

# A Case Report Of Four-Port-Site Metastasis Of Gallbladder Cancer After Laparoscopic Cholecystectomy And Literature Review

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## Abstract

Port-site metastasis following laparoscopic cholecystectomy with unsuspected gallbladder carcinoma is a serious problem. We present an unusual case of four-port-site adenocarcinoma metastasis from gallbladder cancer. A 63-year-old woman underwent laparoscopic cholecystectomy for acute cholecystitis. Thirty months later, she was admitted to the hospital with a complaint of masses at the four trocar sites. A biopsy from the port sites was undertaken and led to the diagnosis of adenocarcinoma metastasis.

## PLACE OF STUDY

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## BACKGROUND

Over the past decade, modern laparoscopic equipment and techniques have expanded the role of diagnostic and operative laparoscopy. As a result, a growing number of patients are enjoying the advantages of minimal access surgery; port-site metastasis following laparoscopic cholecystectomy with unsuspected gallbladder carcinoma is a serious problem.

## INTRODUCTION

Since the introduction of laparoscopic cholecystectomy by Phillipe Mouret in 1987<sup>1</sup>, it has had explosive success worldwide and with more widespread adoption of the technique, the phenomenon of port-site metastasis from unsuspected gallbladder carcinoma has become evident. Gallbladder carcinoma is found in 1% of all biliary tract operations<sup>2</sup>, in most being diagnosed only after histological examination of the gallbladder.

## CASE REPORT

A 63-year-old woman presented to our emergency department 30 months ago with chief complaint of right upper quadrant abdominal pain from 72 hours prior to admission without fever or tachycardia. The patient had no previous history of medical or surgical illness. On physical

examination, local tenderness and guarding in the right upper quadrant were detected along with decreased bowel sounds. In laboratory findings, white blood cell count, serum electrolytes and liver function tests except ALT (which was above the normal level) were in normal range.

Emergency ultrasonography showed increased gallbladder wall thickness and increased echogenicity, in favor of gallbladder stone and acute cholecystitis. Nevertheless, intra- and extrahepatic biliary ducts and CBD diameters were normal. With primary diagnosis of acute cholecystitis, the patient underwent an emergency laparoscopic cholecystectomy. Adhesion of the gallbladder wall to the omentum and inflammatory gallbladder were considerable pathologic findings of the procedure. The gallbladder was excised and passed out from the abdominal cavity uneventfully, and the patient was transferred to the recovery unit.

On post-operative day 3, she experienced cellulites in the place of the epigastric laparoscopic port along with fever, tachycardia, leukocytosis and increased ESR which responded fully and almost immediately to antibiotic and irrigation therapy.

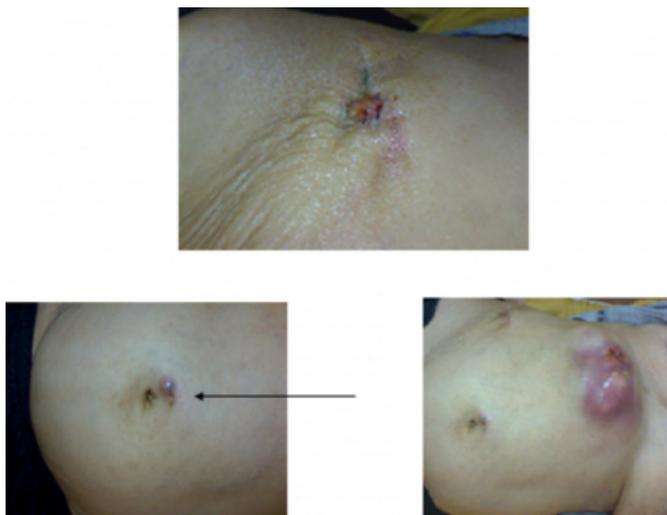
The pathologic findings of the gallbladder were consisting of tumoral and necrotic tissue indicating well-differentiated adenocarcinoma. Mucosa and submucosa were involved, but no evidence of invasion to muscular layer and gallbladder serosa was found (T1). Considering the tumor stage, no

further surgery was planned and so the patient was referred to the oncology department to continue the treatment with the required courses of chemotherapy.

Fifteen days after the last chemotherapy session, and twenty months after first presentation, she came to our clinic complaining of discolored painless masses at all four port sites of laparoscopic surgery (Figure 1).

**Figure 1**

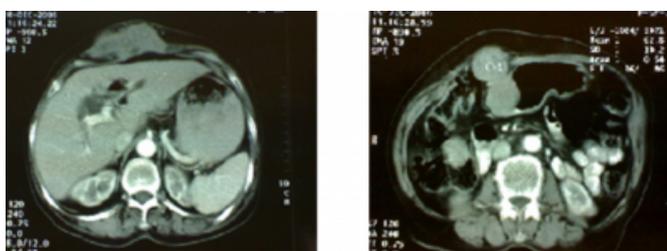
Figure 1: Four-port-site recurrence



The biopsy of the mentioned masses showed skin involvement by tumoral cells with origin of adenocarcinoma. In attempt to find the anatomical involvement of neighboring organs, a double contrast CT scan was performed and multiple nodular masses with different sizes in the peritoneal cavity and internal wall of the abdomen were reported (figure 2).

**Figure 2**

Figure 2: Abdominal CT with intravenous and oral contrast media



The places of the nodules were concordant with the previous history and with the laparoscopic port sites. Recurrence of tumoral mass in the porta hepatis, dilation of right and left hepatic ducts, subcutaneous tissue seeding with tumor and involvement of rectus abdominis and external oblique

muscles on the right side were other considerable notes.

**DISCUSSION**

Most reports of PSM (port-site metastasis) in cancers treated laparoscopically are related to gastrointestinal malignancies. Of these, over half of the recurrences involve the extraction site.<sup>3</sup> It is expected that gallbladder cancer will be found in 1–2% of all biliary tract operations.<sup>4</sup> A pre-operative diagnosis may be made in as few as 10% of cases.<sup>5</sup> Hence, port-site metastasis following laparoscopic cholecystectomy for unsuspected carcinoma is going to be a problem of some magnitude in the years to come. Port-site metastasis has been detected as early as 18 days after the surgery, on histological examination of excised port sites during radical surgery.<sup>6</sup>

Wound metastasis following open cholecystectomy for unsuspected gallbladder carcinoma is very rare, but is more frequently encountered with the laparoscopic procedure. Moreover, the spread of cancer following laparoscopy appears aggressive and widespread, as noticed from re-operation for radical treatment.<sup>7</sup> There is no proven explanation for this phenomenon. Various factors have been incriminated: pneumoperitoneum with carbon dioxide, high intra-abdominal pressure, laparoscopic instruments, surgical wounds from port sites, implantation of cancer cells while extracting the gallbladder and depressed immunity. It is also possible that a lack of direct tactile sensation during the laparoscopic procedure results in the diagnosis being overlooked until the histology is available, unlike during open cholecystectomy.

Initially, it was thought that port-site metastasis may be due to extraction of the gallbladder through one of the ports, resulting in the implantation of cells locally. But this has been disproved by the evidence of multiple-port involvement and the metastases developing despite using a cellophane bag to retrieve the gallbladder.<sup>8,9</sup> Instrumentation causes exfoliation of tumor cells, which then adhere to the instruments in 40% of operative procedures, and may be the main source of dissemination of malignant cells through the peritoneal cavity.<sup>10</sup> There is now a consensus that gallbladder carcinoma is a contraindication for laparoscopic cholecystectomy. In a large series of carcinoma of the gallbladder evaluated by laparoscopy, surgical removal was thought to be appropriate in only one of 98 cases.<sup>11</sup> There is some evidence, from some specialized centers, that radical resection, including excision of port sites, may prolong survival for locally advanced (pT2 or greater) lesions.<sup>12</sup>

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