$\begin{tabular}{ll} \textbf{Table S1} The detailed clinic opathological information of the enrolled patients \\ \end{tabular}$

Group	Sex	Age, years	Operation approach	Pathology	Tumor major diameter	рТ	pΝ	рМ	G	Location	Stage	Neoadjuvant therapy
1st I+	Male	71	Right thoracic-abdominal	Squamous	3.0	3	0	0	2	Middle	IIB	No
1st I+	Male	67	Left thoracic	Squamous	0.5	1a	0	0	2–3	Middle	IB	No
1st I+	Female	64	Left thoracic	Squamous	3.5	2	0	0	2	Middle	IIA	No
1st I+	Female	70	Left thoracic	Squamous	3.0	1a	1	0	2	Middle	IIB	No
1st I+	Male	60	Right thoracic-abdominal	Squamous + small cell carcinoma	3.5	1b	1	0	2–3	Middle	IIB	No
1st I+	Male	59	Left thoracic	Squamous	2.0	1b	0	0	2	Lower	IB	No
1st I+	Male	71	Left thoracic	Squamous	3.5	2	2	0	3	Lower	IIIB	No
1st I+	Male	53	Left thoracic	Squamous	5.5	3	3	0	2	Lower	IVA	No
1st I+	Male	68	Left thoracic	Adenocarcinoma	10.5	3	3	0	2	Lower	IVA	No
1st I+	Male	81	Left thoracic	Adenocarcinoma	3.0	3	0	0	2	Lower	IIB	No
1st I+	Male	79	Abdominal	Adenocarcinoma	4.0	3	0	0	3	Lower	IIB	No
2nd I+	Female	54	Left thoracic	Stromal tumor	7.0	2	0	0	2–3	Lower	IIA	No
2nd I+	Male	69	Left thoracic	Squamous	2.5	1a	1	0	2	Lower	IIB	No
2nd I+	Male	61	Left thoracic	Squamous	1.5	3	2	0	2–3	Lower	IIIB	No
2nd I+	Male	62	Abdominal	Adenocarcinoma	2.5	3	3	0	3	Lower	IVA	No
2nd I+	Male	63	Left thoracic	Adenocarcinoma	6.5	3	2	0	2–3	Lower	IIIB	No
2nd I+	Male	62	Left thoracic	Adenocarcinoma	3.0	3	2	0	2–3	Lower	IIIB	No
2nd I+	Female	65	Left thoracic	Adenocarcinoma	6.0	3	1	0	3	Lower	IIIB	No
2nd I+	Male	50	Right thoracic-abdominal	Squamous	4.0	3	2	0	2	Lower	IIIB	Yes
2nd I+	Male	70	Left thoracic	Squamous	3.0	1b	0	0	2	Lower	IB	Yes
I–	Male	78	Left thoracic	Squamous	2.5	3	1	0	2	Middle	IIIB	No
I–	Male	74	Left thoracic	Squamous	4.0	2	0	0	2	Middle	IIA	No
I–	Male	63	Right thoracic-abdominal	Squamous	2.0	3	0	0	2	Middle	IIB	No
I–	Male	71	Right thoracic-abdominal	Squamous	2.0	3	0	0	2	Middle	IIB	No
I–	Male	60	Right thoracic-abdominal	Squamous	2.0	2	1	0	2	Middle	IIIA	No
I–	Female	70	Right thoracic-abdominal	Squamous	3.5	3	0	0	2	Middle	IIB	No
I–	Female	58	Right thoracic-abdominal	Squamous	2.8	3	2	0	3	Middle	IIIB	No
I–	Male	68	Right thoracic-abdominal	Squamous	4.5	3	1	0	3	Lower	IIIB	No
I–	Male	68	Left thoracic	Squamous	3.5	3	0	0	3	Lower	IIA	No
I–	Male	71	Left thoracic	Squamous	2.5	3	1	0	2	Lower	IIIB	No
I–	Female	68	Left thoracic	Squamous	3.5	3	3	0	3	Lower	IVA	No
I–	Female	65	Left thoracic	Squamous	1.8	1b	0	0	3	Lower	IB	No
I–	Male	60	Right thoracic-abdominal	Squamous	3.2	2	0	0	2	Lower	IIA	No
I–	Male	67	Right thoracic-abdominal	Squamous	3.5	3	2	0	2	Lower	IIIB	No
I–	Male	43	Right thoracic-abdominal	Squamous	4.5	3	1	0	3	Lower	IIIB	No
I–	Male	67	Right thoracic-abdominal	Squamous	4.0	3	2	0	2	Lower	IIIB	No
I–	Male	46	Right thoracic-abdominal	Squamous	6.5	3	0	0	1–2	Lower	IIA	No
I–	Female	67	Right thoracic-abdominal	Squamous	5.0	3	2	0	2	Lower	IIIB	No
I–	Male	77	Left thoracic	Squamous	3.5	2	1	0	2	Lower	IIIA	No
I–	Male	69	Left thoracic	Adenocarcinoma	5.0	3	3	0	3	Lower	IVA	No
I–	Female	64	Left thoracic	Squamous	5.0	3	2	0	2	Lower	IIIB	Yes
I–	Male	60	Right thoracic-abdominal	Squamous	1.5	1	1	0	х	Lower	IIB	Yes

I+, slow-flow irrigation drainage tube group; I-, traditional drainage (non-irrigation) tube group.