

**Comparison of Robotic-Assisted Adrenalectomy Using the da Vinci Surgical System with Laparoscopic and Open Approaches:
A systematic Literature Review and Meta-analysis**

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Supplementary File

Table 1: Study characteristics of included studies (n=39)

Ref. #	Study	Country	Study type	Study period	Database name/Institution	Paper cohorts Analyzed	No. of patients		
							dV-RAS	Lap	Open
1	Agcaoglu 2012	USA	RETRO	2009-2011	Cleveland Clinic, Cleveland, OH, USA	R, L	31	31	
2	Aksoy 2013	USA	RETRO	2003-2012	Cleveland Clinic, Cleveland, OH, USA	R, L	42	57	
3	Aliyev 2013	USA	RETRO	2000-2012; RAS: 2009-2012; Lap: 2000-2009	Cleveland Clinic, Cleveland, OH, USA	R, L	25	40	
4	Al-Thani 2022	Qatar	RETRO	01/2004-12/2019	Hamad General Hospital, Doha, Qatar	R, L, O	76	20	28
5	Anceschi 2020	Italy	RETRO	03/2011-04/2020	National Cancer Institute, Rome, Italy; San Luigi Hospital, Orbassano, TO, Italy; Santa Chiara Regional Hospital, Trento, Italy; San Bassiano Hospital, Bassano del Grappa (VI), Italy	R, L	24	66	
6	Aydin 2021	Turkey	RETRO	2012-2020	Bakirkoy Dr Sadi Konuk Training and Research Hospital, İstanbul, Turkey	R, L, O	38	164	3
7	Brandao 2014	USA	RETRO	RAS: 04/2010-10/2013; Lap: 01/2004-05/2010	Cleveland Clinic, Cleveland, OH, USA	R, L	30	46	
8	Cheng 2023	China	RETRO	01/2015-02/2023	Shanghai Ruijin Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, People's Republic of China	R, L	48	67	
9	Choi 2022	Korea	RETRO	10/2018-03/2022	Inha University Hospital, Incheon, South Korea	R, L	24	32	
10	Collins 2023	USA	RETRO	2007-2022	Massachusetts General Hospital, Boston, MA; Medical College of Wisconsin, Milwaukee, WI;	R, L	275	182	

					Vanderbilt University Medical Center, Nashville, TN				
11	De Crea 2022	Italy	RETRO	01/2012-08/2021	Dipartimentale di Chirurgia Endocrina e dell'Obesità, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy; Università Cattolica del Sacro Cuore, L.go A. Gemelli, Rome, Italy; Fondazione Gemelli Giglio Cefalù, Cefalù, Palermo, Italy	R, L	Unmatched: 95; Matched: 92	Unmatched: 191; Matched: 92	
12	Fang 2020	Multinational	RETRO	2000-2017	University of Alabama at Birmingham (Birmingham, AL); New York Medical College (Valhalla, NY); Hospital das Clínicas de São Paulo (São Paulo, Brazil)	R, L	41	89	
13	Feng 2018	USA	RETRO	05/2010-09/2017	Vanderbilt University Medical Center, Nashville, TN, USA	R, L	58	64	
14	Huang 2024	China	RETRO	12/2014-03/2023	The First Affiliated Hospital of Nanchang University, Nanchang, 330000, Jiangxi Province, China	R, L	68	153	
15	Isiktas 2022	USA	RETRO	03/2000-10/2021	Cleveland Clinic, Cleveland, OH, USA	R, L	87	70	
16	Isiktas 2022 Obese	USA	RETRO	03/2000-10/2021	Cleveland Clinic, Cleveland, OH, USA	R, L	109; LT: 94; PR: 15	91; LT: 67; PR: 24	
17	Isiktas 2023	USA	RETRO	2000-2022	Cleveland Clinic, Cleveland, OH, USA	R, L	281	190	
18	Ji 2020	China	RETRO	04/2012-02/2018	Drum Tower Hospital, Medical School of Nanjing University, Institute of Urology, Nanjing University, Jiangsu, People's Republic of China	R, L	RATLA: 87	TLA: 37; RLA: 117	
19	Kim 2019	Korea	RETRO	2014-2017	Asan Medical Center, University of Ulsan College of Medicine, Seoul, Republic of Korea	R, L	61	169	
20	Knewitz 2024	USA	RETRO	2010-2023	Mayo Clinic, Jacksonville, Florida, USA; Mayo Clinic, Rochester, Minnesota, USA	R, L	69	69	
21	Ko 2023	Korea	RETRO	01/2018-06/2022	Korea University College of Medicine, Seoul, Korea	R, L	45	48	
22	Lee 2024	Korea	RETRO	02/2015-03/2023	Chung-Ang University Gwangmyeong Hospital, Chung-Ang University College of Medicine, Gwangmyeong, Korea; Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea	R, L	41	354	

23	Li 2023	China	RETRO	01/2021-12/2021	The First Affiliated Hospital of Nanchang University, Nanchang, China	R, L	26	75	
24	Ma 2020	China	RETRO	03/2013-10/2018	Ruijin Hospital, Shanghai Jiao Tong University Medical School, Shanghai, China	R, L	Unmatched: 86; Matched: 79	Unmatched: 315; Matched: 79	
25	Ma 2020 RCT	China	RCT	03/2016-04/2019	Ruijin Hospital, Shanghai Jiao Tong University Medical School, Shanghai, China	R, L	70	70	
26	Morelli 2016	Italy	RETRO	1994-2014	University of Pisa, Pisa, Italy; Institute of Clinical Physiology, National Council of Research, Pisa, Italy; Fondazione G. Monasterio CNR—Regione Toscana, Pisa, Italy; University of Pavia, Pavia, Italy	R, L	41	75	
27	Niglio 2019	Italy	RETRO	05/2011-12/2018	UOC Chirurgia Generale 2, AORN Cardarelli, Naples, Italy	R, L	40	64	
28	Parente 2024	Multinational	RETRO	01/2012-12/2022	International pheochromocytoma database; 46 international centers in 20 countries	R, L	Unmatched: 142; Matched: 112	Unmatched: 1613; Matched: 90	
29	Piccoli 2021	Italy	RETRO	01/2006-12/2019	Baggiovara General Hospital, Modena, Italy; University of Modena and Reggio Emilia, Modena, Italy; Torvergata University, Rome, Italy	R, L	76	84	
30	Pineda-Solis 2013	USA	RETRO	NR	University of Alabama Birmingham, Birmingham, AL, USA	R, L	30	30	
31	Samreen 2018	USA	DB	01/2009-12/2012	Nationwide Inpatient Sample (HCUP-NIS data)	R, L	338	668	
32	Selvaraj 2022	India	RETRO	2013-2020	Apollo Main Hospitals, Chennai; Amrita Institute of Medical Science, Kochi; Apollo Hospitals, Jubilee Hills, Hyderabad	R, L, O	60	146	29
33	Sforza 2020	Multinational	RETRO	03/2008-02/2018	Careggi Hospital, Florence, Italy; Drum Tower Hospital, Nanjing, China	R, L	110	367	
34	Shalaby 2020	USA	RETRO	01/2010-07/2018	Tulane Medical Center in New Orleans, Louisiana	R, L	37	29	
35	Sung 2021	USA	DB	2016	Nationwide Inpatient Sample (HCUP-NIS data)	R, L, O	1680	2495	965
36	Thompson 2016	Sweden	DB	2009-2014	Scandinavian Quality Register for Thyroid, Parathyroid and Adrenal Surgery (SQRTPA); Skåne University Hospital, Lund, Sweden	R, L, O	250	263	146

37	Vatansver 2022	Multinational	DB	2015-2018	EUROCRINE quality register (multinational, European registry for endocrine surgery)	R, L	189	816	
38	Verhoeff 2024	Multinational	RETRO	01/2012-12/2022	46 international centers	R, L, O	142	1613	221
39	Zhou 2022	Multinational	RETRO	Group 1: LRPA : 01/2010-12/2014; Group 2: RRPA: 02/2015-06/2016; Group 3: RTPA: 01/2014-04/2016; Group 4: LRPA: 01/2014-12/2016	The First Affiliated Hospital of Nanchang University, Nanchang, Jiangxi, China; Temple University Hospital, Philadelphia, PA, United States; The First Affiliated Hospital of Guangxi Medical University, Nanning, Guangxi, China	R, L	RRPA: 105; RTPA: 28	LRPA: 212; LRPA: 113	
<p>Abbreviations: RCT: Randomized controlled trials; DB: Large database studies; RETRO: Retrospective cohort studies; LT: lateral transabdominal approach; PR: posterior retroperitoneal approach; RATLA: robot-assisted transperitoneal laparoscopic adrenalectomy; TLA: transperitoneal laparoscopic; RLA: retroperitoneal laparoscopic; RRPA: robotic retroperitoneal adrenalectomy; RTPA: robotic transperitoneal adrenalectomy; LRPA: laparoscopic retroperitoneal adrenalectomy; LRPA: Laparoscopic retroperitoneal adrenalectomy</p>									

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Included in SLR only:

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