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TOPOGRAPHIC OPTIONS OF THE EXTERNAL HEPATIC BILE DUCTS IN RABBITS AND RATS.

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Annotation. In this work, the options for the topographic structure of the extrahepatic bile ducts were studied, compared with the portal vein and the own hepatic artery, different options for the location of the extrahepatic bile duct of a morphological nature. Consequently, a comparative study of the structural features of the extrahepatic bile ducts in mammals with and without a gallbladder and structural rearrangements of the extrahepatic bile ducts after cholecystectomy is an urgent scientific problem in theoretical and practical medicine.

Key words: bile duct, liver, morphology, topography, rabbit, rat.

Relevance. In the literature data of recent years, there are very few scientific studies devoted to the comparative morphology of the biliary system and one or another of its parts. The study of the structural features of the extrahepatic bile ducts in the complex in mammals with and without a gallbladder has not yet been carried out. Finding out the reasons for the presence or absence of a gallbladder in certain mammals is important, both theoretical and practical, because according to the literature, worldwide, the incidence of cholecystitis is increasing from year to year, and the associated cholecystectomy operation also tends to increase. Therefore, a comparative study of the structural features of the extrahepatic bile ducts in mammals with and without a gallbladder and structural rearrangement of the extrahepatic bile ducts after cholecystectomy is an urgent scientific problem in theoretical and practical medicine.

The aim of the work was a comparative study of the structural features of the extrahepatic bile ducts in rabbits and rats.

Material and research methods. The object of the study was organ complexes of 10 laboratory animals, of which 6 rats - 4 rabbits.

For experimental animals, the study was carried out by anatomical and topographic methods. Organs of the hepato-choledocho-duodeno-pancreatic zone were taken immediately after the slaughter of the animal and fixed in a 12% solution of neutral formalin. The method of anatomical dissection was used to study the macro topography of the extrahepatic bile ducts from the hepatic hilum to the place of their confluence into the duodenum. We studied the macro-morphology, topography options and investigated the macro-morphometric parameters of the extrahepatic bile ducts, namely, the length, diameter of the ducts using an eyepiece ruler.

When studying the materials, attention was paid to the topography of the right and left hepatic ducts, as well as the common hepatic and bile ducts and their relationship with the portal vein and hepatic artery. Statistical processing of the obtained digital data was carried out by the method of average values with the determination of the average error of the arithmetic mean. The bile ducts were dissected from the portal of the liver to their confluence with the duodenum. The length of the right and left hepatic ducts and the common bile duct (common bile duct) was measured separately from the confluence of the right and left hepatic ducts to the confluence of the common bile duct into the duodenum.

Research results and their discussion. We studied the variants of the formation of the common bile duct and the structure of the topographic triangle between the cystic and common hepatic ducts. In most rabbits, the common hepatic duct was formed extrahepatic. In such cases, there was, as it were, a triangle of the hepatic duct, the sides of which were the right and left hepatic ducts, and on top of the surface of the liver. This triangle can be isosceles, with a wide base, with a narrow base and a high apex. The shape of the triangle depended on the place of formation of the common hepatic duct in relation to the right and left lobes of the liver. The right and left hepatic ducts were unequal in length and diameter. They were connected to each other at different angles, if the common hepatic duct was located in the middle between the right and left lobes of the liver, then the angle of their connection was acute.

If the common hepatic duct is formed at the left lobe of the liver, then the angle of junction of the right and left hepatic ducts can reach 90 °, the same is observed when the common hepatic duct is formed at the level of the right lobe of the liver. It should be noted that both the right and left lobes of the liver are divided into segments that do not grow together. When the common hepatic duct was formed in the left lobe of the liver, the right hepatic duct was twice as long as the left, and the diameter of the left hepatic duct was 2 times wider than the right. When the common hepatic duct was formed in the middle between the right and left lobes of the liver, their length and diameter were almost equal.

When the common hepatic duct was formed in the right lobe of the liver, the left hepatic duct was 2 times longer than the right, at the same time, the right hepatic duct exceeded the left one in diameter. In all cases, the hepatic artery, dividing into two branches, was located in front of the right and left hepatic ducts, as well as the common hepatic ducts. In 5 cases, it was divided into 3-5 branches. The branches of the portal vein extended behind the right and left hepatic ducts. The own hepatic artery in the depths of the hepatic hilum was divided into two short branches, each of which was also divided into two. More often, the gallbladder artery departed from its own hepatic artery and went behind or parallel to the cystic duct to the neck of the gallbladder, sometimes it departed from its right branch.

There are various options, both length and diameter of the cystic duct. When the ducts merge, eight variants of different types of triangles are formed. The most common is an isosceles triangle, then, with a wide base, with a narrow base and a high apex, the rest of the triangle shapes are associated with different lengths of the right and left ducts.

In 3 cases, the gallbladder near the neck (retreating 0.5-0.6 cm) had a bag-like protrusion, while the neck was directed inward. The bag-like protrusion, in our opinion, increases the volume of the gallbladder in rabbits and is one of the features of its structure. The cystic duct has a slight

convexity posteriorly. The neck of the bladder is directed upward and deep into the liver parenchyma, the saccular protrusion is directed anteriorly and downward. The common hepatic duct is formed as a result of the fusion of the right and left hepatic ducts and continues to the place of its confluence with the cystic duct. In rabbits, the average length of the common hepatic duct was 11.5 ± 0.3 mm, and the average diameter was 1.4 ± 0.3 mm. Own hepatic artery was located medial, portal vein between them and behind.

The common bile duct itself goes down and somewhat laterally, has a bend towards the head of the pancreas, in relation to which it can be located above, behind it, or in the thickness of the parenchyma of the head of the pancreas. The cystic artery departed from the right branch of the common hepatic artery, which was located behind the right hepatic duct. The cystic artery passed to the neck of the gallbladder from the posterior side, in which a small saccular protrusion was located medially. In most cases, the common bile duct was located on the right, the common hepatic artery was located on the left, between them, and behind them was the portal vein, which ran at an angle of 30 ° with respect to the common bile duct.This topographic structure of this area can be taken into account when producing experimental models on extrahepatic bile ducts to study various pathologies of the liver itself,

When studying the anatomical and topographic structure of the extrahepatic bile ducts in rats, their relationship with their own hepatic artery and portal vein, we found that the extrahepatic bile ducts differ from those in rabbits.

In the area of the rat liver hilum, the left and right hepatic ducts form a common hepatic duct, connecting at an acute angle or at a right angle of 90 °, forming various topographic relationships with the portal vein, as well as with the surrounding tissues. For example, sometimes the common hepatic duct was located to the right of the portal vein, while in other cases the portal vein was located to the right and behind it. The portal vein was located on the left and parallel to the left hepatic duct, covered in front with a leaf of the hepatoduodenal ligament at the same level. In one case, a large common hepatic duct flowed into the descending part of the duodenum, with the portal vein located behind it and on the left. In relation to the portal vein, it was located in a common connective tissue case.

The common hepatic duct is located along with the vessels in the hepato-duodenal intestinal ligament. The relationship of the portal vein, hepatic artery, and common hepatic duct was different. We identified the following main variants of the topography of the bile ducts in rats:

- The left and right hepatic ducts are located between the vessels. In this case, the portal vein passes to the right, and to the left and slightly in front of the hepatic artery.

- The portal vein is adjacent behind the left, right and common hepatic ducts, in front and slightly to the left, the hepatic artery is located.

Rats lack a gallbladder. The common hepatic duct passes through the pancreas, parallel to the descending part of the duodenum. At the level of the lower part, it pierces the back wall of the intestine and opens into it. Thus, the size of the extrahepatic bile ducts in rats was smaller than in rabbits.

The length of the common hepatic duct in rats ranged from the smallest - 9.18 mm and the largest - 16.66 mm, the diameter from 0.7 mm to 1.5 mm. The average length of the common hepatic duct was 12.5 + 0.2 mm, and the average diameter was 1.1 + 0.02 mm.

Conclusion.

In rabbits, the common bile duct is formed when the common hepatic and cystic ducts merge. Rats have no bladder and cystic duct, so we compared the extrahepatic bile ducts of rats and rabbits from the level of formation of the common bile duct to its entry into the duodenal wall. The morphometric and morphological parameters of the left and right hepatic ducts were also compared. For greater accuracy of the study, we compared not absolute indicators, but relative to the weight of the animal's liver. To obtain relative values, we divided the absolute figures obtained by measuring the extrahepatic ducts by the weight of the liver. This approach eliminated inaccuracies associated with the weight and size of animals (large object - large organs, small object - small organs). The comparison results showed that in rats the bile ducts are wider and more voluminous than in rabbits.In a comparative study, it was determined that the morphological structure of the extrahepatic bile ducts in rabbits and rats is of different variants.

List of references:

1. Агананян И.Г. Изменения морфометрических параметров желчного пузыря человека в период инволюции. // Морфология. 2017. 33-вып.С 2-7.
2. Гаар Е.В., Косаг А.Ю., Гаар В.Г. Особенности лапароскопической холецистэктомии при анатомическом варианте отсуствия пузырного протока. // Актуалные вопросы эндоскопической хирургии. Брянск, 2018. - С. 231.
3. Габченко А.К. Маматалиев А.Р. Сравнительная характеристика внепеченочных желчных протоков у кроликов обоего пола. //В журнале Проблемы биологии медицины №1. (51) 2018 стр.43-44.
4. Габченко А.К. Маматалиев А.Р. Дехканов.Т.Д. Махрамкулов З.М. Самазьянц Э.А. Мирзякулов С. Нейронный состав интрамуральных нервных узлов стенки общего желчного протока кроликов. //Научные труды ММА им. Сеченова И.М. Москва 2010. Стр.205-206.
5. Дехканов Т.Д., Блинова С.А., Маматалиев А.Р. Сравнительное изучение морфологических изменений нервных структур внепеченочных желчных путей после различных способов экспериментальной холецистэктомии. // Анналы хирургической гепатологии. //Москва: Наука МАИК (интерпериодика). – 2011.
6. Дехканов Т.Д., Хусанов Э.У. Сравнительная морфология и иннервация ампулы большого сосочка двенадцатиперстной кишки. //Ташкент: Узбекистон миллий энциклопедияси, 2017. - С. 4-90.
7. Климов А.Ф., Акаевский А.И. Анатомия домашных животных. // СПб.:изд-во «Лан», 2003. С-609-622
8. Маматалиев А.Р. Махрамкулов. З.М. Габченко.А.К. Морфофункциональные особенности строения, а также морфометрические показатели внепеченочных протоков крыс. // Морфофунционал ва экспериментал тиббиёт. В №5 Самарканд 2017, Стр.33-35.
9. Маматалиев А.Р., Хусанов Э.У. Морфология интрамурального нервного аппарата

гастрохоледоходуоденальной зоны после экспериментальной холецистэктомии // Науч.-теор. мед. журн. «Морфология» Архив А.Г.Э. - Санкт-Петербург, 2016. Т. 133.- № 2. - С. 82-83.

10. Махрамкулов З.М. Габченко А.К. Маматалиев.А.Р. Абдинова А.С. Некоторые данные о изменении внепеченочных желчных протоков кроликов самцов ранние и поздние сроки после операции холецистэктомии. В книге Морфофунционал ва экспериментал тиббиёт. 2015, стр.11-12.
11. Турдыев. Л.У., Дехканов Т.Д. Морфологическая характеристика гигантских нервных клеток органов желчевыделительной системы // Медицинский журнал Узбекистана. – Ташкент, 2013. - № 6. - С. 41-44.
12. Bakon N.I., Whte R.A. Эффективность хирургического лечения заболеваний внепеченочного желчного протока. – Кембридж, 2013.
13. Uktamovich, Husanov Erkin, and Korjavov Sherali Oblakulovich. "Пилородуоденал соҳа махаллий бошкарув нерв аппаратининг микроанатомик асослари." //*Journal of Biomedicine and Practice* 6.5 (2020).
14. Хусанов Е.Ю., Коржавов Ш.О., Ортикбаева Н.Т. Морфологическая картина дегрануляции апудоцитов гастродуоденальной зоны при экспериментальном голоде // Международная научно-практическая конференция Мировая наука. - РОСТ, 2017. - Т. 5. - № 5. - С. 59-61.
15. Хусанов Е.У., Исмоилов О.И., Коржавов Ш.О. Влияние препаратов пуповинной крови на морфологию кожи. // Международное научное обозрение проблем естествознания и медицины, Бостон, США. 4-5 ноября 2019 г. П-383-394