



## Role of Surgery for Gallbladder Carcinoma with Special Reference to Lymph Node Metastasis and Stage Using Western and Japanese Classification Systems

Kazuo Chijiwa, M.D., Hirokazu Noshiro, M.D., Kenji Nakano, M.D., Masayuki Okido, M.D.,  
Atsushi Sugitani, M.D., Koji Yamaguchi, M.D., Masao Tanaka, M.D.

Department of Surgery 1, Kyushu University Faculty of Medicine, Fukuoka 812-8582, Japan

**Abstract.** The role of radical resection in the treatment of gallbladder carcinoma was examined with special reference to lymph node metastasis using two classifications: one proposed by the American Joint Committee on Cancer (AJCC) and the other by the Japanese Society of Biliary Surgery (JSBS). Histologic evaluations for the depth of tumor invasion (T), lymph node metastasis (N), stage, and follow-up for a mean period of 38 months (range 4–185 months) were completed in 52 patients with gallbladder carcinoma who underwent surgical resection from 1982 to 1997. The definition of T was similar in the two classifications. The extent of nodal involvement (N, AJCC; n, JSBS), stage, and survival were examined. In the absence of lymph node metastasis, the 5-year survival rate reached 71%. The 5-year survival rate in patients with involved nodes confined to the hepatoduodenal ligament, posterosuperior pancreaticoduodenal region, or along the common hepatic artery (N1 and part of N2 by AJCC; n1 and n2 by JSBS) approximated 28%. In contrast, postoperative survival was poor in the presence of more extensive nodal involvement (rest of N2 by AJCC; n3 and n4 by JSBS), with no 2-year survivors. The definition of stage I was the same in both classifications, and all patients in this stage are alive. The 5-year survival rates in stages II and III by the AJCC were 70.7% and 22.4%, respectively, and those by JSBS 61.9% and 23.1%, respectively. Thus the survival rates in stages I to III were essentially similar irrespective of the staging system. Stage IV showed significantly worse survival than stage III by the JSBS classification. In contrast, the differentiation of stage IV from III by the AJCC was not significant because of the better survival in stage IV that contained any T with nodal involvement in the posterosuperior pancreaticoduodenal region and along the common hepatic artery. Radical resection should be considered for patients with stage I to III disease defined by either classification and applied to the tumor invasion up to T3 with nodal involvement confined to the hepatoduodenal ligament, posterosuperior pancreaticoduodenal region, and along the common hepatic artery. The role of radical surgery seems to be limited in patients with more extensive tumor invasion or lymph node metastasis.

Carcinoma of the gallbladder is the most common biliary tract carcinoma and the fifth most common malignancy of the gastrointestinal tract [1]. Even with recent advances in hepatobiliary imaging techniques, carcinoma of the gallbladder is usually detected at an advanced stage because of the lack of specific symptoms and signs. Some investigators have reported that most long-term survivors are patients whose carcinoma is found incidentally and confined to the mucosa or muscle layer [1, 2]. Because of the poor survival rate no matter how it is treated surgically, most

surgeons have remained pessimistic about radical resection for gallbladder carcinoma [3–8]. In contrast, we and others have advocated aggressive surgery including cholecystectomy with liver bed resection, extended right lobectomy, or right trisegmentectomy of the liver with or without pancreaticoduodenectomy [9–14].

Factors influencing survival have been examined; and the depth of tumor invasion (T) [2, 15, 16], lymph node metastasis (N) [9, 15, 17], and TNM stage [15, 16] were found to be the prognostic factors. It is generally accepted that curative resection with tumor-free surgical margins is the hope for long-term survival [9, 10, 15, 18]. The staging systems generally used for gallbladder carcinoma are the classifications proposed by the American Joint Committee on Cancer (AJCC) [19] or the International Union against Cancer (UICC). Because these two are essentially identical, the AJCC system was selected for this study. In 1997 the Japanese Society of Biliary Surgery (JSBS) proposed a new staging system [20], where the definition of T is essentially similar but the extent of N is graded differently. Some surgeons have shown that short-term survival is the rule in patients with lymph node involvement [3–7]. Recently, Benoist et al. [21] further demonstrated that none of the patients with involved nodes was alive 1 year after radical resection, and they concluded that radical resection should be considered only in the absence of regional lymph node metastasis.

The purpose of the present study was to clarify the indications for and limitations of surgical resection depending on the extent of nodal involvement using the AJCC and JSBS systems. The results were compared with special reference to lymph node metastasis, stage, and postoperative survival. The present study demonstrates that radical resection gives hope for long-term survival in patients with involved nodes confined to the hepatoduodenal ligament, posterosuperior pancreaticoduodenal region, and along the common hepatic artery.

### Patients and Methods

From September 1982 to November 1997 a total of 60 patients (28 men, 32 women) with carcinoma of the gallbladder underwent surgical resection in our department of surgery at Kyushu University Hospital. Thirty-two patients had concomitant gallstones. Of the 60 patients, 8 did not undergo lymph node dissection. The

reasons for the lack of lymph node dissection were either the surgeon's decision (patient's age and physical status, unnecessary procedure in cases with T1 tumor) or the patient not giving approval for subsequent radical surgery when carcinoma was incidentally found. No operative mortality occurred among these eight patients. Because histologic examination of lymph nodes to clarify the extent of lymph node metastasis was not possible, these eight patients were excluded from the study.

The remaining 52 patients underwent lymph node dissection and surgical resection by means of cholecystectomy, extended cholecystectomy, more extensive hepatectomy, or additional pancreatoduodenectomy. Histologic evaluations for the depth of tumor invasion (T), lymph node metastasis (N), and stage were completed in these 52 patients, who formed the basis of this study. There were 23 men and 29 women with a mean age of 64 years (range 36–84 years). Their mean follow-up after surgery was 38 months (range 6–185 months). Their medical records were examined, and histologic examination was done using 5 mm stepwise tissue sections. Twelve patients underwent postoperative chemotherapy [oral administration of tegafur-uracil (UFT) 300–600 mg/day], and one had radiation therapy (42 Gy).

Postoperative survival was evaluated depending on T, N, and stage as defined by the AJCC and JSBS. In both systems, the definition of T is essentially similar: T1, tumor invades the mucosa or muscle layer; T2, tumor invades the perimuscular connective tissue, no extension beyond the serosa or into the liver; T3, tumor perforates the serosa or extends 2 cm or less into the liver (AJCC system) or tumor perforates the serosa or any extension into liver (JSBS system); T4, tumor extends more than 2 cm into the liver, and/or into two or more adjacent organs (AJCC system) or tumor invades two or more adjacent organs (JSBS system). The differences in the classification of lymph node metastasis and stage are shown in Table 1 and Figure 1. In this study, lymph node metastasis as classified by the AJCC was expressed as N and that by JSBS as n. N0 and n0 indicate the absence of lymph node metastasis. The AJCC classified lymph node metastasis into two grades (N1 and N2), whereas the JSBS classified it into four grades (n1 to n4). The stage was classified as shown in Table 1; stages IVA and IVB were used in the AJCC system and stages IVa and IVb in the JSBS system.

Survival was measured from the day of operation until death due to cancer or unrelated diseases or to the last day of follow-up. Survival curves were calculated by the Kaplan-Meier method [22], and the differences in survival were evaluated by the log-rank test [23]. A probability value <0.05 was considered significant.

## Results

### *Surgical Procedures*

The surgical procedures employed and numbers of patients in each stage classified by the AJCC and JSBS are shown in Table 2. Most patients underwent a standard procedure consisting of extended cholecystectomy (hepatic wedge resection approximately 2 to 3 cm from the gallbladder bed) and lymph node dissection in the hepatoduodenal ligament, below the pancreas head, along the common hepatic artery, and in the paraaortic region with or without resection of the extrahepatic bile duct. More extensive hepatectomy ( $n = 7$ ) and pancreatoduodenectomy ( $n = 5$ ) were employed in some patients. Extensive hepatectomy here means

**Table 1.** Classification systems for staging gallbladder carcinoma by the AJCC and the JSBS.

AJCC	JSBS
Lymph node metastasis	
N0: no regional lymph node metastasis	n0: no regional lymph node metastasis
N1: metastasis in hepatoduodenal ligament	n1: metastasis in cystic duct and/or pericholedochal lymph node
N2: metastasis in peripancreatic (head only), periduodenal, periportal, celiac, and/or superior mesenteric lymph nodes	n2: metastasis in hepatoduodenal ligament except n1, posterosuperior pancreas head, and/or along the common hepatic artery
	n3: metastasis in peripancreatic (head except posterosuperior pancreatic), celiac, superior mesenteric, and/or paraaorta lymph nodes
	n4: more distant lymph node metastasis than n3
Stage	
I: T1N0M0	I: T1n0M0
II: T2N0M0	II: T1n1M0, T2n0M0, T2n1M0
III: T1N1M0, T2N1M0, T3N0M0, T3N1M0	III: T1n2M0, T2n2M0, T3n0M0, T3n1M0, T2n2M0
IVA: T4N0M0, T4N1M0	IVa: T4n0M0, T4n1M0, T4n2M0, anyTn3M0
IVB: anyTN2M0, anyTanyNM1	IVb: anyTn4M0, anyTany-nM1

T is essentially similar in AJCC and JSBS and explained in the text. AJCC: American Joint Committee on Cancer; JSBS: Japanese Society of Biliary Surgery; M0 and M1: absence and presence of distant metastasis, respectively.

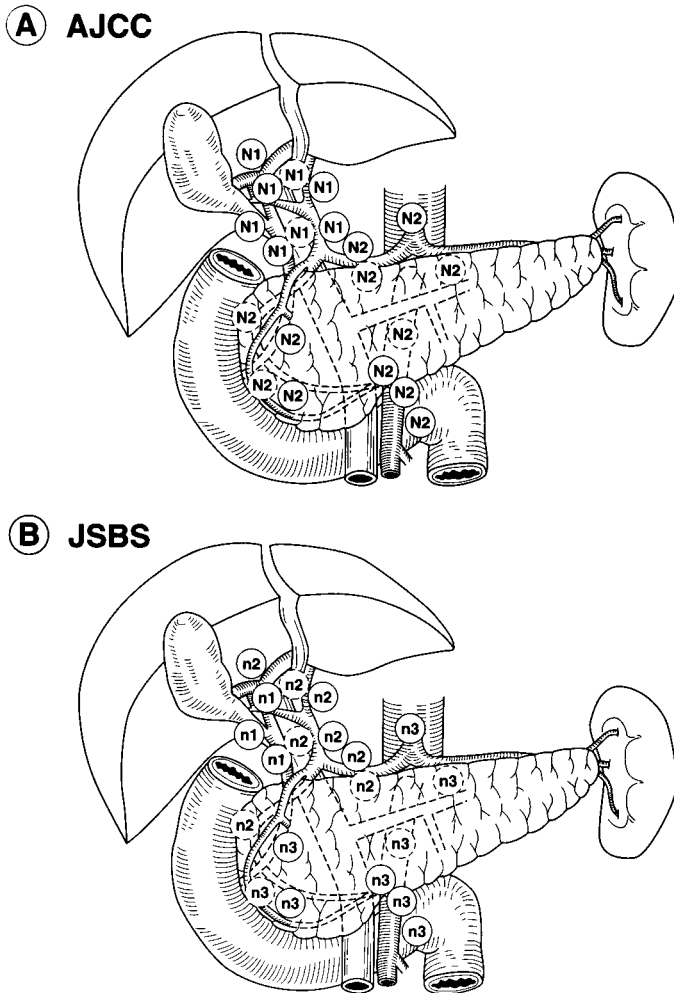
either excision of segments 4a and 5 or segments 4, 5, and 8 in five patients and extended right or left lobectomy in two. In such cases, celiac or superior (or both) mesenteric lymph nodes were dissected.

### *Morbidity and Mortality*

Postoperative complications occurred in 9 (17%) of 52 patients. Among 34 patients who underwent extended cholecystectomy, postoperative complications were found in 5: three anastomotic leaks from hepaticojejunostomia, one wound infection, and one liver failure. Among the four patients who underwent extensive hepatectomy without pancreatoduodenectomy, anastomotic leaks were observed in two. Among the five patients who underwent pancreatoduodenectomy in addition to extended cholecystectomy ( $n = 2$ ) or extensive hepatectomy ( $n = 3$ ), anastomotic leaks were observed in two. Operative mortality was found in one patient with liver cirrhosis, who died on day 3 after extended cholecystectomy due to liver failure, yielding an operative mortality rate of 2%.

### *Survival*

*Postoperative Survival Depending on the Depth of Tumor Invasion.* Cumulative survival rates were same for the AJCC and JSBS systems, as shown in Figure 2. The 5-year survival rates for T1, T2, and T3/T4 were 100%, 60.8% and 0%, respectively. Survival was significantly affected by T ( $p < 0.001$ ).



**Fig. 1.** Classification of lymph node metastasis by the AJCC (A) and JSBS (B) systems. Details are also explained in Table 1.

**Survival Depending on Lymph Node Metastasis.** In the absence of lymph node metastasis (N0 by AJCC, n0 by JSBS), the 3- and 5-year survival rates were 84% and 71%, respectively (Fig. 3). The 5-year survival rates for patients with N1 by the AJCC and n1 by JSBS were the same, 28%, because all 13 patients with N1 had only cystic duct or pericholedochal lymph node metastasis (or both) in this study, which was defined as n1 by JSBS. The survival of patients with n2 (JSBS) was better than that with N2 (AJCC) (3- and 5-year survival rates: 42.9% and 28.6% vs. 27.3% and 18.2%, respectively), although the difference in survival between N2 and n2 did not reach statistical significance ( $p = 0.738$ ): 7 of 11 patients with N2 had lymph node metastasis in the posterosuperior pancreaticoduodenal and common hepatic artery areas, defined as n2 by JSBS. The presence of more extensive lymph node metastasis, defined as n3 or n4 by JSBS, led to poor results. All patients with n3 or n4 died of cancer within 14 months after the operation. Lymph node metastasis was a significant ( $p < 0.001$ ) prognostic factor for each classification.

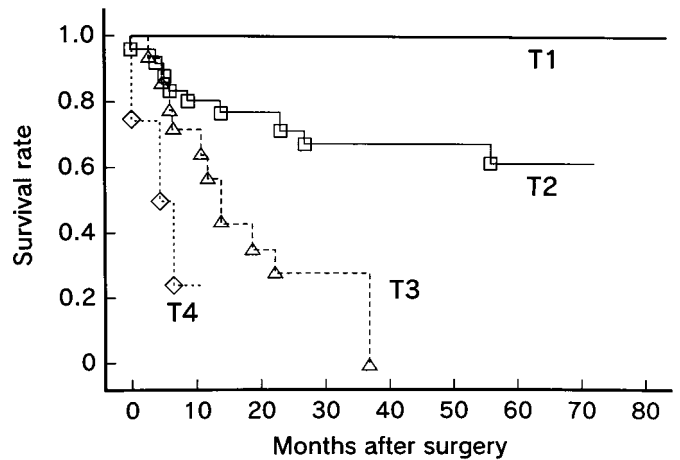
**Survival Depending on Stage.** The survival curves depending on the stages classified by the AJCC and JSBS are shown in Figure 4.

**Table 2.** Surgical procedures employed depending on stage, by AJCC and JSBS.

Stage	Surgery
<b>AJCC</b>	
I (10)	CX (5), Ext. CX without BDR (3), Ext. CX with BDR (2)
II (13)	Ext. CX without BDR (6), Ext. CX with BDR (6), Ext. CX with PD (1)
III (15)	Ext. CX without BDR (5), Ext. CX with BDR (6), Hx without BDR (2), Hx with BDR (1), Hx with PD (1)
IVA (2)	Ext. CX with BDR (2)
IVB (12)	CX (4), Ext. CX without BDR (3), Ext. CX with BDR (1), Ext. CX with PD (1), Hx with BDR (1), Hx with PD (2)
<b>JSBS</b>	
I (10)	CX (5), Ext. CX without BDR (3), Ext. CX with BDR (2)
II (21)	Ext. CX without BDR (11), Ext. CX with BDR (9), Ext. CX with PD (1)
III (13)	CX (2), Ext. CX without BDR (2), Ext. CX with BDR (4), Hx without BDR (2), Hx with BDR (2), Hx with PD (1)
IVa (4)	Ext. CX with BDR (2), Ext. CX with PD (1), Hx with PD (1)
IVb (4)	CX (2), Ext. CX without BDR (1), Hx with PD (1)

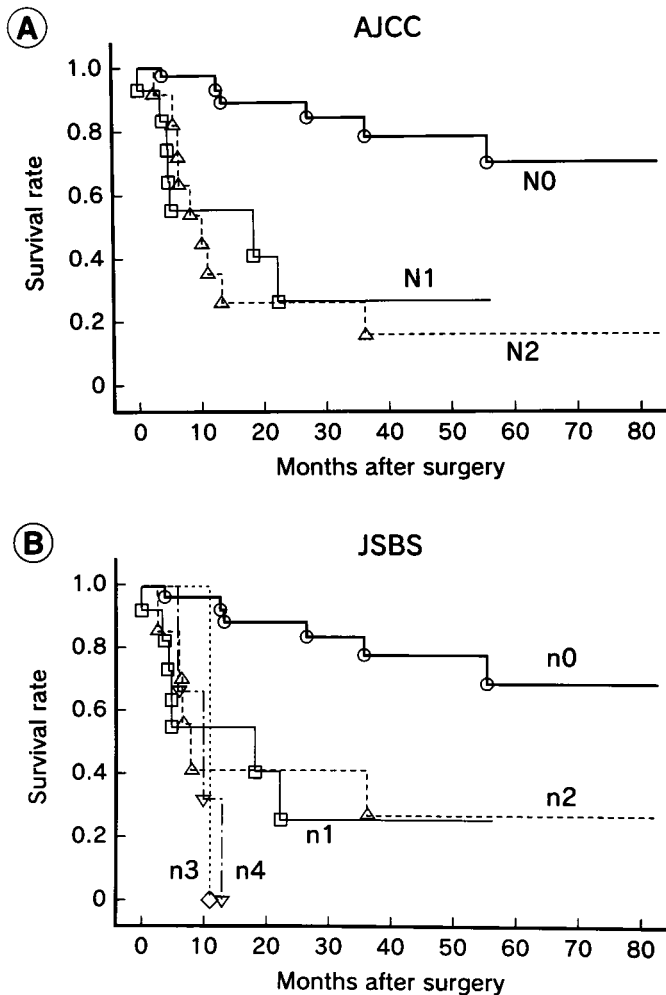
Numbers of patients are in parentheses.

CX: cholecystectomy; Ext.: extended; BDR: bile duct resection; PD: pancreaticoduodenectomy; Hx: more extensive hepatectomy than Ext. CX (excision of segment 4 below and segment 5; segments 4, 5, and 8; or extended lobectomy; details are shown as surgical procedures in the Results); Ext. CX: extended cholecystectomy together with hepatic resection approximately 2 to 3 cm from the gallbladder bed.



**Fig. 2.** Survival rate after radical resection depending on the depth of tumor invasion (T). The definition of T is essentially similar in the AJCC and JSBS systems, as indicated in Patients and Methods. The number of patients are T1, 10; T2, 25; T3, 14; T4, 3.

Stage of the disease was a significant factor affecting survival in each system ( $p < 0.001$ ). All patients with stage I were alive. The 3- and 5-year survival rates for patients with stage II disease defined by the AJCC were 82.5% and 70.7%, and those defined by JSBS were 70.8% and 61.9%, respectively. The 3- and 5-year survival rates for those with III disease by the AJCC system were 44.8% and 22.4% and those by the JSBS system were 46.2% and

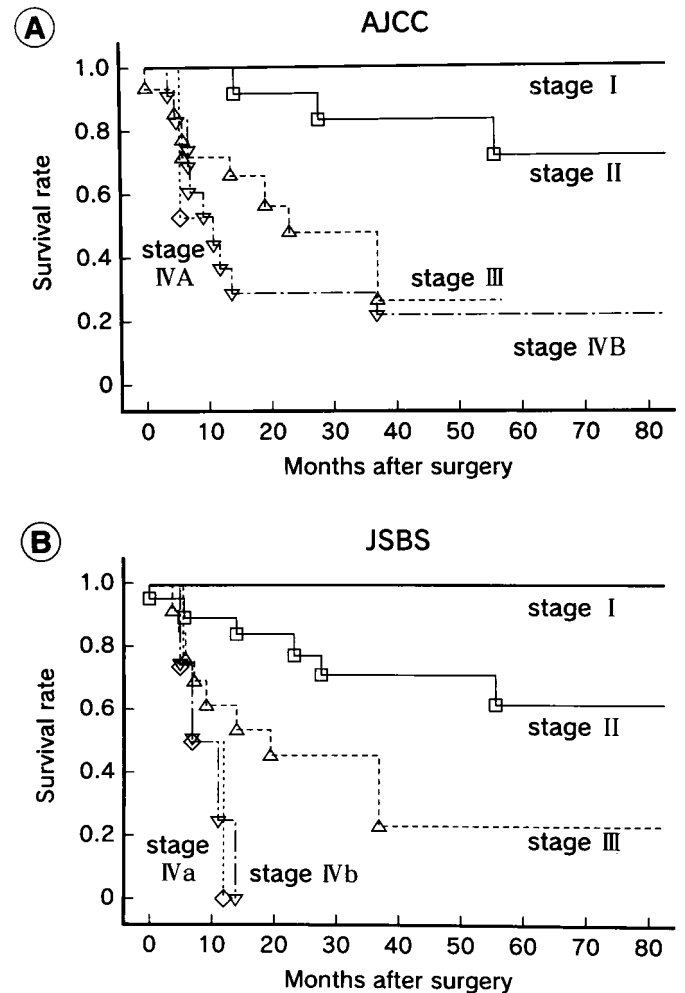


**Fig. 3.** Postoperative survival rate depending on the lymph node metastasis defined by AJCC (N in A) and by JSBS (n in B). The numbers of patients in the AJCC group are N0, 28; N1, 13; N2, 11. Those in the JSBS group are n0, 28; n1, 13; n2, 7; n3, 1; n4, 3.

23.1%, respectively. No significant difference in survival was observed between the AJCC and JSBS classifications for stages I to III. However, a difference in survival was noted for stage IV. The 1- and 3-year survival rates for patients with stage IV disease defined by the AJCC were 33.3% and 25.0%, whereas those defined by the JSBS were 16.7% and 0%, respectively. The difference in survival rates between stage IV and stage III was significant ( $p < 0.05$ ) in the JSBS system but not ( $p = 0.28$ ) in the AJCC system. Among the eight patients in stage IV (JSBS system), one patient was alive 11 months after surgery but the other seven died of cancer within 14 months.

### Discussion

Using the AJCC and JSBS classifications, survival after surgical resection was compared with special reference to the extent of lymph node metastasis and stage in patients with gallbladder carcinoma to evaluate indications for radical surgery. The present study demonstrated that radical resection should be applied when

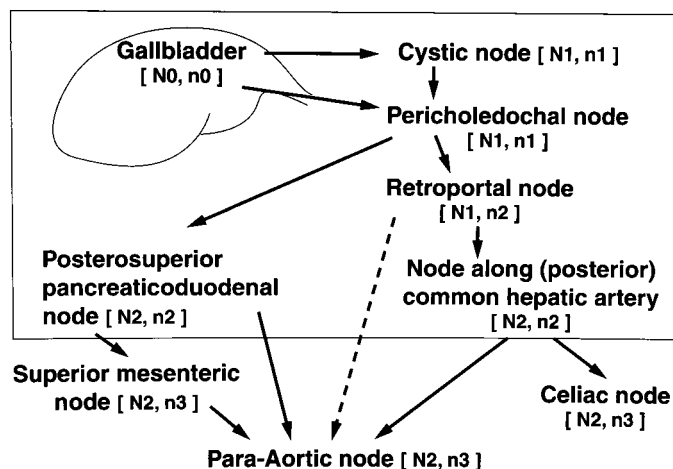


**Fig. 4.** Postoperative survival rate depending on the stage classified by AJCC (A) and JSBS (B). The numbers of patients at each stage as defined by AJCC are stage I, 10; stage II, 13; stage III, 15; stage IVA, 2; stage IVB, 12. The numbers of patients at each stage as defined by JSBS are stage I, 10; stage II, 21; stage III, 13; stage IVa, 4; stage IVb, 4.

lymph node metastasis is confined to the hepatoduodenal ligament, posterosuperior pancreaticoduodenal region, along the common hepatic artery, or any combination thereof. Because of the poor results there seemed to be limits for radical resection when more distant lymph node metastasis (beyond the above areas) was present or when the tumor extends more than 2 cm into the liver or into two or more adjacent organs.

There have been conflicting reports about the usefulness of radical resection with respect to lymph node metastasis. The advantage of radical surgery and long-term survivors among patients with involved nodes have been reported [9, 10, 24], whereas the presence of lymph node metastasis has been considered to indicate short-term survival even after radical resection [3–7]. Recently, Benoist et al. [21] showed that none of the patients with involved nodes was alive 1 year after radical resection. They concluded that radical resection should be considered in the absence of regional lymph node metastasis.

To clarify this conflicting issue, we used two classification systems, AJCC and JSBS, because their classification of the extent of



**Fig. 5.** Regional lymph nodes of the gallbladder. Arrows indicate the lymphatic drainage routes previously demonstrated [25, 26]. The benefit of radical resection was evident when lymph node metastasis was confined to the nodes inside the square.

lymph node metastasis is different. It was true that the presence of lymph node metastasis worsened the survival rate. In the absence of lymph node metastasis, the 5-year survival rate was 71% in this study. Of importance was that the 5-year survival rate was 28% so long as lymph node metastasis was confined to the hepatoduodenal ligament, posterosuperior pancreaticoduodenal region, or along the common hepatic artery. These lymph nodes are classified as n1 and n2 by the JSBS, whereas they are N1 and part of N2 according to the AJCC system (Table 1, Fig. 1). Lymph nodes in the posterosuperior pancreaticoduodenal region and along the common hepatic artery should not be included in the N2 group because seven patients with these nodes involved defined as n2 had a 5-year survival of 28% in this study. Inclusion of these seven patients was the reason for the better 5-year survival rate (18%) in patients with N2 lymph node metastasis. The presence of more extensive lymph node metastasis, defined as n3 and n4 by the JSBS, showed more dismal results than N2 by the AJCC. All the patients with n3 and n4 died of cancer, and none survived more than 14 months. These results indicate that radical resection gives hope for long-term survival not only in patients without lymph node metastasis but also in those with n1 and n2 nodal involvement, as defined by the JSBS. The presence of more distant lymph node metastasis seems to be the surgical limit at present, although the number of patients was too small to draw final conclusions. The indications for radical resection with respect to lymph node metastasis are shown in Figure 5 based on the reported lymphatic drainage routes of the gallbladder [25, 26]. The presence of lymph node metastasis inside the square indicates the need for radical surgery (Fig. 5).

Differentiation of stage IV from stage III was significant in the JSBS classification but not in the AJCC system. For stages I to III, postoperative survival was essentially similar for both systems. The 3- and 5-year survivals of patients with stage II defined by the AJCC were 82.5% and 70.7% and those defined by the JSBS were 70.8% and 61.9%, respectively. The better survival in stage II defined by the AJCC can be ascribed to the fact that the AJCC stage II does not include any lymph node metastasis, whereas n1 is included as stage II by the JSBS. The survival of patients with

stage III defined by the AJCC and JSBS were essentially similar, although nodal involvement in the posterosuperior pancreaticoduodenal area and along the common hepatic artery (n2 by JSBS) was the only additional factor in stage III defined by JSBS. These results suggest that radical resection is indicated for stages I to III by either staging system (AJCC or JSBS). The differentiation of stage IV from stage III was more apparent in the JSBS system than the AJCC classification. This difference comes from the fact that stage IVB defined by the AJCC includes T1, T2, and T3 with nodal involvement in the posterosuperior pancreaticoduodenal region and along the common hepatic artery. These lymph nodes are classified as N2 and any TN2M0 is defined as stage IVB by the AJCC.

## Conclusions

We advocate radical resection for patients with nodal involvement confined to the hepatoduodenal ligament, posterosuperior pancreaticoduodenal area, and along the common hepatic artery. In stages I to III defined by the AJCC and JSBS, surgery gives a hope for long-term survival. In patients with a tumor that extends more than 2 cm into the liver or into two or more adjacent organs or who have lymph node metastasis beyond the posterosuperior pancreaticoduodenal region or along the common hepatic artery, the benefit of radical resection seems limited.

## Résumé

Le rôle de la résection étendue dans le traitement du cancer de la vésicule biliaire a été examiné avec une référence spéciale aux métastases ganglionnaires en utilisant deux classifications différentes proposées par d'une part l'American Joint Committee on Cancer (AJCC) et, d'autre part, la Japanese Society of Biliary Surgery (JSBS). Les évaluations histologiques de la profondeur d'invasion tumorale (T), des métastases lymphatiques (N), du stade et du suivi pendant une période moyenne de 38 mois (extrêmes 4 à 185 mois) ont été comparés chez 52 patients ayant un cancer de la vésicule biliaire ayant eu une résection chirurgicale entre 1982 et 1997. La définition de T était similaire dans les deux classifications. On a évalué le degré d'envahissement ganglionnaire lymphatique (N; AJCC, n; JSBS), le stade et la survie. En l'absence de métastases ganglionnaires, la survie à 5 ans a atteint 71%. La survie à 5 ans chez les patients ayant un envahissement des ganglions dans le ligament hépatoduodénal, la région duodénopancréatique postéro-supérieure, et/ ou le long de l'artère hépatique commune (N1 et une partie de N2 de la classification AJCC, n1 et n2 de la classification JSBS) étaient aux environs de 28%. En revanche, la survie postopératoire a été médiocre en présence d'envahissement ganglionnaire (reste de N2 dans la classification AJCC, n3 et 4 dans la classification JSBS), avec aucun survivant à 2 ans. La définition du stade I a été la même dans les deux classifications et tous les patients dans ce stade sont en vie. La survie à 5 ans dans les stades II et III de la classification AJCC a été de 70,7%, 22,4%, 61,9% et de 23,1%, respectivement, dans la classification JSBS. Ainsi la survie dans les stades I à III étaient essentiellement similaires, sans tenir compte du système de staging. La survie de patients du stade IV a été significativement plus mauvaise par rapport au stade III dans la classification JSBS. En revanche, la différenciation entre les stades IV et III par le

système AJCC n'a pas été significative en raison d'une meilleure survie dans le stade IV, quel que soit le stade T avec envahissement lymphatique dans la région duodéno pancréatique postérosupérieure et le long de l'artère hépatique commune. La résection radicale est à envisager dans les stades I à III définis dans les deux classifications et s'applique aux stades tumoraux T1 à T3 avec envahissement du ligament hépatoduodéal, de la région duodéno pancréatique postérosupérieure et le long de l'artère hépatique commune. Le rôle de la chirurgie radicale semble se limiter aux patients ayant une extension tumorale ou des métastases ganglionnaires.

## Resumen

Se estudió el rol de la resección radical en el manejo del cáncer de la vesícula biliar con especial atención a las metástasis ganglionares utilizando dos manuales con diferentes clasificaciones, las propuestas por el American Joint Committee on Cancer (AJCC) y por la Sociedad Japonesa de Cirugía Biliar (SJCB). Se hizo el análisis de la histología en cuanto a profundidad de invasión tumoral (T), metástasis ganglionares (N), estado y seguimiento promedio de 38 meses (rango 4 a 185 meses) en 52 pacientes sometidos a resección quirúrgica entre 1982 y 1997. La definición de T, que es similar en los dos manuales, y la extensión de la invasión ganglionar (N; AJCC, n; SJCB), el estado y la supervivencia fueron analizados. En ausencia de metástasis ganglionares, la tasa de supervivencia a cinco años fue 71%. En los pacientes con invasión confinada al ligamento hepatoduodenal, la región pancreatoduodenal superior y/o el trayecto de la arteria hepática primitiva (N1 y parte de N2 según el AJCC, n1 y n2 según la SJCB) se aproximó a 28%. En contraste, la supervivencia postoperatoria fue pobre cuando hubo invasión ganglionar extensa (el resto de N2 según el AJCC, n3 y n4 según la SJCB), sin superviviente alguno a dos años. La definición del estado I es igual en los dos manuales, y todos los pacientes en tal estado sobreviven. Las tasas de supervivencia a 5 años en los estados II y III según el AJCC fueron 70.7% y 22.4%, y según la SJCB 61.9% y 23.1% respectivamente. Por consiguiente, las tasas de supervivencia de los estados I a III resultaron esencialmente similares y sin diferencia en cuanto al sistema de estadificación. En el estado IV la supervivencia apareció significativamente peor que en el estado III según la clasificación del AJCC. Por el contrario, la diferenciación entre los estados IV y III del AJCC no resultó significativa, por la mejor supervivencia en el estado IV que hubo en cualquier T e invasión ganglionar de la región pancreatoduodenal posterosuperior y a lo largo de la hepática primitiva. La resección radical debe ser considerada en los estados I a III en la clasificación de los dos manuales y debe ser aplicada en los casos con invasión tumoral hasta T3 e invasión ganglionar confinada al ligamento hepatoduodenal, la región pancreatoduodenal posterosuperior y el trayecto de la arteria hepática primitiva. El papel de la cirugía radical parece ser limitado en los pacientes con extensión tumoral mayor o con más extensas metástasis ganglionares.

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## Invited Commentary

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Italo Braghetto, M.D.

Department of Surgery, Clinic Hospital, University of Chile, Santiago, Chile

Gallbladder carcinoma has been the most rapidly increasing digestive cancer during the last decade in Chile [1]. Up to now the preoperative diagnosis of T1 and T2 stages is rarely done owing to acute or chronic inflammation, which causes misdiagnosis. Only a few incidentally discovered early stage gallbladder carcinomas are diagnosed preoperatively. This has remained unchanged and is related to a poor 5-year survival [2, 3]. Currently there are two challenges for surgeons: (1) to increase early detection; and (2) to provide the best treatment (surgery or multimodal) based on staging to improve results definitively.

Chijiwa et al. propose to establish in clinical practice the Japanese classification for staging gallbladder carcinoma based on a new definition of nodal involvement and to correlate it with surgical resection and survival. This is an interesting point because the study addresses the question of how best to decide on the indications for aggressive surgical resection in patients with or without nodal involvement. They included 52 patients whose disease was classified by both the Western (UICC/AJCC) and Japanese (JSBS) systems to compare the observed survival. Despite some small methodologic problems (inclusion of patients with chemotherapy and postoperative radiotherapy, not all patients being submitted to the same procedure with or without aggressive resection, which may influence on the definitive results), the study may be useful for distinguishing patients for more or less surgical intervention.

Based on the analysis of their results, there were no differences between classifications in regard to the T staging; however, con-

cerning the N stage, as is well established, survival is affected depending on nodal involvement. In this study, the results comparing N1 versus n1 (Western versus JSBS classification) were the same. In N2 versus n2 groups, the differences observed were not significant, especially considering that in both groups of patients there was a mixture of surgical procedures that might alter the results. Groups n3n4 did not display differences either.

Survival was the same for stage I to III in both classifications. To establish the differences demonstrated between stage III and IV in the JSBS classification, it is necessary to include a larger number of patients (few patients were studied in stages III and IV) so differences could be observed.

Most authors agree that it is possible to perform more aggressive surgery depending on the risk of patients and local involvement of tumor. That it is conducive to a better prognosis was demonstrated in this paper [4, 5].

In conclusion, the proposed management applying the JSBS classification to gallbladder carcinoma is interesting and may be able to indicate the need for surgical treatment more accurately in special in groups of patients with advanced disease. Therefore, if further information with other clinical experience is available to support these results, the proposed modification could be useful.

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