

Opportunities of Radiological Methods in Diagnosis of Cholecystitis Complicated Forms (Literature Review and Clinical Observations)

E. A. Egorova¹, D. V. Makarova¹, A. V. Bazhin¹,
D. S. Kalimullina¹, A. M. Nikonorenko², D. E. Loshkarev²

¹ Moscow State University of Medicine and Dentistry named after A. I. Evdokimov, Ministry of Healthcare of Russia

² Municipal Clinical Hospital named after S. S. Yudin, Department of Healthcare of Moscow

Abstract

Along with the increased incidence of gallstone disease (GSD) it was noted an enhancement of its severe complications. One of it is intestinal obstruction, resulting from internal biliodigestive fistula formation (Mirizzi syndrome, type II) and large gallstones migration through it into the small intestine lumen.

Issues relating to causes identification, clinical aspects and treatment of gallstone obstructive intestinal obturation (biliary ileus) have been studied from the middle of the XVII century. However, up to date the disease common treatment and standardized diagnosis algorithm are not developed yet, especially in elderly people and in patients with comorbidity.

Comprehensive and timely application of radiodiagnostics methods allows detailed assessing of biliary tract condition, selecting optimum treatment actions, including operative intervention volume, taking into account the risk of adverse outcomes and complications.

The clinical observation of the 57 years old female patient with gallstone duodenal obstruction (Bouveret syndrome) with severe comorbidities was provided in the framework of the publication. The data of clinical and laboratory studies, the results analysis of multislice computed tomography, which allowed determining the level of the small intestine obstruction, changes in the thorax and abdomen organs in dynamics are represented in the report. The considered case emphasizes the necessity for early diagnosis of GSD, scheduled cholecystectomies performing in the presence of large gallstones before complications onset.

Key words: Magnetic Resonance Imaging, Multislice Computed Tomography, Ultrasound Study, Gallstone Disease, Biliary Ileus.

References

1. Anan'in D. A., Sadoviy P. G., Pogosov K. N., Chinikov M. A., Dobrovol'skiy S. R. Rare Localization of Spontaneous External Biliary Fistula. *Khirurgiya*. 2011. No. 9. P. 81–82 (in Russian).
2. Bordin D. S. Recommendations of the scientific society of gastroenterology of Russia on the diagnosis and treatment of cholelithiasis. *Experimental'naya i klinicheskaya gastroenterologiya*. 2012. No. 4. P. 114–123 (in Russian).
3. Vatolin O. Yu. Efferent-quantum technologies in treatment of complicated forms of acute cholecystitis. PhD thesis (Dr. Sci. Medicine). Ul'yanovsk, 2011. 116 p. (in Russian).
4. Demetrashvili Z. M., Asatiani G. A., Nemsadze G. Sh., Kenchadze G. Z. Gallstone Ileus. *Khirurgiya*. 2012. No. 3. P. 65–68 (in Russian).
5. Cholelithiasis: Textbook. Under the editorship of A. A. Scheglova. Moscow: RNIMU, 2015. 35 p. (in Russian).

6. *Selentsov M. E., Manakova Ya. L., Dergilev A. P.* Opportunities and significance of magnetic resonance imaging in acute abdominal pain. *Radiologiya – praktika*. 2013. No. 4. P. 21–31.
7. *Egorova E. A., Vasil'eva M. A., Kalimullina D. S.* Magnetic resonance diagnosis of circumscribed peritonitis of hepatopancreatoduodenal region. *Meditinskaya visualisatsiya*. 2013. No. 1. P. 130–132 (in Russian).
8. *Kalimullina D. S.* Magnetic resonance imaging in determining the circumscribed purulent-inflammatory changes after operations on the hepatopancreatoduodenal zone organs. *Vrach--Aspirant*. 2013. No. 4.1 (59). P. 169–174 (in Russian).
9. *Kapshitar' A. V., Smirnov A. S., Kapshitar' A. A., Al'bov A. A.* Gallbladder spontaneous external fistula. *Patologiya*. 2010. T. 7. No. 1. P. 122–124 (in Russian).
10. *Kurbonov K. M., Daminova N. M., Makhmudov F. I.* Diagnosis and treatment of postoperative geleistete. *Annaly khirurgicheskoy gepatologii*. 2015. No. 4. P. 90–94 (in Russian).
11. *Ratnikov V. A., Skul'skiy S. K., Marchenko N. V.* Opportunity of comprehensive MRI diagnosis of postoperative complications with the biliary streaks formation. *Materials of International VI Nevskiy Radiological Forum*. Sankt Peterburg, 2013. P. 55 (in Russian).
12. *Fedotova E. V., Petrushin A. L.* The clinical observation of Bouveret syndrome (Biliary ileus). *Vestnik experimental'noy i klinicheskoy khirurgii*. 2015. No. VIII (3). P. 277–280. DOI: 10.18499/2070-478X-2015-8-3-277–280 (in Russian).
13. *Khokonov M. A.* Acute calculous cholecystitis (diagnosis and treatment – 25 years of searching). PhD thesis (Dr. Sci. Medicine). Moscow, 2011. 170 p. (in Russian).
14. *Shapoval'yants S. G., Lindenberg A. A., Lubcheva V. I.* Diagnosis and surgical treatment peculiarities of gallstone intestinal obstruction. *Khirurgiya*. 2013. No. 8. P. 43–48 (in Russian).
15. *Catena F. Di., Saverio S., Kelly M. D. et al.* Bologna guidelines for diagnosis and management of adhesive small bowel obstruction (ASBO): 2010 Evidence-based guidelines of the world society of emergency surgery. *World J. Emerg. Surg.* 2011. DOI: 10.1186/1749-7922-6-5. URL: <http://www.ncbi.nlm.nih.gov/pubmed/21255429>.
16. *Kim H. C., Yang D. M., Kim S. W.* Gastrointestinal tract perforation: evaluation of MDCT according to perforation site and elapsed time. *Eur. Radiol.* 2014. V. 24. No. 6. P. 1386–1393.
17. *Kim T. U., Kim S., Lee N. K., Roh J., Seo H. I.* Diffusion-weighted MR imaging for non-neoplastic conditions in the hepatobiliopancreatic region: pearls and potential pitfalls in imaging interpretation. *ECR 2014*. Poster C-1051. DOI: 10.1594/ecr2014/C-1051.
18. *Randen V. A., Lameris W., Van Es W. A.* Comparison of the accuracy of ultrasound and computed tomography in common diagnoses causing acute abdominal pain. *Eur. Radiol.* 2011. V. 21. P. 1535–1545.
19. *Singla L. S., Long Ch., Lai H., Macura K. J.* Imaging strategies for right lower quadrant pain in pregnancy. *AJR J.* 2011. V. 196. No. 1. P. 4–12. DOI: 10.2214/AJR.10.4323.
20. *Tonolini M., Ravelli A., Villa C., Bianco R.* Urgent MRI with MR cholangiopancreatography (MRCP) of acute cholecystitis and related complications: diagnostic role and spectrum of imaging findings. *Emerg. Radiol.* 2012. V. 19 (4). P. 341–348. DOI: 10.1007/s10140-012-1038-z.

Authors

Egorova Elena Alekseevna, M. D. Med., Professor of Department of Radiology, Moscow State University of Medicine and Dentistry named after A. I. Evdokimov, Ministry of Healthcare of Russia.
Address: 9a, ul. Vucheticha, Moscow, 127206, Russia.
Phone number: +7 (495) 611-01-77. E-mail: tylsit@mail.ru

Makarova Dar'ja Valer'evna, Ph. D. Med., Assistant of Department of Radiology, Moscow State University of Medicine and Dentistry named after A. I. Evdokimov, Ministry of Healthcare of Russia.
Address: 9a, ul. Vucheticha, Moscow, 127206, Russia.
Phone number: +7 (495) 611-01-77. E-mail: mdvmail@mail.ru

Bazhin Alexandr Vladimirovich, Postgraduate of Department of Radiology, Moscow State University of Medicine and Dentistry named after A. I. Evdokimov, Ministry of Healthcare of Russia.
Address: 9a, ul. Vucheticha, Moscow, 127206, Russia.
Phone number: +7 (495) 611-01-77. E-mail: avbazhin@yandex.ru

Kalimullina Dina Sergeevna, Postgraduate of Department of Radiology, Moscow State University of Medicine and Dentistry named after A. I. Evdokimov, Ministry of Healthcare of Russia.
Address: 9a, ul. Vucheticha, Moscow, 127206, Russia.
Phone number: +7 (495) 611-01-77. E-mail: zhdi.s@list.ru

Nikonorenko Anatolij Mihajlovich, Chief of Department of Radiology, Municipal Clinical Hospital named after S. S. Yudin, Department of Healthcare of Moscow.
Address: 4, Kolomenskij proezd, Moscow, 115446, Russia.
Phone number: +7 (499) 782-30-18. E-mail: nikonorenko-62@mail.ru

Loshkarev Dmitrij Evgen'evich, Radiologist of Department of Radiology, Municipal Clinical Hospital named after S. S. Yudin, Department of Healthcare of Moscow.
Address: 4, Kolomenskij proezd, Moscow, 115446, Russia.
Phone number: +7 (499) 782-30-18.