Diagnostic Capabilities of Ultrasonography and Computed Tomography of Gallbladder Cancer

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Methods

- Retrospective analysis of 120 medical records of patients with the gallbladder cancer treated in the departments of General Surgery, Gastroenterology and Oncology of Hospital of Lithuanian University of Health Sciences from the year 2008 to 2017.
- Only 48 suitable patients that were diagnosed with the gallbladder cancer at the time of hospitalization and were radiologically tested were selected for further analysis.
- US and/or CT were considered positive if any suspicion of cancerous process was mentioned in the test results interpretation by the radiologist.
- It was assumed that the diagnosis of the gallbladder cancer was established if confirmed histologically (from surgical specimen or biopsy) and/or by combining the results of CT scan and clinical symptoms.
- Sensitivity was counted using the specific formula A/(A+C) x 100 (A - patients with the disease and positive test results; C - patients with the disease and negative test results) (Fig.1).
- Specificity could not be counted because all of the patients had cancer so there were no disease-free cases.

Results

- The cohort of the retrospective analysis - 48 patients. 14 of them were men (29.2%), 34 - women (70.8 %). The mean age of the patients was 71.7±11.2 years.
- US results were available in 38 patients. CT results were available in 42 patients. In detailed analysis 6 (12.5%) patients had undergone only ultrasonography, 10 (20.8%) patients had undergone only computed tomography (CT) and 32 (66.7 %) patients had undergone both of the radiological tests.
- The most frequent clinical symptom was abdomen pain or pain in the upper right quadrant of the abdomen - it was present in 37 patients (77.1%). Jaundice was present in 24 (50%) patients, nausea in 16 (33.3%) and weight loss before the hospitalization in 10 (20.8%) patients. Only 3 (6.3%) patients had no clinical symptoms at all.
- The most common findings during ultrasonography were concrements in the gallbladder in 23 (60.5 %) patients, tumorous masses in the gallbladder in 12 (31.3 %) patients and polyps in 2 (5.0%) patients. The most common findings during the CT scan were thickened gallbladder wall in 32 (66.7%) patients, tumorous masses in the gallbladder in 20 (47.6%) patients and concrements in the gallbladder in 16 (36.4 %) patients.
- During ultrasonography cancer was suspected in 18 patients. The sensitivity of US of diagnosing the gallbladder cancer was 47.4%; (Fig. 2).
- During CT cancer was suspected in 35 patients. The sensitivity of CT of diagnosing the gallbladder cancer was 83.3%; (Fig. 3).

Conclusions

1. The most common clinical symptoms of the gallbladder cancer are abdomen pain or pain in the upper right quadrant of abdomen, jaundice and nausea.
2. The most common radiological findings of the gallbladder cancer: US - concrements and tumorous masses in the gallbladder, CT - thickened gallbladder wall, tumorous masses and concrements in the gallbladder.
3. The sensitivity of US when diagnosing gallbladder cancer - 47.4%; CT - 83.3%. CT is much more sensitive when diagnosing this disease than US.

Key words
Gallbladder cancer, ultrasonography, computed tomography, sensitivity, diagnostics