TECHNICAL SCIENCE
RESEARCH IN UZBEKISTAN
ISSN (E): 2992-9148
ResearchBib Impact Factor: 9.576 / 2023
VOLUME-1, ISSUE-4

MRI OF ADRENAL DISEASES AND STOMACH CANCER

Turaev Bekhzod Yashnarovich, Akramova Nozima Akramovna

Abstract: The genuine interest of a number of medical specialists, such as therapists, endocrinologists, oncosurgeons and radiology specialists, in diseases is due, first of all, to their prevalence, diversity and often similarity of clinical picture, as well as the complexity of diagnosis.

Keywords: MRI, adrenal glands, endoscope, cancer, stomach, x-ray, tumor, surgery, hyperfunction.

The relevance of the problem of timely diagnosis of adrenal tumors is increasing due to the development of video-endoscopic and surgical treatment methods, suppression of adrenal hyperfunction, irradiation of the pituitary gland, and the use of x-ray endovascular destruction of the adrenal glands.

The widespread introduction of modern methods of radiation diagnostics leads to the need to develop new adapted programs, a sequence of complex radiation diagnostics, primarily for preoperative morphological verification, differentiation of benign and malignant adrenal tumors with the subsequent development of treatment tactics.

MRI acts as a high-tech, accurate method that makes it possible to diagnose both primary and secondary tumor lesions of the adrenal glands with a high degree of differentiation.

Pheochromocytoma (paraganglioma, ganglioneuroma) is a tumor arising from chromaffin cells of the adrenal medulla or ectopic extra-adrenal tissue. Mostly young patients suffer from paroxysmal headaches, palpitations, sweat and tremors. Symptoms can be episodic and paroxysmal.

The main characteristics on MRI will be a bright hyperintense signal on T2 VI, heterogeneity of the structure due to areas of hemorrhage and necrosis. When a contrast agent is introduced, the formation actively intensifies it, both in the early phase and during a delayed study.

In the right adrenal gland, a round formation of a cystic-solid structure is detected (Fig. 1). After administration of a contrast agent, a pronounced increase in signal intensity from the solid component of the tumor and the absence of its accumulation in the cystic component of the formation are determined (Fig. 2).

Adrenal cancer (adrenocortical carcinoma) is a malignant tumor arising from the cells of the cortical layer of the adrenal glands. The main characteristics on MRI are the unevenness of the contours of the formation, which has an isointense signal of the liver tissue on T2 and T1 VI. The signal on T1 WI is often heterogeneous due to areas of necrosis. The formation actively accumulates contrast agent.

ISSN (E): 2992-9148
ResearchBib Impact Factor: 9.576 / 2023
VOLUME-1, ISSUE-4

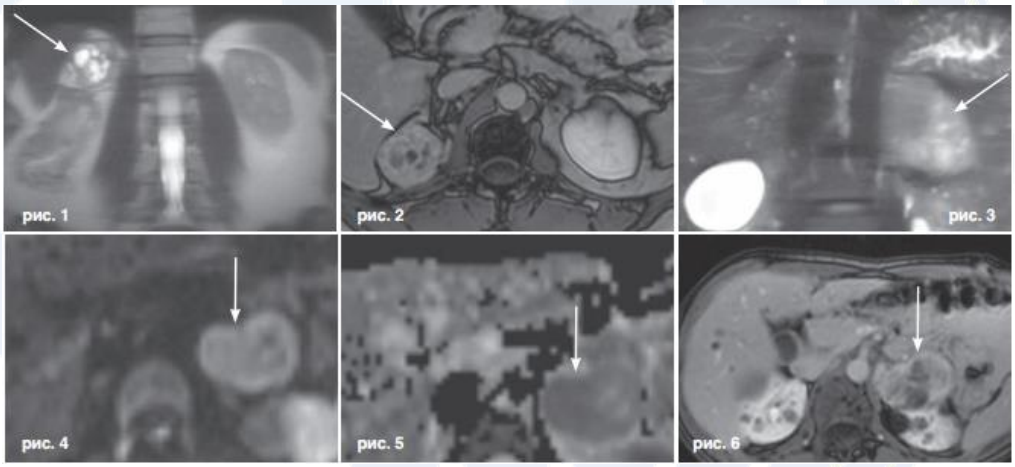
In the left adrenal gland, a round solid formation is identified, which has a heterogeneous structure and tuberous contours (Fig. 3).

On the tomogram, using a special DWI program, an increase in the signal intensity from the identified formation is determined, with an increase in the diffusion factor. On the ICD card the signal is low (ICD value) (Fig. 4, 5).

With contrast enhancement, a pronounced heterogeneous increase in signal intensity from the identified mass of the left adrenal gland is determined. Areas of necrosis do not accumulate contrast (Fig. 6).

High resolution in the cortico-medullary differentiation of the adrenal glands, multiplanar detection of the tumor in the surrounding tissues, as well as the ability to make an assumption about the structure of the tumor, allow MRI to be considered a highly informative method, the sensitivity of which reaches 95–97%.

Of course, to establish a diagnosis when changes in the adrenal glands are detected based on MRI results, a comprehensive assessment of the data obtained in combination with the clinic, medical history and laboratory results is required.



Currently, gastric cancer (GC) in Russia in terms of frequency ranks 2nd in men and 3rd in women among all malignant neoplasms. GC most often affects patients aged 50–70 years. Despite the fact that in the last 20 years there has been a definite trend towards a decrease in the incidence of gastric cancer, the total number of patients and mortality from this disease remain high, and the possibility of early detection of the tumor has not been fully realized. Therefore, the problem of improving methods of diagnosis and treatment of this disease remains relevant.

Along with the already common methods of medical imaging, such as fluoroscopy, FGDS, ultrasound and CT, MRI has recently been increasingly used for diseases of the stomach (still at the second stage of the diagnostic algorithm). The main task of MRI is, first of all, to assess the degree of change in the stomach wall, staging the pathological process with the detection of both local and distant metastases.

ISSN (E): 2992-9148
ResearchBib Impact Factor: 9.576 / 2023
VOLUME-1, ISSUE-4

BENEFITS OF MRI

The advantages of MRI over other imaging methods in diagnosing gastric cancer are:

- high visibility;
- non-invasiveness;
- absence of ionizing radiation;
- the ability to obtain images in any plane and any sections;
- high fabric contrast;
- absence of artifacts from gases and bone structures;
- the ability to use additional programs (fat reduction, DWI, ultra-fast sequences).

RESEARCH METHODOLOGY

The stomach examination technique includes two stages with preliminary preparation. Preparing the patient for the study: the day before the study, exclude foods rich in fiber, take Fortrans, take two No-shpa tablets in the evening, and a cleansing enema. In the morning, the study is carried out on an empty stomach with two No-shpy tablets taken 20 minutes before the procedure. The first stage is performed on an empty stomach using standard programs in the coronal, axial and sagittal planes weighted by T2, T1 with fat suppression. At this stage, the condition of the abdominal organs and retroperitoneal space, the diaphragm, regional lymph nodes, the shape and location of the stomach, perigastric tissue and the abdominal esophagus are assessed. The second stage is carried out with a full stomach. As a filler, ordinary water at a temperature of 36–37o C is used in the amount of 3–4 glasses of 150 ml (450–600 ml). The position of the gastric axes is again assessed, and the slices are aligned strictly along the axes using T2WI. When a suspicious area of the stomach wall is found, sections up to 3 mm thick are installed parallel and perpendicular to the pathological zone, which makes it possible to determine the extent of the wall lesion, its thickness, the depth of the lesion, the presence of ulcerations and violation of the integrity of the serous layer. In addition to T2VI, T1 TRUFI and DWI programs are used.

Due to the fact that it is most often not possible to reliably visualize all layers of the stomach wall, the criteria for its damage are the degree of thickening and the extent of the changes. When all layers are affected and the process spreads beyond the serosa, the main MR signs should be considered vagueness and blurring of the outer contour of the stomach wall, and a decrease in the signal from the perigastric fatty tissue. In modern radiological diagnostics, MRI is used to determine the stage by N and M stages, using TNM classification. In our work we use the classification of the Japanese Gastric Cancer Association. The JGCA (1998) classification is based

ISSN (E): 2992-9148
ResearchBib Impact Factor: 9.576 / 2023
VOLUME-1, ISSUE-4

on anatomical principles. In contrast to the principles of the JGCA, the UICC (International Union Against Cancer 2002) classification considers only the quantitative involvement of regional lymph nodes, regardless of their location.

Depth of Tumor Invasion The depth of tumor invasion is recorded using the T classification. The anatomical level of gastric wall invasion is indicated as follows:

T1: the tumor affects the mucous layer and/or submucosal layers.

T2: the tumor affects the actual mucous or subserous layer.

T3: the tumor penetrates the serous layer.

T4: The tumor invades surrounding tissues.

Literature:

1. Alyaev Yu.G., Sinitsyn V.E., Grigoriev N.A. Magnetic resonance imaging in urology. M.: Practical Medicine, 2005. 272 p.

2. Bagnenko S.S., Trufanov G.E. MRI diagnosis of focal liver diseases. M.: GEOTAR-Media, 2017. 128 p.

3. Vasiliev A.Yu., Ratnikov V.A. Magnetic resonance cholangiography in the diagnosis of biliary tract diseases. M.: Medicine, 2006. 200 p.

4. Dombrovsky V.I. Magnetic resonance imaging in the diagnosis of tumors and other kidney diseases (MRI-pathomorphological comparison): atlas. M.: Publishing house "Vidar-M", 2003. 288 p.

5. Karelskaya N.A., Karmazanovsky G.G. Magnetic resonance cholangiopancreatography. M.: Vidar-M, 2014. 272 p.

6. Karmazanovsky G.G., Paklina O.V., Setdikova G.R. Pathomorphological and radiological diagnosis of surgical diseases of the pancreas. M.: Vidar-M, 2014. 188 p.

7. Kubyshkin V.A., Karmazanovsky G.G., Grishankov S.A. Cystic tumors of the pancreas: diagnosis and treatment. M.: Vidar-M, 2013. 328 p.

8. Radiation diagnostics and therapy in gastroenterology: national guidelines / ed. G.G. Karmazanovsky, S.K. Ternovy. M.: GEOTAR-Media, 2014. 920 p.