

Figure S1. The long-term prognosis of patients after surgery without hepatectomy for extra-cholangiocarcinoma (eCCA). (A) The overall survival (OS, upper left), disease-free survival (DFS, upper right) and survival after recurrence (SAR, lower left) curves after surgery for 28 patients with eCCA. Patients were divided into two groups according to the median postoperative peak number of neutrophils. The median OS in the high-neutrophil group (n=8) and low-neutrophil group (n=20) was 51.7 and 37.2 months, respectively; $P=0.6514$. The median DFS in the high-neutrophil group and low-neutrophil group was 34.3 and 33.7 months, respectively; $P=0.6630$. The median SAR in the high-neutrophil group and low-neutrophil group was 5.2 and 11.5 months, respectively; $P=0.6817$. (B) The OS (upper left), DFS (upper right) and SAR (lower left) curves after surgery for 28 patients with eCCA. Patients were divided into two groups according to the median postoperative peak number of eosinophils. The median OS in the high-eosinophil group (n=15) and low-eosinophil group (n=13) was 37.5 and 36.8 months, respectively; $P=0.5980$. The median DFS in the high-eosinophil group and low-eosinophil group was 33.7 and 42.0 months, respectively; $P=0.5254$. The median SAR in the high-eosinophil group and low-eosinophil group was 12.7 and 5.7 months, respectively; $P=0.6372$.

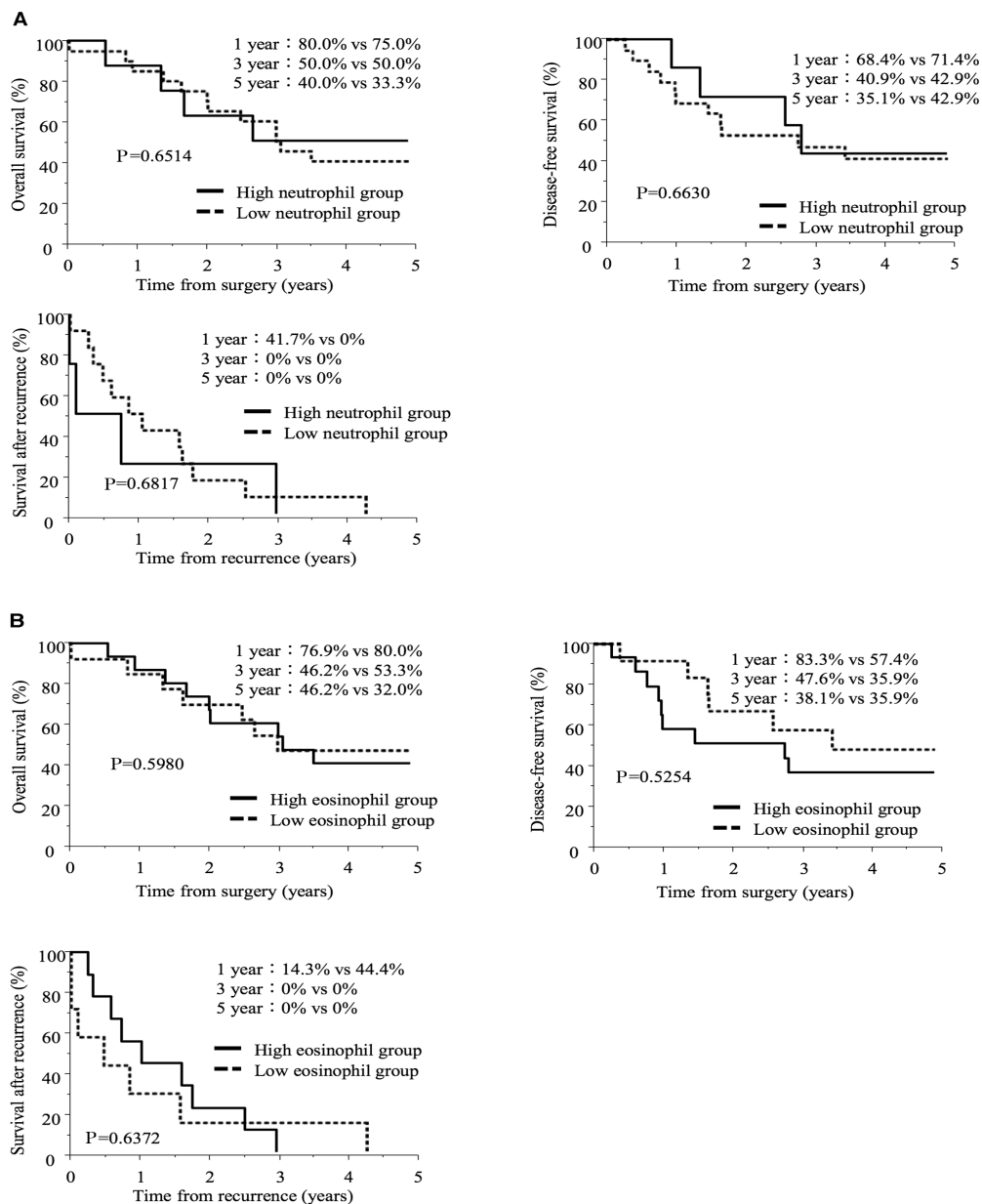


Figure S2. The long-term prognosis of patients after hepatectomy for intra-hepatic cholangiocarcinoma (iCCA) and extra-hepatic cholangiocarcinoma (eCCA). (A) The overall survival (OS, upper left), disease-free survival (DFS, upper right) and survival after recurrence (SAR, lower left) curves after surgery for 57 patients with iCCA. Patients were divided into two groups according to the median postoperative peak number of neutrophils. The median OS in the high-neutrophil group (n=22) and low-neutrophil group (n=35) was 39.4 and 74.8 months, respectively; $P=0.1124$. The median DFS in the high-neutrophil group and low-neutrophil group was 10.3 and 25.1 months, respectively; $P=0.5030$. The median SAR in the high-neutrophil group and low-neutrophil group was 15.4 and 22.8 months, respectively; $P=0.1629$. (B) The OS (upper left), DFS (upper right) and SAR (lower left) curves after surgery for 24 patients with eCCA. Patients were divided into two groups according to the median postoperative peak number of neutrophils. The median OS in the high-neutrophil group (n=18) and low-neutrophil group (n=6) was 43.7 and 39.5 months, respectively; $P=0.6741$. The median DFS in the high-neutrophil group and low-neutrophil group was 19.2 and 30.6 months, respectively; $P=0.7019$. The median SAR in the high-neutrophil group and low-neutrophil group was 10.9 and 18.1 months, respectively; $P=0.3590$.

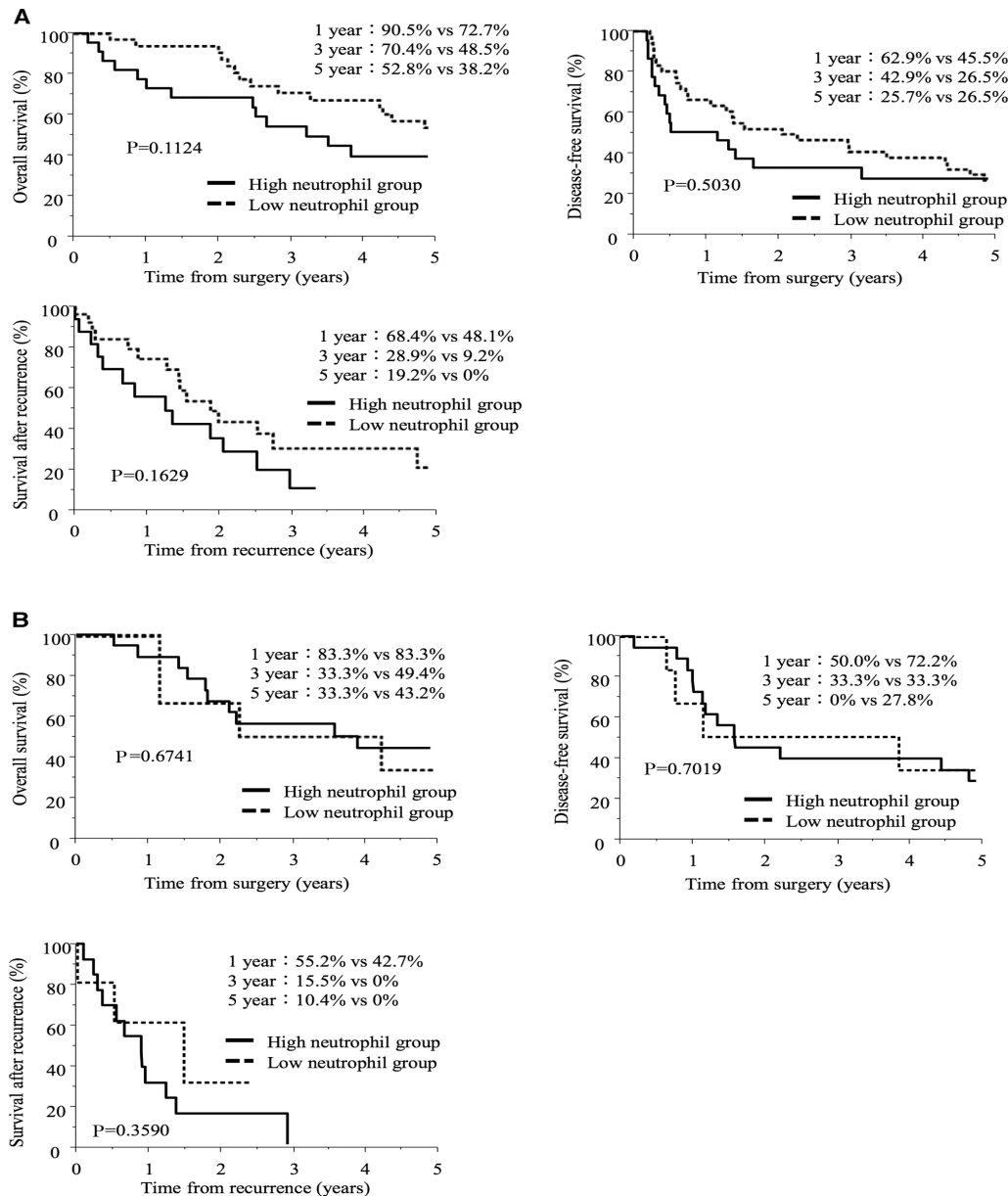


Table SI. Results of univariate analyses for the SAR		
Variable	MST (months)	Univariate analysis
		<i>P</i> -value
Patient factors		
Age (<65: ≥65 years)	11.6: 17.6	0.4130
Gender (male: female)	15.4: 17.7	0.5695
Jaundice (present: absent)	15.0: 17.6	0.5349
PNI (≤45: >45)	17.6: 15.6	0.5095
NLR (≤2.5: >2.5)	17.7: 15.0	0.0694
PLR (≤150: >150)	30.9: 11.0	0.0137
Postoperative maximum number of leukocytes (≤11580: >11580/μl)	24.2: 11.0	0.0076
Postoperative peak value of CRP (≤9.7: >9.7 mg/dl)	17.7: 15.4	0.2986
Tumor factors		
Tumor type (intrahepatic CCA: perihilar CCA)	18.8: 10.9	0.0564
Differentiation (tub1, tub2: others)	15.6: 16.5	0.5418
pT*(1, 2: 3, 4)	24.2: 11.0	0.0765
Historical vascular invasion (present: absent)	11.0: 18.1	0.0352
Tumor size (≤2: >2 cm)	15.0: 16.8	0.7368
pN*(0: 1)	18.1: 8	0.0424
pM*(1: 0)	4.3: 16.8	0.1233
pStage*(I, II: III, IV)	30.9: 10.5	0.1010
CEA (≤5: >5 ng/ml)	16.5: 12.4	0.9242
CA19-9 (≤37: >37 U/ml)	17.7: 11.6	0.1376
Treatment factors		
Adjuvant therapy (yes: no)	17.7: 11.0	0.0702
Treatment after recurrence with gemcitabine (yes: no)	22.8: 11.6	0.0559
Operative method of hepatectomy (major: minor)	15.4: 18.8	0.3948
Operation time (≤545: >545 min)	30.9: 8.9	0.0005
Blood loss (<1000: ≥1000 ml)	22.8: 11.0	0.1556
Morbidity (present: absent)	6.5: 17.7	0.0176
Resected liver weight (≤340: >340 g)	24.2: 11.0	0.0673

SAR, survival after recurrence; CCA, cholangiocarcinoma; tub1, well differentiated type; tub2, moderately differentiated type; PNI, prognostic nutritional index; NLR, Neutrophil-to-lymphocyte ratio; PLR, platelet-to-lymphocyte ratio; CRP, C-reactive protein, major hepatectomy: >3 segments, minor hepatectomy: ≤ 3 segments. *P*-value <0.05 was considered statistically significant. *Stage and TNM for iCCAs and pCCAs were classified by the 6th edition of the general rules for the clinical and pathological study of primary liver cancer and the 6th edition of general rules for clinical and pathological studies on cancer of the biliary tract, respectively.

Table SII. Results of a multivariate analysis for the SAR in leukocytes.			
Variable	Multivariate analysis		
	HR	(95% CI)	<i>P</i> -value
The postoperative maximum number of leukocytes (≤ 11580 : $>11580/\mu\text{l}$)			N.A.
The postoperative maximum number of neutrophils (≤ 9807 : $>9807/\mu\text{l}$)	0.38	(0.19-0.73)	0.0039
The postoperative maximum number of lymphocytes (≤ 1513 : $>1513/\mu\text{l}$)	1.03	(0.53-2.00)	0.9193
The postoperative maximum number of eosinophils (≤ 356 : $>356/\mu\text{l}$)	3.40	(1.66-7.19)	0.0008
The postoperative maximum number of monocytes (≤ 815 : $>815/\mu\text{l}$)	0.70	(0.37-1.33)	0.2736
The postoperative maximum number of basophils (≤ 58 : $>58/\mu\text{l}$)	0.89	(0.45-1.72)	0.7202
SAR, survival after recurrence; N.A., not available. <i>P</i> -value <0.05 was considered statistically significant.			