8th WORLD CONGRESS of PEDIATRIC SURGERY

WOFAPS

Turkish Association of Pediatric Surgeons

12-15 November 2025
Titanic Mardan Palace Hotel
ANTALYA, TÜRKİYE

To Drain or Not to Drain? A Comprehensive Systematic Review and Pairwise Meta-Analysis of Post-Appendectomy Abscess Management in Children.

Agata Grochowska[1], Ana Emília Carvalho de Paula[2], Fernando Estima Seabra Neto[3], Alexia Rosas[4], Zarpana Akbari[5], Vyronas Argyris[6], Halima Sah[7], Miguel Eduardo Rodriguez Rodriguez[8], Camila Santos Loor[9], Ashwin Pimpalwar[10]

[1]Faculty of Medicine, Medical University of Lodz, Poland, [2]Health Sciences Institute, Federal University of Jatai (UFJ), Jataí, Brazil, [3]Science and Health University Institute - Héctor Alejandro Barceló Foundation, Argentina, [4]Department of Medicine, Federal University of Sergipe, Brazil, [5]Kabul University of Medical Sciences, Afghanistan; USA, [6]Aretaieion University Hospital, National and Kapodistrian University of Athens, Athens, Greece, [7]Faculty of Medicine, Medical Doctor, Bahçeşehir University, Istanbul, Turkey, [8]Department of General Surgery, Lincoln Medical Center, Bronx, NY, United States, [9]Universidad Católica de Santiago de Guayaquil, Ecuador, [10]Department of Pediatric Surgery, Bon Secours Mercy Health System, Richmond, VA, United States

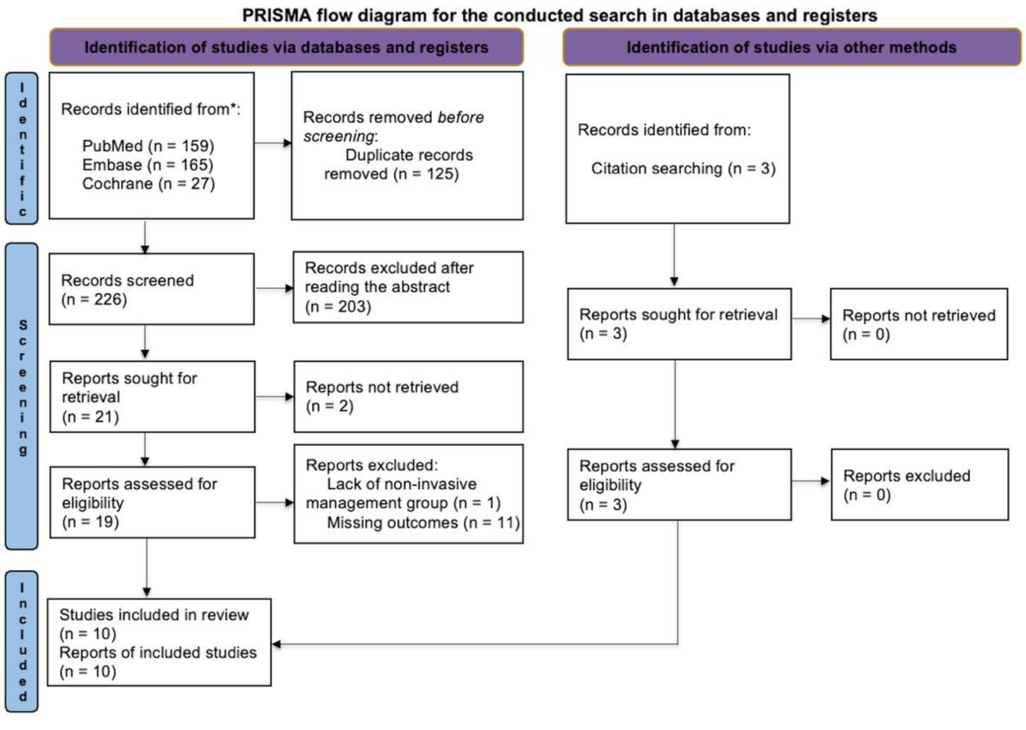
BACKROUND

- Post-appendectomy intra-abdominal abscess (IAA) is a common and challenging complication in pediatric surgical practice.
- Traditional management favors drainage; however, recent studies suggest that conservative treatment with antibiotics may be equally effective in selected patients.
- This systematic review and meta-analysis aimed to compare conservative and interventional approaches in managing pediatric post-appendectomy abscesses.

METHODS

- Databases: PubMed, Embase, CENTRAL
- Population: **Children 0–18 years** with post-appendectomy abscess
- Intervention: **Drainage (surgical/percutaneous)**
- Comparator: **Antibiotic-only conservative management**
- Outcomes: Treatment success, abscess recurrence, hospital stay
- Statistical analysis: Random-effects models; heterogeneity (I^2), Egger's test, sensitivity analyses
- Protocol: Registered in PROSPERO (CRD420251075191)

PRISMA flow diagram for the conducted search in databases and registers



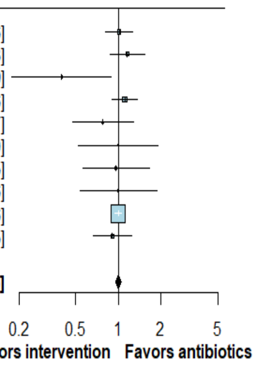
RESULTS

10 studies (n = 363; 152 drainage, 211 conservative)

Successful first-line treatment

Study	Intervention Successful	Intervention Total	Antibiotics Successful	Antibiotics Total	Weight	RR	95%-CI
Bough et al. 2021	14	16	38	44	5.0%	1.01	[0.81; 1.26]
Dhaou et al. 2010	7	7	6	7	3.1%	1.15	[0.87; 1.53]
Dobremez et al. 2002	4	11	10	11	0.4%	0.40	[0.18; 0.89]
Emil et al. 2014	20	21	18	21	6.1%	1.11	[0.91; 1.36]
Forgues et al. 2006	3	4	22	22	1.0%	0.78	[0.47; 1.27]
Gorenstein et al. 1994	2	2	8	8	0.6%	1.00	[0.53; 1.90]
Gorter et al. 2016	8	12	9	13	0.8%	0.96	[0.56; 1.65]
Okoye et al. 1998	2	2	21	21	0.6%	1.00	[0.54; 1.86]
Piper et al. 2011	36	36	35	35	80.0%	1.00	[0.95; 1.06]
van Amistel et al. 2022	27	41	21	29	2.4%	0.91	[0.66; 1.25]
Total (95% CI)	**123**	**152**	**188**	**211**	**100.0%**	**1.00**	**[0.95; 1.05]**

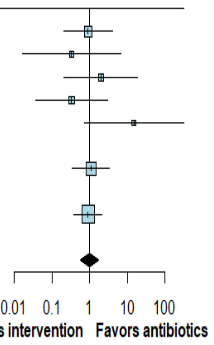
Heterogeneity: $Tau^2 < 0.0001$; $Chi^2 = 8.43$, df = 9 (P = 0.49); $I^2 = 0\%$



Recurrence of the abscess

Study	Intervention relapsed abscess	Intervention Total	Antibiotics relapsed abscess	Antibiotics Total	Weight	RR	95%-CI
Bough et al. 2021	2	16	6	44	14.1%	0.92	[0.21; 4.09]
Dhaou et al. 2010	0	7	1	7	3.4%	0.33	[0.02; 6.94]
Dobremez et al. 2002	2	11	1	11	6.2%	2.00	[0.21; 18.98]
Emil et al. 2014	1	21	3	21	6.6%	0.33	[0.04; 2.95]
Forgues et al. 2006	1	4	0	22	3.4%	15.00	[0.72; 312.44]
Gorenstein et al. 1994	0	2	0	8	0.0%		
Gorter et al. 2016	4	12	4	13	24.1%	1.08	[0.35; 3.40]
Okoye et al. 1998	0	2	0	21	0.0%		
van Amistel et al. 2022	9	41	7	29	42.1%	0.91	[0.38; 2.16]
Total (95% CI)	**19**	**116**	**22**	**176**	**100.0%**	**0.99**	**[0.57; 1.74]**

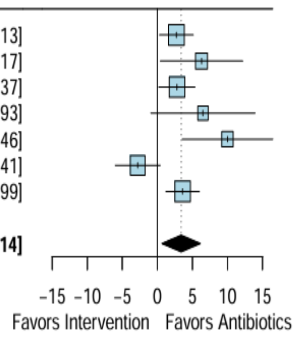
Heterogeneity: $Tau^2 < 0.0001$; $Chi^2 = 4.98$, df = 6 (P = 0.55); $I^2 = 0\%$



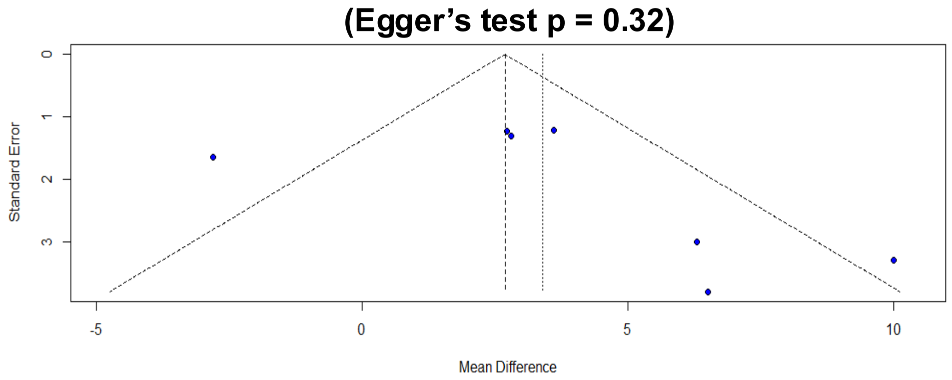
Length of hospitalization

Studies	Intervention mean	Intervention SD	Intervention Total	Antibiotics mean	Antibiotics SD	Antibiotics Total	Weight	MD	95% CI
Dhaou et al. 2010	13.00	2.74	7	10.28	1.75	7	18.3%	2.72	[0.31; 5.13]
Dobremez et al. 2002	16.70	9.74	11	10.40	1.99	11	10.8%	6.30	[0.43; 12.17]
Emil et al. 2014	8.40	4.20	21	5.60	4.30	21	18.0%	2.80	[0.23; 5.37]
Forgues et al. 2006	15.50	7.49	4	9.00	2.75	22	8.3%	6.50	[−0.93; 13.93]
Gorter et al. 2016	17.00	10.24	12	7.00	5.24	13	9.8%	10.00	[3.54; 16.46]
Okoye et al. 1998	5.50	1.74	2	8.30	4.94	21	16.5%	−2.80	[−6.01; 0.41]
Piper et al. 2011	12.10	5.70	36	8.50	4.50	35	18.4%	3.60	[1.21; 5.99]
Total (95% CI)			**93**			**130**	**100.0%**	**3.40**	**[0.65; 6.14]**

Heterogeneity: $Tau^2 = 9.1922$; $Chi^2 = 19.22$, df = 6 (P < 0.01); $I^2 = 69\%$
Test for overall effect: Z = 2.43 (P = 0.02)



Funnel plot showing no significant publication bias (Egger's test p = 0.32)



DISCUSSION

- Both conservative and invasive management achieve similar success and recurrence rates.
- Conservative therapy shortens hospital stay without compromising outcomes.
- Drainage remains indicated in septic or multiloculated abscesses.
- Future multicenter studies with standardized criteria are required.

CONCLUSION

Conservative management with antibiotics appears as effective as interventional drainage for post-appendectomy abscesses in clinically stable children and may reduce hospitalization.

REFERENCES