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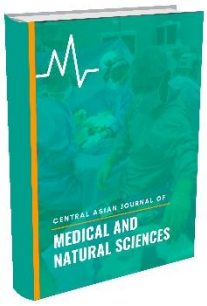

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Multispiral computed tomography for prostate diseases

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ABSTRACT: Currently, the leading method for diagnosing prostate diseases is magnetic resonance imaging, this method is the leading one, as it allows visualizing focal pathology in the early stages. However, the MRI method is lengthy and laborious, and has a wide range of contraindications. In this paper, we present the multispiral computed tomography method as an alternative in cases where MRI is contraindicated. As a result, the MSCT method proved to be quite acceptable for diagnosing pathological changes in the prostate gland in patients with contraindications to MRI.

Key words: prostate gland, MRI, MSCT.

Introduction

Prostate cancer is the most common malignant neoplasm in men, the frequency of which increases in proportion to the age of the patients, and this despite the fact that the effectiveness of its treatment directly depends on the timeliness of high-quality diagnostics. Nevertheless, early diagnosis of the disease is often difficult due to the peculiarities of the clinical picture (or its complete absence) and the anatomical structure of the organ itself. This is largely why up to 50% of tumors are detected at the stage of a common process.

Ultrasound scanning plays an important role here in the complex examination of patients. But ultrasound is a factor-dependent method that does not always make it possible to suspect the onset of the disease in a timely manner. According to the recently established opinion, the "gold standard" in the early diagnosis of prostate cancer is multiparameter magnetic resonance imaging. The MRI method is most often used for the detection and

differential diagnosis of prostate cancer, as well as for the diagnosis of other diseases of the prostate gland and seminal vesicles.

At the same time, in a number of cases, it is not possible to carry out MRI, and first of all, in the presence of metal implants in the patient's body, as well as in cases of claustrophobia. In this case, an analogue of MRI, in our opinion, can be a multislice computed tomography with bolus contrast, which makes it possible to assess both structural and planimetric changes in the prostate gland and its surrounding tissues.

In order to clarify the capabilities of MSCT with bolus enhancement, we analyzed observations from our own daily practice. All studies were carried out on an OPTIMA MR 660 (GE) multislice spiral computed tomograph with 128 rows of detectors and a 0.6 mm cut thickness. When "amplification" used non-ionic iodine containing X-ray contrast agents with an active substance concentration of 350 and 370 milligrams per milliliter. The volume of the contrast agent was calculated at the rate of 1 milliliter per 1 kilogram of the subject's weight. The injection rate was 4 milliliters per second. The studies were carried out in the native - non-contrast phase, in the arterial, venous, early parenchymal phase of contrasting, and in some cases in the delayed, late parenchymal phase of enhancement - at 5-7 minutes.

A total of 25 patients were examined at the age from 57 to 69 years inclusive. The images obtained were used to assess the size, shape, position of the prostate gland, seminal vesicles, their structural features and the relationship with adjacent organs and tissues. The volume and nature of the accumulation of contrast agent in the area of interest, the rate of its washing out in different phases of scanning. In addition, the sections also noted the presence / absence of enlarged regional lymph nodes, their homogeneity, the presence of foci of altered density in the bones of the skeleton, pelvic organs, abdominal cavity, retroperitoneal space.

As a result, according to the study, the presence of foci of pathological accumulation (characteristic of adenocarcinoma) of contrast agent in the peripheral zone of the left, less often in the right lobe of the prostate gland was noted in 12 patients. Of these, in 5 patients, the process spread beyond the capsule - to the region of paraprostatic fatty tissue, to the seminal vesicles and to the wall of the bladder. Regional lymphadenopathy occurred in 9 patients. Hyperstatic metastases in the pelvic bones, lumbar body, and thoracic vertebrae were observed in one patient. In the remaining 13 patients, the changes were characterized by diffuse structural

transformations accompanied by asymmetric hyperplasia, the presence of foci of fibrous compaction and various calcifications in the tissues of the gland. The adjacent structures were not involved in the process. There were no signs of lymphadenopathy and metastatic lesions. Such changes, in our opinion, were more consistent with the phenomena of chronic prostatitis and benign prostatic hyperplasia.

Thus, multispiral computed tomography with intravenous bolus enhancement of the prostate gland is a high-precision method of radiation diagnostics, in some cases it can replace

multiparametric magnetic resonance imaging and ultimately As a result, it contributes to the rapid, timely detection of pathological changes, including in the early stages of their manifestation.

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