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Surgical resection of advanced gallbladder squamous cell carcinoma accompanied by infiltration of the surrounding organs and general peritonitis

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ABSTRACT

INTRODUCTION: Squamous cell carcinoma (SCC) of the gallbladder is rare, accounting for merely 1–3% of all gallbladder cancers.

PRESENTATION OF CASE: A 59-year-old Japanese man was referred to our hospital with a chief complaint of right lower abdominal pain. He was diagnosed with gallbladder cancer after comprehensive testing. Computed tomography (CT) imaging revealed an enlarged gallbladder, and a lumen full of tumors (maximum tumor size was 90 mm in diameter.). The patient was, therefore, admitted to our department for the operation. After admission, the patient developed a fever and pain in his lower right abdomen. Palpation revealed masses in the abdomen and right hypochondrium. Blood tests revealed elevated levels of inflammatory markers. Therefore, a conservative treatment approach was performed prior to surgery. After then, the patient's abdominal symptoms did not seem to worsen, and his vital signs were stable, leading us to continue the conservative treatment approach. The operation was conducted on a semi-urgent basis. Surgical findings: The patient was diagnosed with gallbladder cancer with traverse colon infiltration. We performed hepatic resection (S4a + S5), biliary reconstruction, lower (pyloric) gastrectomy, right hemicolectomy, and ileostomy. Histopathological findings revealed that the patient was diagnosed with advanced gallbladder SCC.

DISCUSSION: Primary SCC of the gallbladder is associated with poor prognosis. Continuing to collect and document such cases will help to resolve this matter.

CONCLUSION: This report details our experience in treating a case of “pure” gallbladder SCC, a rare subtype of gallbladder cancer. Despite the complicating general peritonitis, we were still able to safely perform a radical resection to remove it.

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1. Introduction

Squamous cell carcinoma (SCC) of the gallbladder is rare, accounting for merely 1–3% of all gallbladder cancers [1–5] and is associated with poor prognosis because tumors are usually at an advanced stage by the time of diagnosis. We report a case of advanced gallbladder SCC accompanied by the infiltration of surrounding organ and general peritonitis, treated by surgical resection. This case report is in line with the SCARE criteria [6].

2. Presentation of case

A 59-year-old Japanese man with no past medical or surgical history was referred to our hospital with a chief complaint of right lower abdominal pain. He was diagnosed with gallbladder cancer

after comprehensive testing. Computed tomography (CT) imaging revealed an enlarged gallbladder, and a lumen full of tumors (maximum tumor size was 90 mm in diameter.). Infiltration was apparent in the liver bed but not at the porta hepatis (Fig. 1). Surgical resection was indicated owing to the lack of lymph node or distant metastasis and despite suspected infiltration of the transverse colon and pylorus. The patient was, therefore, admitted to our department for the operation. After admission, the patient developed a fever and pain in his lower right abdomen. Palpation revealed masses in the abdomen and right hypochondrium. Blood tests revealed elevated levels of inflammatory markers. (WBC 15200/ μ L, C-reactive protein level was 12.1 mg/L, tumor makers were following results: CEA 2.7 ng/mL, CA19-9 31 U/mL).

Therefore, a conservative treatment approach (fasting, intravenous therapy, and antibiotics) was performed prior to surgery.

On the scheduled day, the operation was conducted on a semi-urgent basis.

Surgical findings: Cloudy ascites were noted upon entering the abdomen. Intra-abdominal examination revealed enlargement of

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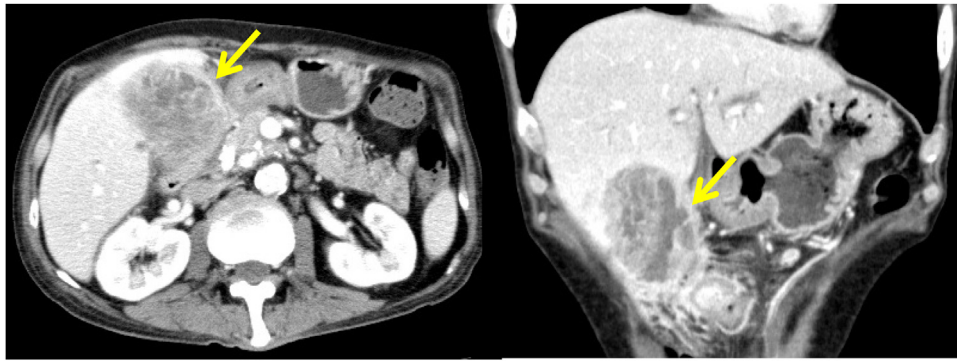


Fig. 1. Computed tomography (CT) imaging revealed an enlarged gallbladder, and a lumen full of tumors (yellow arrow, maximum tumor size was 90 mm in diameter.). Infiltration was apparent in the liver bed but not at the porta hepatis.

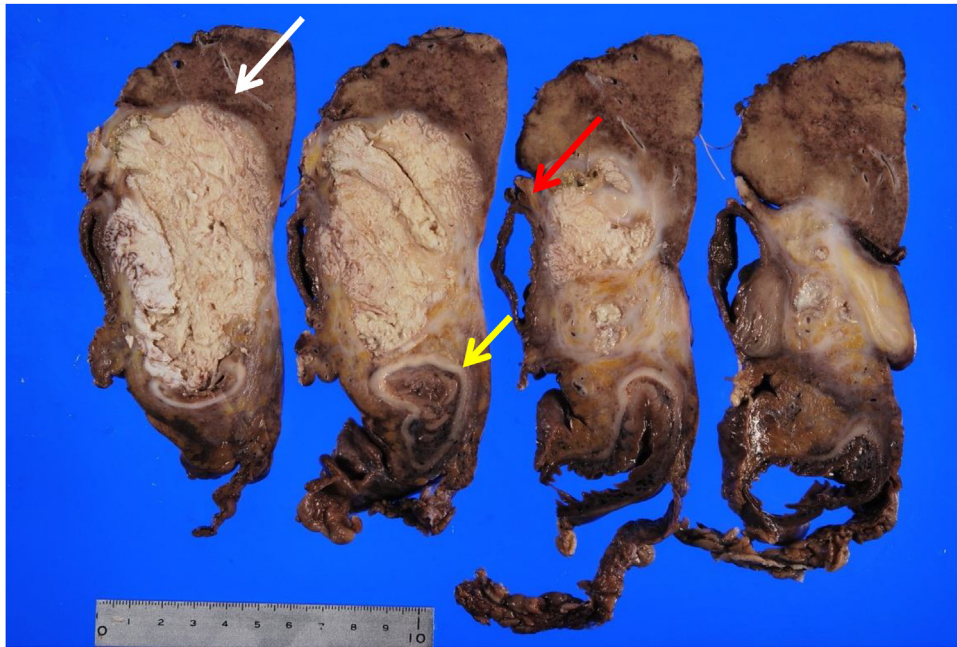


Fig. 2. Resected specimen: The gallbladder was full of yellow-white tumors and infiltration of the liver bed (white arrow), gastric pylorus (red arrow), and transverse colon (yellow arrow), was observed. Maximum tumor size was 90 mm in diameter.

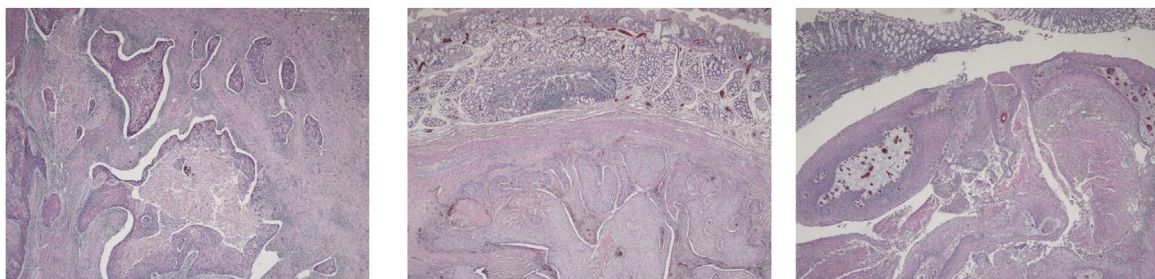


Fig. 3. Histopathological findings (H.E.stain.): The tumors were classified as squamous cell carcinoma with advanced keratinization (a). Infiltration of the liver bed, pyloric region (b), and transverse colon (c) were observed.

the ascending colon and coating of the large intestine with a white fuzzy substance from the cecum to the ascending colon. From the swollen gallbladder, the cancer had spread to the adjacent transverse colon, forming a single large mass. The patient was, therefore, diagnosed with gallbladder cancer with transverse colon infiltration. We suspected that this cancerous infiltration had

obstructed the passage of material through the large intestine, creating pressure within, and eventually perforating, the ascending colon. No signs of peritoneal dissemination to the Douglas' pouch, peritoneum, or small-bowel mesentery nor liver metastasis (POHO) were observed. The hepatic infiltration had reached the liver bed as far as the pyloric area; however, no clear infiltration of the porta

hepatitis was observed. Ileocolic anastomosis was precluded by the widespread infection (general peritonitis), leading us to pursue a surgical plan consisting of radical resection of the gallbladder cancer and ileostomy. Specifically, the surgery comprised hepatic resection (S4a + S5), biliary reconstruction, distal gastrectomy, right hemicolectomy, and ileostomy.

Resected specimen: The gallbladder was full of yellow-white tumors and infiltration of the liver bed, gastric pylorus, and transverse colon was observed. Maximum tumor size was 90 mm in diameter (Fig. 2).

Histopathological findings: The tumors were classified as squamous cell carcinoma with advanced keratinization. Despite infiltration of the liver bed, pyloric region, and transverse colon, no evidence of lymph node metastasis was observed. Based on the above, the patient was diagnosed with advanced gallbladder SCC complicated by liver bed, pylorus, and transverse colon infiltration (final stage: pT4NOHOP0M(-) fStage IVa) (Fig. 3).

Postoperative course: Surgical site infection was noted at the wound following surgery, but the patient recovered steadily and was eventually discharged. We recommended the patient to receive the postoperative adjuvant chemotherapy, however, he refused the chemotherapy. Five months after surgery, he died because of multiple metastases in the liver and lymph nodes.

3. Discussion

Squamous cell carcinoma of the gallbladder is rare, accounting for only 1–3% of all gallbladder cancers [1–5].

Various hypotheses have been proposed for the etiology of squamous cell carcinoma of the gallbladder, however, the etiology for squamous cell carcinoma of the gallbladder is not clearly defined.

The most convincing explanation for its pathogenesis is that the squamous cells seen in the squamous cell carcinoma of the gallbladder arise from squamous metaplasia or squamous differentiation of pre-existing adenocarcinoma [7,8].

This disease has several notable characteristics: (1) tumors are often discovered at an advanced stage, (2) it is likely to directly infiltrate adjacent organs, and (3) it tends to be highly localized, rarely resulting in distant metastasis (lymphatic or hematogenous spread) [9,10]. The patients with pure squamous cell carcinoma of the gallbladder and adenosquamous cell carcinoma of the gallbladder tended to have more advanced tumor stages and less favorable prognoses than those with conventional adenocarcinoma of the gallbladder [5,11].

In contrast, some authors have reported that the survival rate for patients with squamous cell carcinoma of the gallbladder and adenosquamous cell carcinoma of the gallbladder is comparable to that of those with adenocarcinoma of the gallbladder [12,13].

Curative surgical resection for patients with pure squamous cell carcinoma of the gallbladder and adenosquamous cell carcinoma of the gallbladder achieved survival rates comparable to resection for those with adenocarcinoma of the gallbladder [14].

The squamous cell carcinoma of the gallbladder progresses twice as fast as adenocarcinoma and is strongly associated with local infiltration; however, it rarely results in distant metastasis. Accordingly, treatment protocols should prioritize the option for radical surgery, while keeping in mind that an extended operation may be required.

The efficacy of postoperative adjuvant chemotherapy in cases of gallbladder SCC, and of chemotherapy generally in non-resected cases, is unclear. Continuing to collect and document such cases will help to resolve this matter.

Radical tumor resection was still feasible for our patient, despite the appearance of general peritonitis immediately prior to surgery. We suspected that the infection was caused by infiltrating masses

obstructing the passage of material through the large intestine, creating great pressure within, and eventually perforating, the ascending colon, allowing waste material to leak into the abdominal cavity.

4. Conclusion

This report details our experience in treating a case of “pure” gallbladder SCC, a rare subtype of gallbladder cancer. Despite the advanced stage and infiltration of the cancer into surrounding organs, as well as the complicating general peritonitis, we were still able to safely perform a radical resection to remove it.

Declaration of Competing Interest

The authors declare no conflict of interest.

Sources of funding

Nothing to declare.

Ethical approval

This study is exempt from ethical approval in our institution.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

KH participated in the care of the patient including the operation and wrote the initial draft of the manuscript. YF, JF and TO participated in the surgery and revised the manuscript. YF, JF and TO gave final approval of this paper to be published. All authors read and approved the final manuscript.

Registration of research studies

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