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PATHOMORPHOLOGICAL CHARACTERISTICS OF THE RESTRUCTURING OF PANCREATIC DUCTAL SYSTEM IN CHRONIC PANCREATITIS

The study was conducted as the part of research work “Morphogenesis and early diagnostics of oncological, cardiovascular diseases, liver and pancreatic fibrosis” (state registration 0111U005859).

ABSTRACT. Background. Processes that could precede the development of pancreatic ductal adenocarcinoma are not well understood. **Objective.** Pathomorphological characteristics of the structural remodeling of the ductal apparatus of pancreas in patients with chronic pancreatitis, considering features of the ductal hypertension, proliferative and apoptotic activity of ductal epithelium. **Methods.** Complex pathomorphological study of pancreatic biopsies of 16 patients with severe pancreatic fibrosis at a chronic pancreatitis was performed. 10 patients had signs of pancreatic duct dilation, confirmed by ultrasound diagnostic, while in other patients ductal hypertension was not accompanied with the duct dilation. Immunohistochemical markers Ki-67 and Caspase-3 were used to detect proliferative and apoptotic activity, respectively. **Results.** Main morphological changes were manifested as: the concentric periductal fibrosis and local stenosis, the dysplastic changes of ductal epithelium with low level of proliferative activity and caspase -3 expression (in patients with pancreatic duct dilation); the cystic dilation of small and medium-sized intralobular ducts with low levels of Ki-67 and caspase-3 expression (in patients with ductal hypertension, but without pancreatic duct dilation); pancreatic intraepithelial neoplasia (PanIN) is accompanied with the excessive nuclear Ki-67 expression and the low cytoplasmic caspase-3 levels. **Conclusion.** Structural remodeling of the pancreatic ductal system during chronic pancreatitis were not associated with rising of Ki-67 or Caspase-3 expression levels, unless in case of pancreatic intraepithelial neoplasia.

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References:

1. Suda K, editor. Pancreas – pathological practice and research. Tokyo: Karger; 2007. 318 p.
2. Beger HG, Warshaw AL, Büchler MW, Kozarek RA, Lerch MM, Neoptolemos JP, Shiratori K, Whitcomb DC, Rau BM. The pancreas: An integrated textbook of basic science, medicine, and surgery. 2nd ed. Malden, Massachusetts: Blackwell Publishing Limited; 2008. 1006 p. DOI: 10.1002/9781444300123.
3. Klimenko AV, Klimenko VN, Steshenko AA, Tumansky VA, Kovalenko IS. [Surgical treatment of chronic pancreatitis with ductal hypertension without ductal dilatation]. Ukrainian journal of surgery. 2013; (1): 22-7. Russian.
4. Hruban RH, Adsay NV, Albores-Saavedra J, Compton C, Garrett ES, Goodman SN, Kern SE, Klimstra DS, Klöppel G, Longnecker DS, Lüttges J, Offerhaus GJ. Pancreatic intraepithelial neoplasia: a new nomenclature and classification system for pancreatic duct lesions. Am J Surg Pathol. 2001 May;25(5):579-86. Cited in: PubMed; PMID: 11342768.
5. Detlefsen S, Sipos B, Feyerabend B, Klöppel G. Pancreatic fibrosis associated with age and ductal papillary hyperplasia. Virchows Arch. 2005 Nov;447(5):800-5. Epub 2005 Jul 14. DOI:10.1007/s00428-005-0032-1 Cited in: PubMed; PMID: 16021508.
6. van Heek NT, Meeker AK, Kern SE, Yeo CJ, Lillemoe KD, Cameron JL, Offerhaus GJ, Hicks JL, Wilentz RE, Goggins MG, De Marzo AM, Hruban RH, Maitra A. Telomere shortening is nearly universal in pancreatic intraepithelial neoplasia. Am J Pathol. 2002 Nov;161(5):1541-7. Cited in: PubMed; PMID: 12414502; PMCID: PMC1850788.
7. Lüttges J, Reinecke-Lüthge A, Möllmann B, Menke MA, Clemens A, Klimpfinger M, Sipos B, Klöppel G. Duct changes and K-ras mutations in the disease-free pancreas: analysis of type, age relation and spatial distribution. Virchows Arch. 1999 Nov;435(5):461-8. Cited in: PubMed; PMID: 10592048.
8. Deramaudt T, Rustgi AK. Mutant KRAS in the initiation of pancreatic cancer. Biochim Biophys Acta. 2005 Nov 25;1756(2):97-101. Epub 2005 Sep 7. . Cited in: PubMed; PMID: 16169155.
9. Brune K, Abe T, Canto M, O'Malley L, Klein AP, Maitra A, Volkan Adsay N, Fishman EK, Cameron JL, Yeo CJ, Kern SE, Goggins M, Hruban RH. Multifocal neoplastic precursor lesions associated with lobular atrophy of the pancreas in patients having a strong family history of pancreatic cancer. Am J Surg Pathol. 2006 Sep;30(9):1067-76. Cited in: PubMed; PMID: 16931950; PMCID: PMC2746409