

Supplementary Materials: Survival Outcomes for Different Operation Types in the Era of Modern Chemotherapy for Middle Bile Duct Cancer: Bile Duct Resection versus Pancreaticoduodenectomy Considering Complications and Adjuvant Treatment Effects

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Table S1. Clinical Course of R1 Patients ($n = 6$).

No.	Frozen biopsy (intraoperative)	Frozen biopsy (permanent)	Reason for R1	Final Stage	Adjuvant Treatment
1	Carcinoma	Carcinoma	Patients condition, PHx	IIB	RTx
2	Carcinoma	Carcinoma	Patients condition, PHx	IIIB	X
3	Atypical cell	Carcinoma	Changed Frozen biopsy result	IIA	X
4	Highly Atypical cell	Carcinoma	Changed Frozen biopsy result	IIB	X
5	High grade dysplasia	Carcinoma	Changed Frozen biopsy result	I	X
6	High grade dysplasia	Carcinoma	Changed Frozen biopsy result	IIB	RTx

PHx, Past history; RTx, radiotherapy.

Table S2. Prognostic Factors for Disease-Free Survival in Patients with Middle Bile Duct Cancer ($n = 520$).

Variable		Patients (n)	5Y DFS (%)	Univariate analysis			Multivariate analysis		
				HR	95% CI	p-value	HR	95% CI	p-value
Sex	male / female	342/178	36.5/40.5	0.850	0.679-1.064	0.157			
Age	≤ 65 / > 65	229/291	47.5/29.7	1.559	1.251-1.944	<0.001	1.616	1.293-2.020	<0.001
BMI	≤ 25 / > 25	378/142	36.2/41.9	0.841	0.657-1.076	0.167			
ASA score	I	82	35.8			0.256			
	II	395	40.3	0.944	0.709-1.257	0.694			
	III/IV	43	19.0	1.276	0.834-1.951	0.262			
Preop CA19-9	≤ 35 / > 35	265/255	44.5/31.1	1.538	1.243-1.902	<0.001	1.335	1.076-1.657	0.009
T-stage	T1&2/T3&4	448/72	41.1/17.2	2.001	1.517-2.637	<0.001	1.499	1.124-1.998	0.006
N-stage	N(-)/N(+)	359/161	45.8/20.2	2.120	1.702-2.640	<0.001	1.965	1.558-2.478	<0.001
Operation	BDR / PD	131/389	34.4/39.0	0.970	0.762-1.235	0.803			
Resection margin	R0 / R1	514/6	38.4/0	1.858	0.827-4.172	0.127			
Complications	no / yes	389/131	39.6/32.3	1.111	0.871-1.418	0.395			
Adjuvant treatment	no / yes	403/117	39.3/32.9	1.179	0.918-1.514	0.198			

Major complication indicated Clavien-Dindo grade ≥ 3. PD/PPPD, pancreaticoduodenectomy/pylorus-preserving pancreaticoduodenectomy; BDR, Bile duct resection.