

**Supplementary Table S1:** Parameters of the generalized linear mixed models (GLMM) used in Supplementary Figure S1.

<i>Predictors</i>	<b>Albumin</b>			<b>Cholinesterase</b>			<b>ALT</b>		
	<i>Estimates</i>	<i>CI</i>	<i>p</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	0.44	0.39 – 0.49	<b>&lt;0.001</b>	0.41	0.33 – 0.48	<b>&lt;0.001</b>	1.44	1.28 – 1.60	<b>&lt;0.001</b>
Time (days)	0.00	0.00 – 0.00	<b>&lt;0.001</b>	0.01	0.00 – 0.01	<b>&lt;0.001</b>	-0.01	-0.01 – -0.00	<b>&lt;0.001</b>
<b>Random Effects:</b>									
$\sigma^2$		0.00			0.00			0.05	
$\tau_{00}$		0.01 Procedure ID			0.03 Procedure ID			0.15 Procedure ID	
ICC		0.81			0.86			0.77	
N		19 Procedure ID			24 Procedure ID			25 Procedure ID	
Observations		93			167			364	
Marginal R <sup>2</sup> / Conditional R <sup>2</sup>		0.051 / 0.823			0.055 / 0.870			0.017 / 0.776	

CI: Confidence Interval; R<sup>2</sup>: Coefficient of Determination;  $\sigma^2$ : distribution-specific variance;  $\tau_{00}$ : between-subject-variance; ICC: intra-class correlation coefficient, N: number of subjects. P-values in bold indicate significant effects. ALT: Alanine-Aminotransferase.

**Supplementary Table S2:** Parameters of the generalized linear mixed models (GLMM) used for time course of parameters for liver function.

<i>Predictors</i>	<b>Bilirubin</b>			<b>INR</b>		
	<i>Estimates</i>	<i>CI</i>	<i>p</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	0.11	-0.03 – 0.24	0.118	1.15	1.11 – 1.20	<b>&lt;0.001</b>
Time (days)	-0.00	-0.00 – 0.00	0.085	-0.00	-0.00 – -0.00	0.068
<b>Random Effects:</b>						
$\sigma^2$		0.03			0.01	
$\tau_{00}$		0.11 Procedure ID			0.01 Procedure ID	
ICC		0.79			0.63	
N		25 Procedure ID			22 Procedure ID	
Observations		365			282	
Marginal R <sup>2</sup> /		0.002 / 0.795			0.006 / 0.636	
Conditional R <sup>2</sup>						

CI: Confidence Interval; R<sup>2</sup>: Coefficient of Determination;  $\sigma^2$ : distribution-specific variance;  $\tau_{00}$ : between-subject-variance; ICC: intraclass correlation coefficient, N: number of subjects. P-values in bold indicate significant effects. INR: International Normalized Ratio.

**Supplementary Table S3:** Parameters of the generalized linear mixed models (GLMM) used for time course of parameters for liver damage.

<i>Predictors</i>	<b>GGT</b>			<b>AST</b>			<b>Antithrombin</b>		
	<i>Estimates</i>	<i>CI</i>	<i>p</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	2.10	1.94 – 2.25	<b>&lt;0.001</b>	1.46	1.38 – 1.54	<b>&lt;0.001</b>	1.90	1.78 – 2.02	<b>&lt;0.001</b>
Time (days)	0.00	0.00 – 0.01	0.091	-0.00	-0.00 – 0.00	0.158	-0.00	-0.01 – 0.01	0.962
<b>Random Effects:</b>									
$\sigma^2$		0.03			0.03			0.00	
$\tau_{00}$		0.14 Procedure ID			0.03 Procedure ID			0.02 Procedure ID	
ICC		0.82			0.57			0.81	
N		25 Procedure ID			24 Procedure ID			7 Procedure ID	
Observations		358			278			21	
Marginal R <sup>2</sup> /		0.005 / 0.820			0.004 / 0.567			0.000 / 0.809	
Conditional R <sup>2</sup>									

CI: Confidence Interval; R<sup>2</sup>: Coefficient of Determination;  $\sigma^2$ : distribution-specific variance;  $\tau_{00}$ : between-subject-variance; ICC: intraclass correlation coefficient, N: number of subjects. P-values in bold indicate significant effects. GGT: Gamma glutamyltransferase; AST: Aspartate Aminotransferase

**Supplementary Table S4:** Visual appearance of the drainage fluid depending on the infection status.

Visual appearance <sup>1</sup>		Proof of germs <sup>2</sup>	
		Positive	Negative
Bloody	8 (12.3%)	4 (50.0%)	4 (50.0%)
Chylus	<b>1 (1.5%)</b>	1 (100.0%)	0 (0.0%)
Purulent	<b>15 (23.1%)</b>	<b>14 (93.3%)</b>	1 (6.7 %)
Bilious	24 (36.9%)	13 (54.2 %)	11 (45.8%)
Serous	17 (26.2%)	9 (52.9 %)	8 (47.1 %)

<sup>1</sup>: Numbers (Percentage). The group includes all cases where the visual appearance of the drainage fluid was documented (n=65). Percentages refer to the column values. <sup>2</sup>: Numbers (Percentage). Subgroup in which germ detection was performed. Percentages refer to the row values. Values in bold indicates significant result in Chi<sup>2</sup>-test.

**Supplementary Table S5:** Factors affecting clinical success. Parameters refer to the level of each intervention session.

Parameter	Value / Unit	Clinical Success Group				P-value (Intergroup comparison)	P-value (Pairwise post- hoc comparison) <sup>1)</sup>
		Successful	n	Unsuccessful	n		
Age							
	Years	50.6 ± 10.43 (29-67) <sup>2)</sup>	53	48.3 ± 11.27 (26-41) <sup>2)</sup>	13	0.645	
Gender							
	Males	42 (75.0%) <sup>3)</sup>	56	11 (84.6%) <sup>3)</sup>	13	0.717	
	Females	14 (25.0%) <sup>3)</sup>		2 (15.4%) <sup>3)</sup>			
Indication for liver transplantation							
	Ethyltoxic	18 (32.1%) <sup>3)</sup>	56	1 (7.7%) <sup>3)</sup>	13	<b>0.016</b>	<b>&lt;0.0001</b>
	Ethyltoxic + HCC	6 (10.7%) <sup>3)</sup>		0 (0.0%) <sup>3)</sup>			<b>0.009</b>
	Other <sup>*)</sup>	32 (57.2%) <sup>3)</sup>		12 (92.3%) <sup>3)</sup>			>0.999
Transplantation number							
	First transplantation	50 (89.3%) <sup>3)</sup>	56	13 (100%) <sup>3)</sup>	13	0.586	
	Retransplantation	6 (10.7%) <sup>3)</sup>		0 (0.0%) <sup>3)</sup>			
Backtable vascular anastomosis required during transplantation surgery							
	Accessory / aberant hepatic artery	13 (28.9%) <sup>3)</sup>	45	1 (12.5%) <sup>3)</sup>	8	>0.999	
	none	32 (71.1%) <sup>3)</sup>		7 (87.5%) <sup>3)</sup>			
Type of Biliary anastomosis							
	End-to-end	31 (75.6%) <sup>3)</sup>	41	6 (75.0%) <sup>3)</sup>	8	0.815	
	End-to-side	3 (7.3%) <sup>3)</sup>		0 (0.0%) <sup>3)</sup>			
	Biliodigestive	7 (17.1%) <sup>3)</sup>		2 (25.0%) <sup>3)</sup>			
Type of donor liver							

	Whole liver	43 (84.3%) <sup>3)</sup>	51	10 (100.0%) <sup>3)</sup>	10	0.332
	Split liver	8 (15.7%) <sup>3)</sup>		0 (0.0%) <sup>3)</sup>		
Type of transplanation surgery	Piggyback	27 (64.3%) <sup>3)</sup>	42	5 (50.0%) <sup>3)</sup>	10	0.532
	Belghiti	11 (26.2%) <sup>3)</sup>		3 (30.0%) <sup>3)</sup>		
	Vena cava resection	4 (9.5%) <sup>3)</sup>		2 (20.0%) <sup>3)</sup>		
Additonal surgery procedures during transplantation	Performed	3 (5.9%) <sup>3)</sup>	51	2 (20.0%) <sup>3)</sup>	10	0.189
	Not performed	48 (94.1%) <sup>3)</sup>		8 (80.0%) <sup>3)</sup>		
Intervall Transplantation surgery to Intervention	Days	108.5 [34, 327] (7-8351) <sup>4)</sup>	56	162 [43, 687] (19-8315) <sup>4)</sup>	13	0.519
Applied Immunosupressiva	Tacrolimus	35 (62.5%) <sup>3)</sup>	56	8 (61.5%) <sup>3)</sup>	13	0.768
	Tacrolimus+Mycophenolate	5 (8.9%) <sup>3)</sup>		1 (7.7%) <sup>3)</sup>		
	Cyclosporin A	7 (12.5%) <sup>3)</sup>		3 (23.1%) <sup>3)</sup>		
	Cyclosporin A+ Mycophenolate	3 (5.4%) <sup>3)</sup>		0 (0.0%) <sup>3)</sup>		
	Cyclosporin A+ Sirolimus	2 (3.6%) <sup>3)</sup>		0 (0.0%) <sup>3)</sup>		
	Sirolimus	4 (7.2%) <sup>3)</sup>		1 (7.7%) <sup>3)</sup>		
Total number of fluid collections	1	38 (66.1%) <sup>3)</sup>	56	10 (76.9%) <sup>3)</sup>	13	
	2	16 (28.6%) <sup>3)</sup>		2 (15.4%) <sup>3)</sup>		
	3	2 (3.6%) <sup>3)</sup>		1 (7.7%) <sup>3)</sup>		
	4	1 (1.8%) <sup>3)</sup>		0 (0.0%) <sup>3)</sup>		

N: number; <sup>1)</sup> only if applicable; <sup>2)</sup> Mean value ± standard deviation (range), <sup>3)</sup> Numbers (Percentage); <sup>4)</sup> median [25%-; 75%-quartiles] (range), HCC: Hepatocellular carcinoma

\*) For the sake of clarity, the remaining indications are not listed here. In these cases, no significant group differences were observed

p-Values in bold indicate significant differences

**Supplementary Table S6:** Factors affecting clinical success. Parameters refer to the level of the fluid collection.

Parameter	Value / Unit	Clinical Success Group				P-value (Intergroup comparison)	P-value (Pairwise post-hoc comparison) <sup>1)</sup>
		Successful	n	Unsuccessful	n		
Contrast enhancement on prior CT	Enhancement	12 (25.0%) <sup>2)</sup>	48	6 (50.0%) <sup>2)</sup>	12	0.156	
	No Enhancement	36 (75.0%) <sup>2)</sup>		6 (50.0%) <sup>2)</sup>			
Air entrapment on prior CT	Entrapment	16 (23.2%) <sup>2)</sup>	69	3 (18.8%) <sup>2)</sup>	16	>0.999	
	No Entrapment	53 (76.8%) <sup>2)</sup>		13 (81.2%) <sup>2)</sup>			
Max. diameter of fluid collection		7.25 [4.2, 10.6] (2-17.2) <sup>3)</sup>	72	6.3 [5.25, 11.2] (2.7-14.1) <sup>3)</sup>	16	0.871	
Location of fluid collection	Intrahepatic right liver lobe	32 (44.4%) <sup>2)</sup>	72	7 (43.8%) <sup>2)</sup>	16	0.527	
	Intrahepatic left liver lobe	11 (15.3%) <sup>2)</sup>		2 (12.5%) <sup>2)</sup>			
	Intrahepatic central	3 (4.2%) <sup>2)</sup>		0 (0.0%) <sup>2)</sup>			
	Centrally congested bile ducts	2 (2.8%) <sup>2)</sup>		0 (0.0%) <sup>2)</sup>			
	Prehepatic	5 (6.9%) <sup>2)</sup>		1 (6.3%) <sup>2)</sup>			
	Subhepatic	8 (11.1%) <sup>2)</sup>		3 (18.8%) <sup>2)</sup>			
	Perihepatic medial	5 (6.9%) <sup>2)</sup>		0 (0.0%) <sup>2)</sup>			
	Perihepatic lateral	4 (5.6%) <sup>2)</sup>		1 (6.3%) <sup>2)</sup>			
	Retrohepatic right	0 (0.0%) <sup>2)</sup>		2 (12.5%) <sup>2)</sup>			
	Retrohepatic left	1 (1.4%) <sup>2)</sup>		0 (0.0%) <sup>2)</sup>			
	Subphrenic	1 (1.4%) <sup>2)</sup>		0 (0.0%) <sup>2)</sup>			
Access to collection	Direct	28 (40.0%) <sup>2)</sup>	70	4 (30.8%) <sup>2)</sup>	13	0.758	
	Transhepatic	42 (60.0%) <sup>2)</sup>		9 (69.2%) <sup>2)</sup>			
Visual appearance of aspirate	Bilious	21 (36.2%) <sup>2)</sup>	58	3 (23.1%) <sup>2)</sup>	13	<b>0.018</b>	>0.999
	Bloody	4 (6.9%) <sup>2)</sup>	58	6 (46.2%) <sup>2)</sup>	13		<b>0.002</b>
	Chylus	3 (5.2%) <sup>2)</sup>	58	0 (0.0%) <sup>2)</sup>	13		>0.999
	Purulent	15 (25.9%) <sup>2)</sup>	58	2 (15.4%) <sup>2)</sup>	13		>0.999
	Serous	15 (25.9%) <sup>2)</sup>	58	2 (15.4%) <sup>2)</sup>	13		>0.999

Type of fluid collection							
	Abscess	27 (43.5%)		9 (75.0%)			<0.0001
	Biloma	23 (37.1%)	62	1 (8.3%)	12	<b>0.040</b>	<b>0.002</b>
	Haematoma	4 (6.5%)		2 (16.7%)			<b>0.008</b>
	Seroma	8 (12.9%)		0 (0.0%)			0.052
Volume of aspirate							
	ml	100 [10,300] (3-600) <sup>3</sup>	13	20 [11.5, 510] (3-1000) <sup>3</sup>	3	0.946	

N: number; <sup>1</sup>: only if applicable; <sup>2</sup>: Numbers (Percentage); 3: median [25%-; 75%-quartiles] (range)

p-Values in bold indicate significant differences



**Supplementary Table S7:** Factors affecting clinical success. Parameters refer to the level of the inserted drainages.

Parameter	Value / Unit	Clinical Success Group				P-value (Intergroup comparison)	P-value (Pairwise post-hoc comparison) <sup>1)</sup>
		Successful	n	Unsuccessful	n		
Total number of drains	1	69 (89.6%) <sup>2)</sup>	77	15 (88.2%) <sup>2)</sup>	17	>0.999	
	2	8 (10.4%) <sup>2)</sup>		2 (11.8%) <sup>2)</sup>			
Access path	Transabdominal ventral	19 (24.7%) <sup>2)</sup>	77	4 (23.5%) <sup>2)</sup>	17	<b>0.031</b>	>0.999
	Transabdominal right ventrolateral	7 (9.1%) <sup>2)</sup>		3 (17.6%) <sup>2)</sup>			>0.999
	Transabdominal right lateral	18 (23.4%) <sup>2)</sup>		0 (0.0%) <sup>2)</sup>			<b>0.042</b>
	Transabdominal left lateral	2 (2.6%) <sup>2)</sup>		0 (0.0%) <sup>2)</sup>			>0.999
	Transabdominal right dorsolateral	3 (3.9%) <sup>2)</sup>		0 (0.0%) <sup>2)</sup>			>0.999
	Transabdominal right dorsal	0 (0.0%) <sup>2)</sup>		2 (11.8%) <sup>2)</sup>			>0.999
	Transhepatic right lateral	15 (19.5%) <sup>2)</sup>		4 (23.5%) <sup>2)</sup>			>0.999
	Transhepatic ventral	10 (13.0%) <sup>2)</sup>		4 (23.5%) <sup>2)</sup>			>0.999
	Transhepatic right ventrolateral	3 (3.9%) <sup>2)</sup>		0 (0.0%) <sup>2)</sup>			>0.999
Technique	Direct Seldinger	73 (96.1%) <sup>2)</sup> 3 (3.9%) <sup>2)</sup>	76	16 (100.0%) <sup>2)</sup> 0 (0.0%) <sup>2)</sup>	16	>0.999	
Drain size	7.5F	9 (11.7%) <sup>2)</sup>	77	0 (0.0%) <sup>2)</sup>	17	0.799	
	8F	23 (29.9%) <sup>2)</sup>		5 (29.4%) <sup>2)</sup>			
	10F	36 (46.8%) <sup>2)</sup>		10 (58.8%) <sup>2)</sup>			
	12F	8 (10.4%) <sup>2)</sup>		2 (11.8%) <sup>2)</sup>			
	14F	1 (1.3%) <sup>2)</sup>		0 (0.0%) <sup>2)</sup>			
Drain duration	Days	7 [6, 19] (2-54) <sup>3)</sup>	29	10 [10,15] (8-54) <sup>3)</sup>	5	0.251	

N: number; <sup>1)</sup> only if applicable; <sup>2)</sup> Numbers (Percentage); <sup>3)</sup> median [25%-; 75%-quartiles] (range)

p-Values in bold indicate significant differences