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CASE REPORT

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Subphrenic abscess mimicking subcapsular splenic hematoma on computed tomography images

Ropień podprzeponowy o morfologii krwiaka podtorebkowego śledziony w obrazach tomografii komputerowej

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Summary

The authors describe a case of 70 year-old woman, who developed a subphrenic abscess after D2 gastrectomy. The abscess looked like an acute subcapsular splenic hematoma on computed tomography images. Therefore the patient was reoperated. It turned out during the operation that there was a subphrenic pus collection, while the spleen had been intact. The reason for this complication was jejunoesophagal fistula. The case report shows limitations of CT images interpretation and a failure that can result from fixed bearing radiological criteria.

key words: subphrenic abscess • CT

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Background

Computed tomography appears to be the most useful method of examination for the noninvasive detecting of subphrenic abscess, splenic abscess and subcapsular splenic hematoma. Nevertheless these pathologies may have similar morphology on computed tomography images. Differentiation of these three diseases is of great importance for the later therapeutic management. Subcapsular hematoma can be treated with antibiotics alone [1], while splenic abscess is an indication for surgical treatment, such as splenectomy or percutaneous aspirations guided by sonography or CT with postoperative antimicrobial therapy [2]. The exception is splenic abscess of fungal etiology, which can be treated just with antibiotic (amphotericin B) [3,4,5]. Subphrenic abscess management requires closed (ultrasonography [6] or CT-guided [7]) or open drainage [8], both with concomitant antimicrobial treatment. We want to deal with the problem described above, showing a case of a patient, who was being treated in the Surgical Department of the Central Railway Hospital in Warsaw.

Case report

70 years old female patient was admitted to the hospital with diagnosed stomach cancer pT3N2Mx. D2 gastrectomy with Roux-Y esophagojejunostomy has been performed. The patient's condition was evaluated as 'good' until 8th day after the surgery, when vomiting and jaundice appeared. These symptoms were accompanied by gradual worsening of a patient's general condition. Fever, pain, peristalsis disorders were absent. Laboratory investigations revealed leukocytosis, erythrocytopenia and low hemoglobin level.

CT examination of abdomen was performed and compared with preoperative one (figure 1), on which spleen had been intact. Postoperative examination revealed hyperdense area under the splenic capsule indistinctly separated from splenic parenchyma (figure 2). The border between the lesion and splenic parenchyma was still indistinct after intravenous contrast medium injection. Subcapsular splenic hematoma was diagnosed. Fluid in both pleural cavities

Figure 1. Initial precontrast CT scan. The spleen looks intact. Thickening of the stomach wall represents most likely neoplasmatic infiltratrion.

Rycina 1. Badanie przed dożylnym podaniem kontrastu. Śledziona wygląda prawidłowo. Zgrubienie ściany żołądka – będące prawdopodobnie naciekiem nowotworowym.

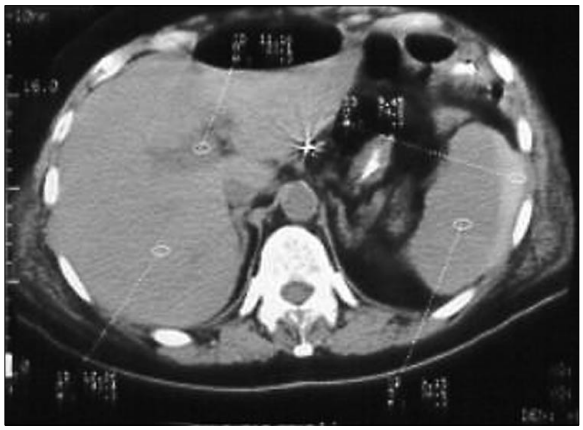

Figure 2. Postoperative precontrast CT scan. Status post gastrectomy. Hyperdense zone next to the spleen looking as sbucapsular hematoma. Gas collection in front of the liver.

Rycina 2. Badanie pooperacyjne przed dożylnym podaniem kontrastu. Stan po gastrektomii. Hiperdensyjny obszar przylegający do śledziony wyglądający jak krwiak podtorebkowy. Zbiornik gazu nad wątrobą.

and gas in front of the liver were found. There was a thin-walled fluid collection with bubbles in the rectouterine pouch and the other not encapsulated fluid collection on the right side on the level of promontorium.

A decision of reoperation has been made on the basis of the above mentioned symptoms. A big subphrenic abscess was found on the left side. It was spreading out beyond the lower splenic edge. Spleen was macroscopically and palpably intact. Esophagojejunostomy did not reveal any symptoms of insufficient tightness. Second pus collection was found in the pelvis. There was interintestinal fluid as well. Both abscesses were drained and enterocutaneous nutritive fistula was made.

Postoperative course was very severe. The patient was discharged with recommendation to feed through jejunostomy only. The diagnosis of jejunoesophagal fistula was established and radiologically proved. It was probably the cause of the described complications.

Discussion

Subphrenic abscess is a rare complication of abdominal diseases. It appears in most cases after abdomen procedures performed because of bile ducts diseases (66%), gastroduodenal pathologies (22%), acute appendicitis, and colon or spleen diseases. The most common symptoms of subphrenic abscess are: hectic fever, chills, abdominal pain and weight loss [8].

Subphrenic abscess appears on CT images as a hypodense lesion in comparison with abdominal organs. A hyperdense abscess capsule can be observed after intravenous contrast infusion. An abscess directly bordering a spleen causes great diagnostic difficulties. It should then be differentiated with subcapsular hematoma or splenic abscess. The evaluation of splenic capsule position is of great importance, because it helps to estimate, if a lesion is present inside or outside of a spleen. Subcapsular splenic hematomas on CT images are in most cases hypodense, rarely iso- or hyperdense, ellipsoid, often indistinctly demarcated from splenic parenchyma. Sometimes the border between hematoma and splenic parenchyma can be wave-shaped [9,10]. Splenic parenchyma enhances homogeneously after intravenous contrast medium injection, which makes previously isodense lesions visible. Hyperdense hematomas become less demarcated then because a contrast between splenic parenchyma and hematoma decreases.

Splenic abscess is a hypodense lesion that enhances peripherally after intravenous contrast medium injection [11,12]. Sometimes lesions are multiple. The presence of gas or fluid-gas level makes a correct diagnosis evident.

Clinical data provide a great deal to the diagnosis. We may think of subcapsular hematoma if a patient has had blunt abdominal or thoracic trauma, or undergone abdominal surgery recently, while which accidental spleen injury can occur. Symptoms of internal bleeding such as hemodynamic disturbances or anemia indicate subcapsular hematoma as well. Splenic abscesses occur frequently in people with immunological deficits or the ones having inflammatory foci in other organs. Subphrenic abscesses are characteristic of patients after abdominal surgery. The diagnosis of an abscess is likely, when there are symptoms of an internal inflammatory process.

The CT scans of our patient indicated the diagnosis of subcapsular splenic hematoma. It was because of hyperdensity of the lesion, its indistinct border and ellipsoid shape. Nevertheless it turned out during the operation that the spleen was intact, whereas there was a pus cistern surrounding the spleen. The diagnosis of subphrenic abscess was supported by clinical data such as abdominal operation a few days before, leukocytosis, worsening of patient's general condition. Small amount of blood inside the abscess might have cause hyperdensity of the lesion. The more precise evaluation of the lesion might be possible by means of

helical CT scanner. The case report shows limitations of CT images interpretation and a failure that can result from fixed bearing radiological criteria.

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