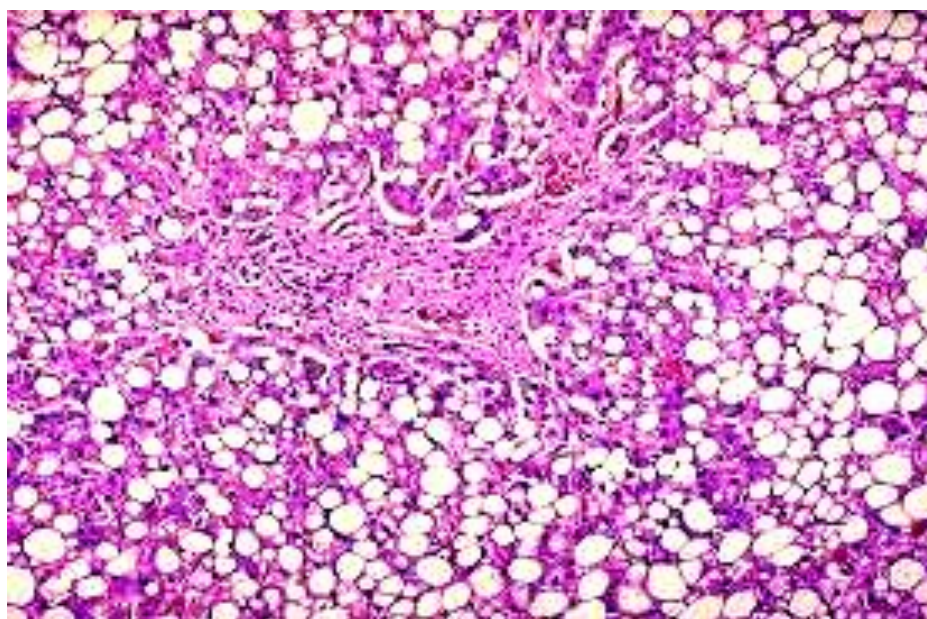


Figure: 4. Fatty hepatosis like "goose" liver

The initial cause of maternal death was represented by several nosological units in the form of a combined underlying disease (in the form of competing, combined, underlying and background diseases). In this regard, on the one hand, the pathologist increasingly has to experience difficulties in choosing the initial cause of death, and on the other hand, there is a contradiction between the statistical analysis of maternal mortality from a single cause and the multi-causal nature of MS in obstetric practice.

In such a situation, obtaining reliable data on the structure of maternal mortality, in our opinion, is possible only when it is analyzed for multiple reasons. In this regard, a comparative analysis of the structure of MS for single and multiple reasons has been carried out. There was no statistically significant difference in the groups ($p > 0.05$), however, when analyzing MS for multiple reasons, there was an increase in the group of "extragenital pathology" (indirect obstetric causes of MS) by two times, in the group "Preeclampsia" - by 1.9 times, and the group of "premature detachment of the normally located placenta (PONRP)" - 2.6 times.

As a result, there was a change in the causes of MS, namely: if, in the analysis for a single reason, the structure of the MS was represented by extragenital pathology — atrogenies — pre-eclampsia and amniotic embolism, then in the

analysis for multiple reasons preeclampsia took second place, iatrogenia was third, and amniotic embolism was fourth. When analyzing the structure of MS in dynamics over 13 years, a clearly traced tendency towards a decrease in the share of direct obstetric causes with a simultaneous increase in the share of indirect ones was noted.

Among the indirect causes of maternal death, the main ones are: infectious diseases - their share was 36% (including viral hepatitis), diseases of the digestive system and diseases of the genitourinary system - the share of each of these groups was 14%. However, when analyzing in dynamics, a significant change in the nature of the pathology was noted over the considered period of time (13 years). In the group of direct obstetric causes of MS, the first place is occupied by eclampsia / preeclampsia / HELLP syndrome, the second place is taken by obstetric bleeding - PONRP.

Conclusion

During pregnancy, a number of liver pathologies are observed - associated with pregnancy or combined with it. Of these, complications of severe preeclampsia occupy the leading place. The classic liver injury associated with HELLP syndrome is periportal or focal parenchymal necrosis. With acute fatty liver disease - microvesicular steatosis of the liver.

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