ORIGINAl ARTICLE

Diagnostic value of multidetector computed tomography in differentiation of benign and malignant omental lesions

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KEYWORDS
MDCT; Omental lesions; Peritoneal carcinomatosis; Tuberculous peritonitis

Abstract Objective: To assess the diagnostic value of multidetector computed tomography (MDCT) in differentiation of benign and malignant omental lesions.

Patients and methods: MDCT scan was performed for 37 patients with omental lesions after administration of oral and intravenous contrast. The CT diagnosis was compared with the final histopathological findings. Sensitivity, specificity, and diagnostic accuracy of MDCT were calculated using surgical and histopathological findings as the gold standard.

Results: MDCT findings of all cases with omental torsion, cystic lymphangioma, and loculated fluid in the greater omentum correlated with the surgical and histopathological findings with 100% diagnostic accuracy. However, the diagnosis was missed in two patients from seven (2/7) with tuberculous peritonitis and in two patients from 21 (2/21) with peritoneal carcinomatosis with sensitivity, specificity and diagnostic accuracy of 73%, 92%, 85% and 90%, 95%, 93%, respectively.

Conclusion: MDCT is an excellent diagnostic tool for evaluating omental lesions, especially those present with nonspecific clinical manifestations.

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1. Introduction

The peritoneum and omentum are common sites for a variety of neoplastic diseases, both primary and metastatic. The greater omentum represents a privileged metastatic site for ovarian as well as gastrointestinal cancers (1).

Less frequently, non-neoplastic processes such as granulomatous disease, infections, or inflammatory conditions may also involve the omentum and the peritoneum and may mimic neoplastic disorders (2,3).

Abbreviations: MDCT, multidetector computed tomography; SD, standard deviation; X, mean; ERCP, endoscopic retrograde cholangio-pancreatography; HCC, hepatocellular carcinoma.

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In patients with a known primary malignancy, the discovery of peritoneal or omental mass likely indicates metastatic disease (4); however, the possibility of a benign cause or the presence of a second primary tumor is to be excluded (5,6).

Tuberculosis (TB) is still prevalent in developing countries. Recent resurgence of TB has also been seen in the developed countries, particularly among AIDS patients and among immigrant population (7).

The diagnosis of tuberculous peritonitis is still challenging and very important. A high index of suspicion particularly in high-risk groups and early and accurate diagnosis leads to an effective therapy and good survival rates. Delayed initiation of treatment can lead to high mortality rates (8,9).

On CT, the normal greater omentum appears as a band of fatty tissue with variable width. The CT appearance of omental pathology is dependent on the extent and duration of disease involvement. Early omental disease manifests as a smudged or permeated appearance of the omental fat. Enhancing soft tissue nodules form within the omentum as the disease progresses. An omental cake arises when these nodules coalesce to form a diffusely thickened mass and replace the normal fat (4). Depending on the cause of the omental cake and the extent of intraperitoneal disease, ascites may be an accompanying feature (10).

Computed tomography (CT) is a major diagnostic tool for evaluating omental lesions, especially those that may appear with nonspecific clinical manifestations. The greater and lesser omenta are anatomically complicated areas to fully assess at CT. As such, omental pathologic conditions may appear as various and nonspecific findings, ranging from a fluid collection to diffuse omental infiltration. High-resolution multidetector CT with multiplanar reformation improves demonstration of the omental anatomy and detection of omental pathologic conditions (2).

Differentiation of neoplastic involvement of the omentum from benign omental thickening can sometimes be challenging in clinical practice. Tuberculous peritonitis and peritoneal carcinomatosis have many clinical, laboratory, and imaging findings in common. A solid diagnosis is mandatory for a proper management (11). So the aim of our study was to assess the diagnostic value of multidetector computed tomography (MDCT) in differentiating benign and malignant omental lesions.

2. Patients and methods

2.1. Patients

This study was carried out at Radiology Department at Tanta University Hospital during the period from April 2013 to October 2014, and included 37 patients with omental lesions who were referred for CT evaluation after an inconclusive abdominal ultrasonographic examination.

There were 24 females and 13 males, their ages ranged from 21 to 72 years, with a mean age of 47.45 ± 15.52 years. All patients signed an informed consent before enrollment in the study. The study protocol was approved by the local ethical committee of Faculty of Medicine, Tanta University.

2.2. Methods

All patients were subjected to the following:

- Detailed history, thorough clinical examination and routine laboratory investigations.
- Abdominal multidetector CT (MDCT) study, with coronal and sagittal reconstruction.

CT technique

CT examinations were performed by using a 16-section multi-slice CT scanner. Scans were obtained with 1 mm slice thickness from the diaphragm to the symphysis pubis. Intravenous contrast material was administered as a bolus injection. Oral contrast administration with 1000 ml water and 100 ml mannitol in 25 patients, and diluted gastrografin (50 ml contrast and 1000 ml water) in 12 patients both were taken continuously over 45 min before imaging. The patients were imaged in supine position at 40 s (portal phase) after intravenous administration of 1–1.5 ml/kg, with a maximum dose of 100–120 ml. However triphasic study was done for two cases with hepatic masses.

Other investigations were used to complete the evaluation of the patients according to their conditions. These included endoscopy with biopsy for 6 patients, ultrasound-guided biopsy of omental masses for 11 patients and diagnostic laparoscopy for 5 patients.

The gold standard for the diagnosis was surgical findings and histopathological examination. Accordingly, patients were classified into benign and malignant groups and their data as well as MDCT diagnostic accuracy were compared.

Sensitivity, specificity, and diagnostic accuracy of MDCT were calculated using surgical and histopathological findings as the gold standard.

2.3. Statistical analysis

All statistical analyses were computed with the Statistical Package for the Social Sciences (SPSS) Version 16. Results were expressed as means ± standard deviation (SD), number and percent (%). Comparison between categorical data was performed using chi-squared test. For comparison between quantitative data student t-test was used. Sensitivity, specificity, and diagnostic accuracy were calculated. P value < 0.05 was considered as the statistical significance level.

3. Results

Thirty-seven (37) patients with omental masses as evidenced by omental thickening on CT were prospectively enrolled in this study. Their ages ranged from 21 to 72 years, with a mean age of 47.45 years. They were 24 (64.9%) females and 13 (35.1%) males. The common clinical presentations included abdominal discomfort (67.5%), ascites (56.7%), weight loss (35.1%) acute abdomen (24.3%), recurrent fever (24.3%) and abdominal lump (21.6%) Table 1.

Histopathological examination confirmed benign conditions in 16 (43.2%) patients (tuberculous peritonitis (n = 7), omental torsion (n = 5), cystic lymphangioma (n = 1) and encysted bile stained and bloody fluid collection in the greater omentum (n = 3)) and malignant conditions in 21 (56.8%) patients. Of the 21 patients with malignant conditions, 20 (54.1%) had metastatic adenocarcinoma of whom eight proved to be of ovarian (n = 8) origin, four proved to be of...
primary gastric malignancy \((n = 4)\), two had hepatocellular carcinoma \((n = 2)\), two had metastatic mucoid adenocarcinoma of colo-rectal origin \((n = 2)\), one was of pancreatic origin \((n = 1)\), and three had unknown primary \((n = 3)\). One \((2.7\%)\) patient had non-Hodgkin’s lymphoma.

The mean age of patients in the benign group was less than that of the malignant one \((34.2 \pm 7.3\text{ years versus } 56.6 \pm 11.7\text{ years, respectively})\), with a statistically significant difference, \(P = 0.023\). Both groups had a higher predominance of female sex with a female/male ratio of 10/6 in the benign group and 14/7 in the malignant group with a statistically non-significant difference, \(P = 0.12\).

Five of our patients \((5/37; 13.5\%)\) had omental infarction, four were secondary to abdominal surgery and one case was of unknown etiology (primary infarction). Four cases were right-side infarctions (Fig. 3) and one case was infra-umbilical (central) (Fig. 4). Primary omental infarction \((n = 1)\) was seen in younger patient compared with secondary omental infarctions. CT findings correlated with the operative and pathological findings in all five cases. CT characteristics of omental infarction included heterogeneous fatty mass that was located between the anterior abdominal wall and the bowel with a whirled pattern of concentric hyper-attenuated linear strands (Figs. 3 and 4) as described by Ceuterick et al. (12). These strands are twisted blood vessels whirling around a central rod (13).

| Table 1 Demographic characteristics and clinical presentation of studied patients. |
|-----------------------------------------------|-----------------|----------|
| Characteristics                              | No total = 37   | %        |
| Gender                                       |                 |          |
| – Male                                       | 13              | 35.1     |
| – Female                                     | 24              | 64.9     |
| Age in years                                 | Mean ± SD       | 47.45 ± 15.52 |
|                                             | Range           | 21–72    |
| Clinical presentations                       |                 |          |
| – Acute abdomen                              | 9               | 24.3     |
| – Abdominal discomfort                       | 25              | 67.5     |
| – Ascites                                    | 21              | 56.7     |
| – Abdominal mass                             | 8               | 21.6     |
| – Recurrent fever                            | 9               | 24.3     |
| – Weight loss                                | 13              | 35.1     |
| N.B. more than one clinical presentation was encountered in the same patient. |

Fig. 1 (A–D): HCC with omento-peritoneal metastasis. CT abdomen (A) axial cut shows left hepatic lobe mass (HCC), with two omental nodules that are seen anterior to the liver associated with minimal ascites. (B) CT axial cut shows two large omental nodules at right lumbar region, peritoneal nodule at left lumbar region and ascites. (C and D) Coronal cuts show the hepatic mass, multiple omental and peritoneal nodules and ascites.
Three cases were diagnosed as encysted fluid collection within the greater omentum (Fig. 7) and in one case of them the lesser sac was involved; (two cases of them were postendoscopic retrograde cholangio-pancreatography (ERCP) and common bile duct stenting and one case was after laparoscopic cholecystectomy).

One case was diagnosed as cystic lymphangioma (Fig. 5) and showed multiple variable sized cysts in the greater omentum, peri-gastric, peri-pancreatic and mesenteric regions. Cysts were also seen at the hilar region of right kidney and in the mediastinum.

CT imaging features of tuberculous peritonitis versus peritoneal carcinomatosis

On CT, all patients had identifiable omental thickening. CT scans showed three distinct patterns of omental abnormality. Infiltration of the omental fat, this appearance has been termed “smudging” of the fat, nodular studding of the omentum (Figs. 1 and 6) and thick sheet of tumor-involved omentum with complete replacement of the fat (omentum cake, Fig. 2). The predominant pattern was counted if different patterns coexisted.

Smudged omentum was the most common pattern of infiltration in both groups. It was seen in 5/7 patients with tuberculous peritonitis (71.4%) versus 11/21 patients (52.4%) with peritoneal carcinomatosis, with statistically significant difference ($P < 0.05$). Nodular (Figs. 1 and 6) and caked omentum (Fig. 2) was more common in patients with peritoneal carcinomatosis $19.1\%$ and $28.5\%$ versus $14.3\%$, respectively Table 2.

The omentum was thicker (2.98 ± 1.35 cm versus 1.63 ± 0.85, $P < 0.01$) and more irregular (80.9% versus 14.3%, $P < 0.001$) in patients with peritoneal carcinomatosis than in patients with tuberculous peritonitis. In addition we found that the thin fibrous wall covering the infiltrated omentum (Omental line) was more frequently reported in tuberculous peritonitis (57.1%) than in peritoneal carcinomatosis (4.8%) ($P < 0.01$) Table 2.

Mesenteric abnormalities were seen in all patients with tuberculous peritonitis (100%) compared with 38.1% in those with peritoneal carcinomatosis ($P < 0.01$). The most common mesenteric abnormalities noted on CT included nodular infiltration, thickening of mesenteric leaves, loss of normal mesenteric configuration and calcification in both diseases. Mesenteric nodular infiltration and calcification were more frequently seen in tuberculous peritonitis than in peritoneal carcinomatosis (71.4% and 28.6% versus 25% and 0.0%; respectively, $P < 0.01$) Table 2.

Peritoneal thickening was more frequently detected in tuberculous peritonitis (85.7%) than in those with peritoneal carcinomatosis (38.1%), $P < 0.01$. Nodular peritoneal thickening was detected in 5/7 of tuberculous peritonitis patients compared with 2/21 of the malignant patients, $P < 0.01$ Table 2.

Ascites was present in 4/7 patients with tuberculous peritonitis (57.1%) and in 17/21 patients (80.9%) with peritoneal carcinomatosis with statistically significant difference ($P < 0.05$). The amount of ascites (small or large), distribution pattern (free or loculated) and attenuation did not show a statistically significant difference between the two groups Table 2.
CT findings of all cases with omental torsion, cystic lymphangioma and loculated fluid in the greater omentum correlated with the operative and histopathological findings with 100% diagnostic accuracy. However, the diagnosis was missed in two patients from seven (2/7) with tuberculous peritonitis and in two patients from 21 (2/21) with peritoneal carcinomatosis with sensitivity, specificity and diagnostic accuracy of 73%, 92%, 85% and 90%, 95%, 93%, respectively Table 3.

4. Discussion
In this study, thirty-seven (37) patients with omental masses as evidenced by omental thickening on CT were prospectively enrolled in this study. Sixteen (43.2%) of our patients proved to have benign omental lesions in the form of tuberculous peritonitis (n = 7), omental torsion (n = 5), encysted fluid collection within the greater omentum (n = 3) and cystic

![Fig. 3](A–F): Primary omental infarction. CT abdomen (A and B) pre-contrast axial cuts, (C and D) postcontrast axial cuts and (E and F) coronal cuts show a well-defined rounded to oval shaped heterogeneous omental fatty tissue mass lesion under the anterior abdominal wall at the right lumbar region with a whirled pattern of concentric hyper-attenuated linear strands with no evidence of enhancement after contrast administration.
Fig. 4  (A–D): secondary omental infarction (post-operative of cesarean section). CT abdomen (A and B) axial cuts, (C) sagittal cut and (E) coronal cut show rounded mass lesion of omental fatty tissue under the anterior abdominal wall at the infra-umbilical region with blurring and stranding of the surrounding fat planes.

Fig. 5  (A–E): chylous (lymphatic) cysts in different locations. CT chest axial cut (A) with mediastinal window shows multiple mediastinal cysts. CT upper abdomen axial cuts (B–D) show multiple variable sized cystic lesions in the omentum, peri-gastric, peri-pancreatic and mesenteric regions, proved to be cystic lymphangioma after surgical excision.
lymphangioma (n = 1). Twenty-one (56.8%) patients had malignant omental involvement of different etiologies. Their ages ranged from 21 to 72 years, and the mean age of patients in the benign group was less than that of the malignant one (34.2 ± 7.3 years versus 56.6 ± 11.7 years; respectively, P = 0.023), with a statistically significant difference. Both groups had a higher predominance of female sex with a female/male ratio of 10/6 in the benign group and 14/7 in the malignant group with a statistically non-significant difference. These findings were in agreement with Hasab Allah et al. (11) who performed a study on 30 patients to differentiate benign from malignant omental infiltration using gray-scale high-frequency ultrasound enhanced by color Doppler study.

In the current study, the common clinical presentations included abdominal discomfort (67.5%), ascites (56.7%), weight loss (35.1%) acute abdomen (24.3%), recurrent fever (24.3%) and abdominal lump (21.6%). This was in accordance with Evans et al. (14) who reported that Common presenting symptoms of a solid omental tumor include abdominal discomfort (45.5%), abdominal lump (34.9%) and abdominal distention (15.2%). Nausea and weight loss may occur occasionally.

In our study, five of our patients (13.5%) were acute omental torsion, four were secondary to abdominal surgery and one case was of unknown etiology (primary torsion). Four cases were right-side infarctions and one case was infra-umbilical (central). Primary omental infarction (n = 1) was seen in younger patient compared with secondary ones. This result was in accordance with Singh et al. (15).

In the current study, CT findings correlated with the operative and pathological findings in all five patients with omental torsion. CT characteristics included heterogeneous fatty mass that is located between the anterior abdominal wall and the bowel with a whirled pattern of concentric hyper-attenuated linear strands. These findings were similar to that reported by other authors (15–17).

Fig. 6 (A–E): Tuberculous peritonitis. CT abdomen (A–C) axial cuts and (D and E) coronal cuts show laminar and nodular peritoneal thickening with multiple omental nodules under the anterior abdominal wall.
Fig. 7  (A–C): Loculated fluid within the greater omentum post ERCP and CBD stent insertion. CT abdomen (A–C) axial cuts show a well-defined crescent shaped fluid collection confined to the greater sac with iatrogenic dots of gas density within it and drainage catheter is seen in the last image.

<table>
<thead>
<tr>
<th></th>
<th>Tuberculous peritonitis (n = 7) No (%)</th>
<th>Peritoneal carcinomatosis (n = 21) No (%)</th>
<th>P-value</th>
</tr>
</thead>
</table>
| Omental changes
d | 7/7 (100.0)                           | 21/21 (100.0)                            | NS      |
| Nodular       | 1/7 (14.3)                            | 4/21 (19.1)                              | NS      |
| Smudged       | 5/7 (71.4)                            | 11/21 (52.4)                             | <0.05   |
| Caked         | 1/7 (14.3)                            | 6/21 (28.5)                              | NS      |
| Omental thickening | 1.63 ± 0.85                         | 2.98 ± 1.35                              | <0.01   |
| Irregular     | 1/7 (14.3)                            | 17/21 (80.9)                             | <0.01   |
| Omental line (+) | 4/7 (57.1)                         | 1/21 (4.8)                               | <0.01   |
| Mesenteric changes | 7/7 (100.0)                         | 8/21 (38.1)                              | <0.01   |
| Nodules       | 5/7 (71.4)                            | 2/8 (25.0)                               | <0.01   |
| Thickening    | 3/7 (42.8)                            | 5/8 (62.5)                               | NS      |
| Loss of normal configuration | 1/7 (14.3)                      | 2/8 (25.0)                               | NS      |
| Calcification | 2/7 (28.6)                            | 0/8 (0.0)                                | <0.05   |
| Peritoneal thickening | 6/7 (85.7)                       | 8/21 (38.1)                              | <0.05   |
| Laminar       | 5/6 (83.3)                            | 7/8 (87.5)                               | NS      |
| Nodular       | 5/6 (83.3)                            | 2/8 (25.0)                               | <0.01   |
| Ascites       |                                       |                                         |         |
| 1. Present    | 4/7 (57.1)                            | 17/21 (80.9)                             | <0.05   |
| 2. Amount     |                                       |                                         |         |
| Small         | 3/4 (75.0)                            | 11/17 (64.7)                             | NS      |
| Large         | 1/4 (25.0)                            | 6/17 (35.3)                              | NS      |
| 3. Loculation | 1/4 (25.0)                            | 4/17 (23.5)                              | NS      |
| 4. High attenuation | 1/4 (25.0)                        | 3/17 (17.6)                              | NS      |

N.B: More than one MDCT imaging feature was encountered in the same patient.
* The predominant pattern was counted if different patterns coexisted.
In the current study, omental thickening could be detected in all of our studied patients. Smudged omentum was the most common pattern of infiltration in peritoneal carcinomatosis and tuberculous peritonitis (52.4%, versus 71.4%; respectively), with statistically significant difference (P < 0.05). Nodular and caked omentum was more common in patients with peritoneal carcinomatosis. These results were similar to that reported by Ha et al. (18) who performed a study on 135 patients to differentiate the same disease using CT.

In our study, the omentum was thicker (2.98 ± 1.35 cm versus 1.63 ± 0.85, P < 0.01) and more irregular (80.9% versus 14.3%, P < 0.01) in patients with peritoneal carcinomatosis than in patients with tuberculous peritonitis. In addition we found that the thin fibrous wall covering the infiltrated omentum (Omental line) was more frequently reported in tuberculous peritonitis (57.1%) than in peritoneal carcinomatosis (4.8%) (P < 0.01). This was in agreement with the results of the study by Ha et al. (18) who reported a thicker omentum in the malignant group of patients (2.6 versus 1.7 cm) and a more irregular omental involvement (78% versus 19%). They also stated that Omental line was more frequently seen in tuberculous peritonitis (50%) than in peritoneal carcinomatosis (5%) (P < 0.01).

Our results showed that mesenteric abnormalities were seen in all patients with tuberculous peritonitis (100%) compared with 38.1% in those with peritoneal carcinomatosis (P < 0.01). The most common mesenteric abnormalities noted on CT included nodular infiltration, thickening of mesenteric leaves, loss of normal mesenteric configuration and calcification. Mesenteric nodular infiltration and calcification were more frequently seen in tuberculous peritonitis than in peritoneal carcinomatosis (71.4% and 28.6% versus 25% and 0.0%; respectively, P < 0.01).

Our results matched with the CT results of the study by Ha et al. (18) who detected mesenteric changes in 98% of patients with tuberculous peritonitis versus 70% in peritoneal carcinomatosis. Echogenic mesenteric thickening ≥15 mm was first described in 1995 by Jain et al. (19) and was considered by them to be characteristic of tuberculous peritonitis. This could be explained by fat deposition due to lymphatic obstruction, edema, and mesenteric lymphadenopathy.

But our result did not match with Hasab Allah et al. (11) who detected a thickened echogenic mesentery in a much lower rate than in our series: 27.2% of tuberculous peritonitis patients versus 5.3% of the malignant group using gray-scale high-frequency ultrasound enhanced by color doppler study. Moreover, we detected peritoneal thickening more frequently in tuberculous peritonitis (Fig. 6) than in peritoneal carcinomatosis (85.7% versus 38.1%; respectively, P < 0.05). This matched with the findings of the study by Na-ChiangMai et al. (20) who reported peritoneal involvement on CT in 88% of 17 patients with tuberculous peritonitis, with a smooth uniform pattern in 76% of them.

Also we reported nodular peritoneal thickening in 5/7 of tuberculous peritonitis patients and 2/21 of the malignant patients. This matched with the findings of the study by Hasab Allah et al. (11) who reported nodular peritoneal thickening in 10/11 of tuberculous peritonitis patients and 3/19 of the malignant patients on ultrasound. Nodular thickening in the benign group represents tubercles and in the malignant group represents seedling malignant cells.

Our results showed that ascites was present in 4/7 patients with tuberculous peritonitis (57.1%) and in 17/21 patients (80.9%) with peritoneal carcinomatosis with statistically significant difference (P < 0.05); however, the amount of ascites, distribution pattern and attenuation did not show a statistically significant difference between the two groups.

Our results were in accordance with the study by Ha et al. (18) who found that ascites was present in 27/42 patients with tuberculous peritonitis (64%) and in 78/93 patients (84%) with peritoneal carcinomatosis and the amount of ascites (small or large), distribution pattern (free or loculated) and attenuation did not show a statistically significant difference between the two groups.

Our results showed that CT findings of all cases with omental torsion correlated with the operative and histopathological findings with 100% diagnostic accuracy. This matched with the results of a study by El Sheikh and Abdulaziz (16) who recorded that CT findings of omental torsion correlated with the operative and histopathological findings in all patients that underwent CT.

Our results revealed that sensitivity, specificity and diagnostic accuracy of CT in diagnosis of tuberculous peritonitis were 73%, 92% and 85% respectively. These results were near to that reported by Ha et al. (18) who reported that the overall sensitivity of CT for predicting tuberculous peritonitis was 69%.

In our series, sensitivity, specificity and diagnostic accuracy of CT in diagnosis of peritoneal carcinomatosis were 90%, 95% and 93%; respectively. These results matched with Ha et al. (18) and Coakley et al. (21) who reported CT overall sensitivity for detection of tumor implants to be 91% and 85%–93% respectively.

### Table 3  Sensitivity, specificity and diagnostic accuracy of MDCT in omental lesions.

<table>
<thead>
<tr>
<th>Type of lesions</th>
<th>MDCT diagnosis</th>
<th>Histopathological diagnosis</th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
<th>Diagnostic accuracy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benign lesions: (n = 16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>–Tuberculous peritonitis (n = 7)</td>
<td>5</td>
<td>7</td>
<td>73</td>
<td>92</td>
<td>85</td>
</tr>
<tr>
<td>–Omental torsion (n = 5)</td>
<td>5</td>
<td>5</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>–Loculated fluid in GO (n = 3)</td>
<td>3</td>
<td>3</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>–Cystic lymphangioma (n = 1)</td>
<td>1</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>100</td>
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<tr>
<td>Peritoneal carcinomatosis (n = 21)</td>
<td>19</td>
<td>21</td>
<td>90</td>
<td>95</td>
<td>93</td>
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<tr>
<td>Total</td>
<td>33</td>
<td>37</td>
<td>89</td>
<td>97</td>
<td>92</td>
</tr>
</tbody>
</table>

*GO = Greater Omentum.
The limitation of this study was the small number of enrolled cases compared to the large pathological entities involving the omentum. So studies with large number of cases are required to validate our results.

5. Conclusions

Our results showed the overlapping appearance of several common omental lesions in CT. Therefore, correlation with the CT pattern of omental involvement, associated CT findings in the abdomen, clinical information and laboratory data are essential for proper diagnosis and treatment. Some diseases, such as omental infarction and encysted fluid, can be accurately diagnosed only on the basis of characteristic CT features. Knowledge of the omental anatomy, the disease spectrum involving the greater and lesser omenta, and the characteristic CT appearances of each disease is essential for accurate diagnosis and proper treatment.

Conflict of interest

We have no conflict of interest to declare.

References