CLINICAL TRENDS AND TOPICS

PERITONEOSCOPY AND GUIDED BIOPSY IN THE DIAGNOSIS OF INTRAABDOMINAL DISEASE

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In 145 cases of intraabdominal disease, a laparotomy was considered the next diagnostic step, but peritoneoscopy was performed instead. In 37 cases with a suspicion of metastatic carcinoma, peritoneoscopy with guided biopsy demonstrated carcinoma in 29. In 32 cases, with biopsy-proven cirrhosis of the liver with high suspicion of a hepatoma, peritoneoscopy demonstrated the presence of hepatoma in 12. In 28 cases, protracted unexplained jaundice was present; nonsurgical causes for jaundice were found in 15. In 48 cases an exudative (protein greater than 2.5 per 100 ml) ascites was present. In 19 cases, either tuberculosis or carcinomatous implants of the peritoneum were found, and ovarian carcinoma was found in 9. Peritoneoscopy with guided biopsy obviated the need for laparotomy in 90% of these cases.

Peritoneoscopy, an endoscopic examination of the peritoneal cavity and some of its contents was initially described in 1902. Its role in clinical medicine still remains the subject of controversy. However, it appears to be superior to blind percutaneous liver biopsy in the staging of Hodgkin's disease, in the diagnosis of liver involvement by lymphoma, in detecting the presence of hepatic neoplasm, and in evaluating the presence of parenchymatous liver disease. The present study will present evidence to evaluate its role in a variety of intraabdominal diseases.

Materials and Methods

Three hundred and forty patients, in whom peritoneoscopies were performed from 1968 to 1975, in the course of consultative gastroenterological practice, were reviewed. Of these, 195 patients were excluded from consideration because a blind percutaneous liver biopsy had not been performed before peritoneoscopy in patients in whom the main pathological findings were in the liver, or the suspicion of pathology was not sufficient to warrant laparotomy. In the remaining 145 patients, laparotomy was considered the next diagnostic step, but peritoneoscopy and direct vision biopsy were performed instead. These patients fell into the following categories:

Group I. Thirty-seven patients had a history of removal of a carcinoma with the last 5 years, an elevated alkaline phosphatase, hepatomegaly or an abnormal liver scan, and a normal percutaneous liver biopsy. In 5 patients, two blind liver biopsies had been performed. In additional 10 patients, two specimens of liver had been obtained during a single biopsy as suggested by Conn. The time interval between the blind percutaneous liver biopsy and the peritoneoscopy ranged from 2 to 21 days with a mean of 3.75 days.

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material for cytology from the liver biopsy* or to direct the biopsy to cold areas on scan (except where noted) were not done.

In jaundiced patients, endoscopic retrograde cholangiopancreatogram was not done. Initially, because it was not available, subsequently because it would not give information as to pathology in the liver. In 3 of the jaundiced patients, transhepatic cholangiography was done under direct vision at the time of the peritoneoscopy. In 2 patients, there was a history of lymphoma on chemotherapy; one of these had a previous cholecystectomy. In the other, there was evidence of both macronodular cirrhosis and common duct obstruction at peritoneoscopy.

Results
The results are summarized in Table 1.

Group 1. Twenty-nine patients were found to have metastatic deposits in the liver. In 10, there were four lesions or less measuring 2 cm or less, each. The distribution of lesions was as follows: 10 cases, both lobes equally involved; 9 cases, the medial aspect of right lobe and left lobe; 4 cases, the medial aspect of right lobe only; 4 cases only the left lobe; 2 cases, only the inferior edge of the right lobe.

Unlike Jori and Peschle, in no instance did we find a positive biopsy in an area where tumor was not grossly visualized. In 7 patients cirrhosis of the liver was found, and in 1 patient no abnormality of the liver was present. Follow-up on these patients ranges from 1 to 5 years and no false negatives have occurred to date.

Group 2. Hepatomas were found in 12 patients, cirrhosis of the liver with regenerative nodules in 19, and a liver infarct in 1 patient with postnecrotic cirrhosis. Seven of the hepatomas were found to arise primarily in the left lobe of the liver, the remaining five arose in the central portion of a markedly enlarged right lobe of the liver. Follow-up of these patients ranges from 6 months to 7 years. No false negatives have been reported to date.

Group 3. Fifteen patients had extrabiliary obstruction of the common bile duct demonstrated by peritoneoscopy and were not biopsied. Six were found to have choledocholithiasis; 5 others were found to have carcinoma of the head of the pancreas and 1 had an ampullary carcinoma. In the 3 patients in whom direct vision transhepatic cholangiography was done, the 2 with lymphomas were shown to have an obstruction of the common duct near the junction between the cystic and hepatic ducts. In the other, patient blockage at the end of a dilated common duct was seen. At exploratory laparotomy, carcinoma of the head of the pancreas was found.

Of the 13 patients who were found to have no common duct obstruction, 3 had steatonecrosis, 8 had cirrhosis of the liver and 2 had chronic active hepatitis.

Group 4. Eight patients were found to have tuberculous peritonitis, 11 had metastatic carcinoma to the peritoneum, 14 had cirrhosis of the liver, 9 had ovarian carcinoma, and in 1 patient there was chronic adhesive peritonitis after prolonged peritoneal dialysis. In 5 patients, no evidence of pathology in the peritoneum or intraabdominal organs was found. A subsequent diagnosis of polyserositis was made in 4, and of constrictive pericarditis in 1 patient.

Complications
There was no deaths within 72 hr of the procedure. At a period of 1 week after peritoneoscopy and biopsy, there were 3 patients who had died and at postmortem examination, the death did not appear to be related to the procedure. In 1 additional patient who died, a postmortem examination was not done; however, the circumstances of death were such that it did not appear to be related to the procedure. There was significant hemorrhage from the biopsy site in 2 patients with hepatoma; the bleeding was detected at the time of peritoneoscopy. One patient required 2 units of blood, the other required 8 units of blood. In 5 of the patients who had metastatic implants on the peritoneal cavity, metastatic implants appeared at the incision site for peritoneoscopy.

Discussion
It is not surprising that peritoneoscopy with guided biopsy is able to make a diagnosis of carcinoma where a blind biopsy has failed, because, in many cases, metastatic deposits were small and in areas not readily accessible to the blind biopsy. At peritoneoscopy, when a probe is used to mobilize the liver, approximately 70 to 80% of the liver surface can be visualized. However, metastatic deposits may be missed in areas not visualized or in deposits deep within the liver parenchyma. This occurs not infrequently in patients with non-Hodgkin's lymphoma. There are no data to document how often this occurs in early liver metastasis from carcinoma. The technique of multiple deep direct vision biopsies of both lobes as used in staging of Hodgkin's disease may prove valuable in these cases.

In our present approach to patients with suspected metastatic carcinoma of the liver, if a liver scan shows

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Table 1. Summary of cases

<table>
<thead>
<tr>
<th>Indications for peritoneoscopy and guided biopsy</th>
<th>No. of patients</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatomegaly, high clinical suspicion of carcinoma, normal blind biopsy</td>
<td>37</td>
<td>Metastatic carcinoma, 29 Cirrhosis, 7 Normal, 1</td>
</tr>
<tr>
<td>Diagnosis of cirrhosis by percutaneous biopsy; high suspicion of hepatoma</td>
<td>32</td>
<td>Hepatomas, 12 Cirrhosis only, 19 Liver infarct, 1</td>
</tr>
<tr>
<td>Unexplained protracted jaundice</td>
<td>28</td>
<td>Extrahepatic obstruction, 15 Steatonecrosis, 3 Cirrhosis, 8 Chronic active hepatitis, 2</td>
</tr>
<tr>
<td>Unexplained exudative ascites</td>
<td>48</td>
<td>Tuberculous peritonitis, 8 Metastatic carcinoma, 11 Cirrhosis, 14 Ovarian carcinoma, 9 Polyserositis, 4 Constrictive pericarditis, 1 Chronic adhesive peritonitis, 1</td>
</tr>
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</table>
large defects on the superolateral aspect of the right lobe, an area accessible to our blind percutaneous biopsy, we will attempt to do liver biopsy first. If no evidence of carcinoma is found, we perform a peritoneoscopy. If the scan does show involvement of this area, we feel that peritoneoscopy should be performed as the initial procedure. Peritoneoscopy performed by a trained endoscopist adds little to the morbidity of the liver biopsy.

Hepatomas are usually large, but not infrequently involve the medial or central aspect of a markedly enlarged left lobe or right lobe of the liver. Inasmuch as blind biopsy only samples a very small portion of the liver, its yield is low. At present, in patients with suspicion of hepatoma, peritoneoscopy with guided biopsy is our procedure of choice, because it not only allows a diagnosis, but helps in assessing resectability.

In cases of protracted jaundice, dark stools, or pruritis are present and a strong suspicion of common duct obstruction exists, we believe that peritoneoscopy is the procedure of choice. Although some believe that blind percutaneous biopsy of the liver is of considerable diagnostic value and that the incidence of complications is low, others still consider it either a high risk procedure, or contraindicated. Peritoneoscopy is a safe procedure, and in nonobstructed patients, it allows sampling of liver tissue. In a large series of patients, suspected of having common duct obstruction the peritoneoscopic diagnosis was incorrect in 4.6% of the cases, and nonconclusive in 4.1% of the cases. In this latter group, direct vision transhepatic cholangiography would probably have been of help.

In patients with ascites, closed percutaneous peritoneal biopsy obtains peritoneal tissue in 82% to 86% of cases. Biopsy specimens have provided a specific diagnosis in 25% to 50% of patients in whom peritoneal pathology was present. However, not all cases of exudative ascites represent examples of peritoneal pathology.

Peritoneoscopy allows visualization of a large portion of visceral and parietal peritoneum and biopsies always yield peritoneal tissue. The pelvis and liver, not uncommon origin sites of this problem, can usually be inspected and explored. False negatives do occur, however, peritoneoscopy appears to be a safe and reasonable diagnostic modality in patients with exudative ascites.

In the present group of highly selected patients, peritoneoscopy obviated the need for laparotomy in 90%.

We believe that peritoneoscopy with guided biopsy has a very distinct and positive role in the diagnosis of hepatic neoplasms, protracted jaundice, and exudative ascites.

REFERENCES

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