

Changes in liver metastases and parenchyma caused by transcatheter arterial chemoembolization using drug - eluting beads

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Purpose: to define the changes in liver metastases and surrounding tissues due to transcatheter arterial chemoembolization using drug-eluting beads (DEB-TACE) based on Computed Tomography (CT) and Magnetic Resonance Imaging (MRI).

Materials and methods. 40 patients with unresectable hepatic metastases treated with DEB-TACE (2011-2019) were studied retrospectively. The primary tumors were: colorectal region (40%), lung (15%), uterus and cervix (15%), prostate (10%), ovaries (5%), pancreas (5%), liver (5%), breast (5%).

Results.

We identified the following types of reaction: 1) disappearance of the lesion + reaction of the surrounding liver parenchyma (10%) (fig. 1); 2) intratumoral hemorrhages (4%); 3) necrosis and/or cystic transformation (27%); 4) cavity formation without resizing (10%); 5) the size reduction on the first control, then the lack of dynamics (22%); 6) decrease in the total tumor size + maintaining the contrast-enhancing area (11%); 7) increase in the size (11%); 8) increase in the size of the contrast-enhancing area (5%).



Fig. 1: metastasis of colon cancer: before, after 2, 8 month

We encountered the problems: 1) the reaction of the liver parenchyma in 15% led to a transient increase in tumor size; 2) necrosis and cystic transformation of the lesion in 8% passed through an increase in size; 3) spontaneous recurrent intratumoral hemorrhages were accompanied by an increase in size (fig. 2).

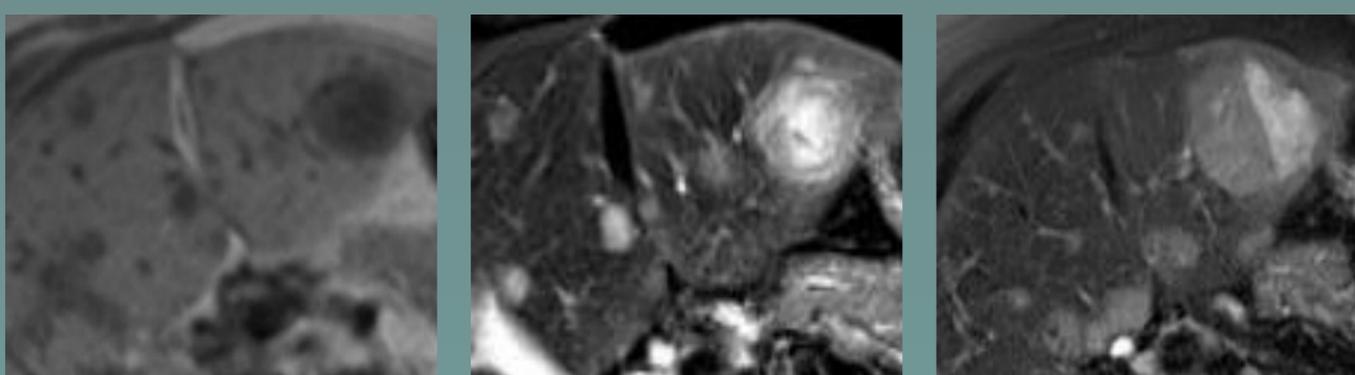


Fig. 2: metastasis of lung cancer: before, after 2, 18 month

We noted: 1) the reaction of the liver parenchyma was not accompanied by restriction of diffusion; 2) necrosis and cystic transformation in 75% had a high ADC; 3) intratumoral hemorrhages reduced the intensity and speed of contrast enhanced (fig. 3).

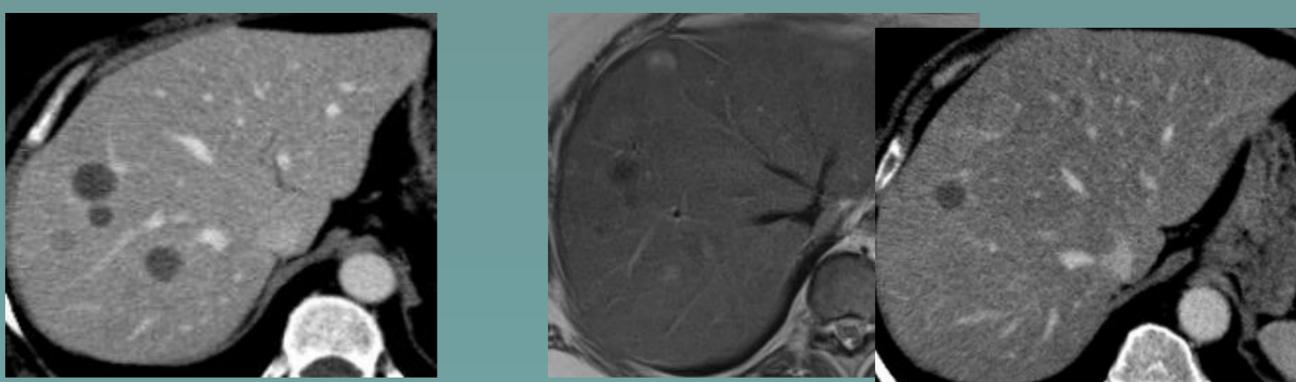


Fig. 3: metastasis of lung cancer: before, after 2 month (MRI+CT)

Conclusion: 1) the cytotoxic and cytostatic components of DEB-TACE may act independently of each other; 2) an increase in the size does not always indicate process progression; 3) liver parenchyma reaction may influence lesion size; 4) ADC, patterns of contrast enhancing may be useful in evaluating treatment.