Surgical management of gallbladder sarcomatoid carcinoma

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AIM: To study the behavior as well as optimal treatment of gallbladder sarcomatoid carcinoma, we reviewed the results of treatment of gallbladder sarcomatoid carcinoma from Chang Gung Memorial Hospital.

METHODS: From 1987 to 2005, six patients were diagnosed with gallbladder sarcomatoid carcinoma and treated at our institution. Tumor staging was based on 2002 revised tumor-node-metastasis (TNM) staging for gall bladder cancer from the American Joint Committee on Cancer. The clinical presentation, laboratory data and preoperative workup were reviewed retrospectively.

RESULTS: Five patients were female and one was male. The age ranged from 51 to 66 years (median, 58 years). Surgical procedures included three curative resections, two palliative resections and one biopsy. There were two surgical complications (33.3%) and one case of surgical mortality (16.7%). The follow-up time ranged from 30 d to 5 mo. The median survival was 2.5 mo. The prognosis was extremely poor, even after curative resection and postoperative chemotherapy.

CONCLUSION: The prognosis of gallbladder sarcomatoid carcinoma was not dependent on TNM stage and was always dismal. The clinicopathological features were different from those of gall bladder cancer.

Key words: Gallbladder; Carcinoma; Sarcomatoid carcinoma; Surgery; Therapy

INTRODUCTION

Primary gallbladder carcinoma is the fifth most common gastrointestinal tract malignancy and the most common malignancy in the biliary tract[1,2]. Despite improvements in imaging modalities and therapeutic facilities, the prognosis of gallbladder carcinoma is still poor. Tumors that possess epithelial and mesenchymal components are so-called sarcomatoid carcinomas. Gallbladder sarcomatoid carcinoma is a rare and atypical subset of gallbladder carcinoma, and only 44 cases have been described in the English-language literature worldwide[3-18]. All of these have been case reports and have little information about the clinical behavior and optimal treatment of these tumors. In order to define the behavior and prognosis of gallbladder sarcomatoid carcinoma, we reviewed retrospectively the data of six patients from Chang Gung Memorial Hospital (Taoyuan, Taiwan).

MATERIALS AND METHODS

From 1987 to 2005, six patients were diagnosed with gallbladder sarcomatoid carcinoma and treated at our institution. The histology was confirmed in all patients by tissues taken from either surgical or biopsy specimens. In total, there were 141 patients diagnosed with gallbladder cancer who received surgical treatment during this period. Among them were 124 with adenocarcinoma (87.9%), eight with adenosquamous carcinoma (5.7%), six with sarcomatoid carcinoma (4.3%), two with squamous cell carcinoma (1.4%), and
one with neuroendocrine carcinoma (0.7%). Tumor staging was based on the 2002 revised tumor-node-metastasis (TNM) staging for gallbladder cancer from the American Joint Committee on Cancer (AJCC)\(^{[10]}\). The clinical presentation, laboratory data and preoperative workup, including abdominal sonography, computerized tomography (CT), magnetic resonance imaging (MRI) and endoscopic retrograde cholangiopancreatography (ERCP) were reviewed retrospectively. Extensive surgery was defined as cholecystectomy combined with one or more of the following procedures: liver resection of the involved gallbladder fossa, common hepatic artery lymph nodes and hepatic proper artery lymph nodes, and resection of the extrahepatic bile duct, or other organs invaded by tumor directly. Cholecystectomy was defined as cholecystectomy alone without other extensive surgical procedures. Palliative surgery included cholecystectomy, drainage of biliary obstruction or biopsy of tumor only.

**RESULTS**

Five patients were female and one was male. The age ranged from 51 to 66 years (median, 58 years). Table 1 displays the clinical features, operative methods and survival of the six patients with gallbladder sarcomatoid carcinoma. Abdominal pain (83%) was the most frequent complaint in these patients, and two (33.3%) were found to have jaundice. No patient had anemia. Except in patients with jaundice, the liver function tests were normal, except in patients with obstructive jaundice caused by tumor invasion of the biliary tract\(^{[15-18]}\).

Patients with gallbladder sarcomatoid carcinoma usually present with abdominal pain, jaundice, nausea, and poor oral intake, and some may present with a palpable abdominal mass and weight loss. Symptoms may persist from several days to years. Liver function tests are normal, except in patients with obstructive jaundice caused by tumor invasion of the biliary tract\(^{[15-18]}\). Most cases have been reported to have normal CEA and CA19-9 levels, and in our series, the CEA level was elevated in one case and CA19-9 level was elevated in two cases. Mass lesions can be identified by abdominal sonography and CT. Sonographic studies have shown an echogenic mass, with or without areas of necrosis occupying the gallbladder lumen, and the wall may be diffuse, localized or irregular. The
Characteristics of gallbladder sarcomatoid carcinoma are similar to those of adenocarcinoma of the gallbladder, and it is difficult to distinguish between these two tumors. However, if there is speckled calcification within the tumor upon CT, gallbladder carcinoma with calcification, calcified gallstones, porcelain gallbladder and ossifying sarcomatoid carcinoma should be the in differential diagnosis of the tumor. Other associated findings, including gallstones, liver invasion or metastasis, retroperitoneal organ invasion or lymph node enlargement along the hepatoduodenal ligament, can be identified by CT. In our series, five patients (83.3%) were diagnosed preoperatively with gallbladder cancer, and the remaining one was diagnosed with a 1.5-cm gallstone.

T and N stages are important prognostic factors in gallbladder cancer. However, there are no prognostic factors determined in gallbladder sarcomatoid carcinoma. Surgery is suggested as the only recognized treatment for gallbladder sarcomatoid carcinoma; either radiotherapy or chemotherapy has no benefit on survival. However, even after curative extensive surgery with combined gallbladder/liver bed resection or combined resection of involved organs, many patients die shortly after surgery from recurrence or metastasis. After excluding stage I gallbladder adenocarcinoma, biopsy only and surgical mortality patients, the survival rate for gallbladder sarcomatoid carcinoma is shown in Figure 1. One-year survival rate for gallbladder sarcomatoid carcinoma vs adenocarcinoma was 0% vs 38.2% ± 5.57% (χ², P < 0.05). Among the 44 cases reviewed in the literature, the mean survival time was 2 mo and the longest survival was only 5 mo. Apart from the one case of surgical mortality, all patients died from cancer recurrence or disease progression.

In conclusion, better survival of gallbladder cancer was seen in patients with early-stage disease. However, the prognosis of gallbladder sarcomatoid carcinoma was not dependent on TNM stage, and was always dismal. The clinicopathological features were different from those of gallbladder cancer, and will be necessary to accumulate additional reports of such patients to clarify these issues.

**REFERENCES**

1. Chao TC, Wang CS, Jeng LB, Jan YY, Chen MF. Primary carcinoma of the gallbladder in Taiwan. J Surg Oncol 1996; 61: 49-55
2. Chan KM, Yeh TS, Yu MC, Jan YY, Hwang TL, Chen MF. Gallbladder carcinoma with biliary invasion: clinical analysis of the differences from nonbiliary invasion. World J Surg 2005; 29: 72-75
3. Huguet KL, Hughes CB, Hewitt WR. Gallbladder carcinosarcoma: a case report and literature review. J Gastrointest Surg 2005; 9: 818-821
4. Takahashi Y, Fukushima J, Fukusato T, Shiga J. Sarcomatoid carcinoma with components of small cell carcinoma and undifferentiated carcinoma of the gallbladder. Pathol Int 2004; 54: 866-871
5. Sodergren MH, Silva MA, Read-Jones SL, Hubscher SG, Mirza DF. Carcinosarcoma of the biliary tract: two case reports and a review of the literature. Eur J Gastroenterol Hepatol 2005; 17: 683-685
6. Kim MJ, Yu E, Ro JY. Sarcomatoid carcinoma of the gallbladder with a rhabdoid tumor component. Arch Pathol Lab Med 2003; 127: e406-e408
7. Hotta T, Tanimura H, Yokoyama S, Ura K, Yamauhe H. So-called carcinosarcoma of the gallbladder; spindle cell carcinoma of the gallbladder: report of a case. Surg Today 2002; 32: 462-467
8. Ajiki T, Nakamura T, Fujino Y, Suzuki Y, Takeyama Y, Ku Y, Kuroda Y, Ohbayashi C. Carcinosarcoma of the gallbladder with chondroid differentiation. J Gastroenterol 2002; 37: 966-971
9. Iezzoni JC, Mills SE. Sarcomatoid carcinomas (carcinosarcomas)
of the gastrointestinal tract: a review. *Semin Diagn Pathol* 1993; 10: 176-187

10 Ishihara T, Kawano H, Takahashi M, Yokota T, Uchino F, Matsumoto N, Fukuyama N. Carcinosarcoma of the gallbladder. A case report with immunohistochemical and ultrastructural studies. *Cancer* 1990; 66: 992-997

11 Lumsden AB, Mitchell WE, Vohman MD. Carcinosarcoma of the gallbladder: a case report and review of the literature. *Am Surg* 1988; 54: 492-494

12 Fagot H, Fabre JM, Ramos J, Lafay V, Guillon F, Domergue J, Baunel H. Carcinosarcoma of the gallbladder. A case report and review of the literature. *J Clin Gastroenterol* 1994; 18: 314-316

13 Nakagawa T, Yamakado K, Takeda K, Nakagawa T. An ossifying carcinosarcoma of the gallbladder: radiologic findings. *AJR Am J Roentgenol* 1996; 166: 1233-1234

14 Eriguchi N, Aoyagi S, Hara M, Hashino K, Imamura M, Sato S, Imamura I, Kutami R, Jimi A. A so-called carcinosarcoma of the gallbladder in a patient with multiple anomalies—a case report. *Kurume Med J* 1999; 46: 175-179

15 Yavuz E, Bilgiç B, Cevikbaş U, Demiryont M. Test and teach. Number Ninety Nine. Carcinosarcoma of the gallbladder. *Pathology* 2000; 32: 41, 63-64

16 Born MW, Ramey WG, Ryan SF, Gordon FE. Carcinosarcoma and carcinoma of the gallbladder. *Cancer* 1984; 53: 2171-2177

17 Mehrotra TN, Gupta SC, Naithani YP. Carcino-sarcoma of the gall bladder. *J Pathol* 1971; 104: 145-148

18 Inoshita S, Iwashita A, Enjoji M. Carcinosarcoma of the gallbladder. Report of a case and review of the literature. *Acta Pathol Jpn* 1986; 36: 913-920

19 American Joint Committee on Cancer. AJCC cancer staging manual. 6th ed. New York: Springer, 2002: 145-149

20 Fong Y, Jarnagin W, Blumgart LH. Gallbladder cancer: comparison of patients presenting initially for definitive operation with those presenting after prior noncurative intervention. *Ann Surg* 2000; 232: 557-569