Supplementary Table 1: Characteristics of haptic/renal double organ alveolar echinococcosis (AE)

Patient	Sex	Age	Clinical symptoms	Lesion features					Comorbidity
				Hepatic location	Renal location*	Morphology and PNM	Volume (cm^3)	Lesion number	
P1	Male	30	Upper abdominal pain, Nausea, Vomiting	RL, CL	RK_{up}	Central necrotic, $P_4N_1M_1$	315.0	1	Lesion invaded right adrenal gland, diaphragm, IVC; multiple calcified pulmonary AE
P2	Male	51	Abdominal pain, Weakness	RL	RK, RK_c, LK_{low}	Central necrotic, $P_4N_1M_1$	RL+RK: 696.9; LK: 8.2	2	Right renal atrophy; Lesion invaded right adrenal gland, diaphragm, IVC, abdominal wall, duodenum wall; multiple calcified pulmonary AE; Hepatitis B
P3	Male	52	Abdominal pain	RTS	RK, RK_c	Central necrotic, $P_4N_1M_1$	1308.0	1	Lesion invaded right adrenal gland, psoas muscle, diaphragm, IVC; right lower lobe pulmonary AE;
P4	Male	49	No	RTS, CL	RK_{up}, RK_c	Central necrotic, $P_4N_1M_1$	1998.0	1	Lesion invaded right adrenal gland, diaphragm, IVC; Right lower lobe pneumonia; chronic cholecystitis
P5	Female	52	No	RAL	RK	Central necrotic, $P_4N_1M_1$	273.7	1	Lesion invaded right diaphragm, abdominal wall; chronic cholecystitis; left hydronephrosis
P6	Male	49	Abdominal pain	RL, LLL	RK_{up}	Central necrotic, $P_4N_1M_1$	RL+RK: 882.9; LLL: 164.0	2	Lesion invaded right adrenal gland, IVC; chronic cholecystitis
P7	Male	39	Abdominal pain	RPL	RK, RK_c	Polycystic, $P_4N_1M_1$	249.3	1	Lesion invaded right diaphragm; chronic cholecystitis
P8	Male	47	Abdominal pain	RL	RK_c	Diffusion calcified, $P_4N_1M_1$	840.0	1	Lesion invaded right adrenal gland, diaphragm, IVC; chronic cholecystitis; bilateral hydrothorax
P9	Male	27	Gastrointestinal bleeding, Melena	RL	RK_c	Polycystic, $P_4N_1M_1$	117.0	1	Lesion invaded IVC; cavernous transformation of portal vein
P10	Female	31	No	RPL, CL	RK_{up}, RK	Central necrotic, $P_4N_1M_1$	582.7	1	No

Note: RL=liver right lobe; CL=liver caudate lobe; RTS=liver right tri-section; RAL= liver right anterior lobe; LLL=liver left lateral lobe; RPL= liver right posterior lobe; RLL=right liver lobe lower section (Couinaud's segment V and VI); * Subscript "up", "lo" and "c" respectively represented upper and lower pole of the kidney and renal hilum; RK=right kidney;

LK=left kidney; IVC=inferior vena cava.

Supplementary Table 2 Characteristics of haptic/renal double organ cystic echinococcosis (CE)

Patient	Sex	Age	Clinical symptoms	Lesion features					Comorbidity
				Hepatic location	Renal location*	Type	Volume (cm^3)	Lesion number	
P11	Male	60	Right abdominal pain	RL	RK_{up}	RL: CE1; RK: CE1	RL: 904.3; RK: 60.0	2	Chronic heart coronary disease
P12	Male	37	Upper abdominal and right flank pain	RPL	RK_{up}, RK_c, RK_{low}	RPL: CE2; RK_{up}: CE2; RK_c: CE2; RK_{low}: CE2	RPL: 12.0; RK_{up}: 33.5; RK_c: 164.6; RK_{low}: 268.0	7	Lesion at right renal fossa (CE2, 33.5), in abdominal cavity (CE2, 179.5) and in pelvic cavity (CE2, 113.0)
P13	Male	34	Upper abdominal/ right flank pain Fever, Hydatiduria	RL	RK_{up}	RL: CE2; RK: CE2	RL: 1645.0; RK: 57.9	3	Lesion at right renal fossa (CE2, 27.6) invading IVC; right diaphragmatic inflammation; right lower lobe pneumonia; bilateral hydrothorax
P14	Male	44	Left flank pain	RLL	LK	RL: CE4; LK: CE2	RL: 91.9; LK: 91.9	3	Lesion at left renal fossa (CE2, 791.2) invading left psoas muscle and IVC; RLU atrophy; non-functional left kidney; chronic cholecystitis
P15	Female	57	Right flank pain	RPL	RK_c	RPL: CE2; RL: CE2	RPL: 17.1; RL: 381.5	2	Lesion invaded right psoas muscle; right lower lobe pneumonia
P16	Male	30	Right flank pain	RL	RK_{up}	RL: CE1; RK: CE1	RL: 9.2; RK: 57.9	2	Lesion invaded right adrenal gland, diaphragm; right hydrothorax; chronic cholecystitis
P17	Male	51	Left flank pain	RL	LK_{low}	RL: CE4; RK: CE2	RL: 17.0; RK: 927.1	2	Lesion invaded left psoas muscle, upper section of ureter, renal hilum, genital vein
P18	Female	22	Right flank pain	RL, LLL	RK_{low} RK_c	RL: CE4; LLL: CE3; RK_{low}: CE3; RK_c: CE3	RL: 18.8; LLL: 26.5; RK_{low}: 7.2; RK_c: 9.2	5	Lesion in abdominal cavity (CE3, 22.4); bilateral hydrothorax
P19	Male	42	No	RPL	RK_{up}	RPL: CE2; RK: CE2	RPL: 523.3; RK: 523.3	2	Lesion invaded IVC
P20	Female	52	No	RPL	RK_{up}	RPL: CE2; RK: CE2	RPL: 268.0; RK: 268.0	2	No
P21	Male	47	Upper abdominal pain	RL, LLL	RK	RL: CE3; LLL: CE2; RK: CE1	RL: 91.9; LLL: 4186.6; RK: 4508.6	4	Lesion at right renal fossa (CE2, 523.3) invading right adrenal gland and other neighboring structures; non-functional right kidney; left diaphragm

									inflammation; chronic cholecystitis

Note: RL=liver right lobe; CL=liver caudate lobe; RTS= right liver trisection; RAL= liver right anterior lobe; LLL=liver left lateral lobe; RPL= liver right posterior lobe; RLL=right liver lobe lower section (Couinaud's segment V and VI); Type: Subscript "up", "lo" and "c" respectively represented upper and lower pole of the kidney and renal hilum; RK=right kidney; LK=left kidney; IVC=inferior vena cava; RLU=right liver lobe upper section (Couinaud's segment VII and VIII).

Supplementary **Table** 3 The Clavien-Dindo Classification

Grades	Definition
Grade I	Any deviation from the normal postoperative course without the need for pharmacological treatment or surgical, endoscopic and radiological interventions. Allowed therapeutic regimens are: drugs as antiemetics, antipyretics, analgesics, diuretics and electrolytes and physiotherapy. This grade also includes wound infections opened at the bedside.
Grade II	Requiring pharmacological treatment with drugs other than such allowed for grade I complications. Blood transfusions and total parenteral nutrition are also included.
Grade III	Requiring surgical, endoscopic or radiological intervention.
- IIIa	Intervention not under general anesthesia.
- IIIb	Intervention under general anesthesia.
Grade IV	Life-threatening complication (including CNS complications)* requiring IC/ICU management.
- IVa	Single organ dysfunction (including dialysis).
- IVb	Multiorgandysfunction.
Grade V	Death of a patient.

*brain hemorrhage, ischemic stroke, subarrachnoidal bleeding, but excluding transient ischemic attacks (TIA); IC: Intermediate care; ICU: Intensive care unit.