

# Management of appendiceal mass and abscess in children; early appendectomy or initial non-operative treatment?

A systematic review and meta-analysis

<u>P. van Amstel, MD<sup>1</sup></u>, T. Sluckin, MD<sup>1</sup>, R. Bakx, MD PhD<sup>1</sup>, L.W.E. van Heurn, MD PhD<sup>1</sup>, J.H. van der Lee, MD PhD<sup>2</sup>, R.R. Gorter, MD PhD<sup>1</sup>

1. Department of Pediatric Surgery, Emma Children's Hospital, Amsterdam UMC, University of Amsterdam & Vrije Universiteit Amsterdam, Amsterdam, The Netherlands.

2. Division Woman and Child, Amsterdam UMC, University of Amsterdam & Vrije Universiteit Amsterdam, Amsterdam, The Netherlands.





# Appendicitis in the pediatric population

Two types:

Simpel (70%)

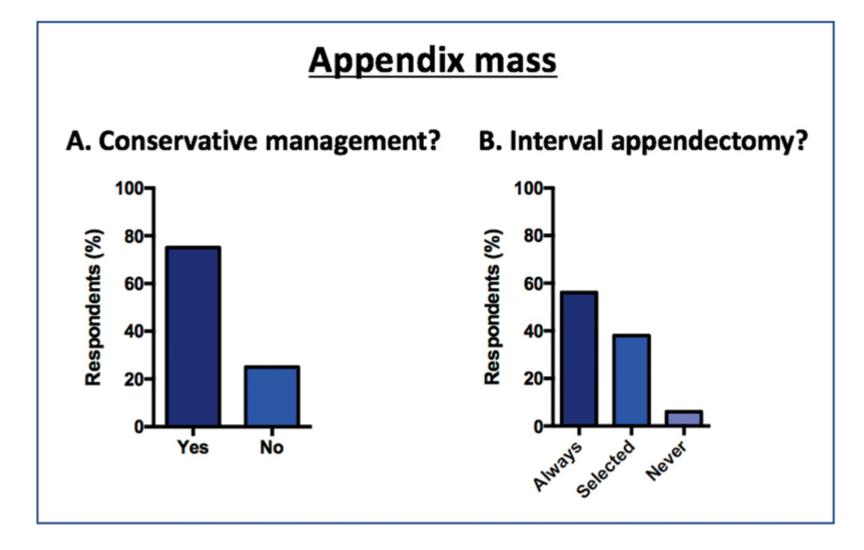
Complex (30%)<sup>1</sup>

Subtype: with appendiceal mass/abscess (+/-25%)

Controversy regarding optimal treatment strategy









# Aim of the study

To compare the overall complication rate between non-operative treatment and early appendectomy for children with an appendiceal mass/abscess



# **Methods**

Systematic review (PRISMA)



Children <18 years old with appendiceal mass/abscess

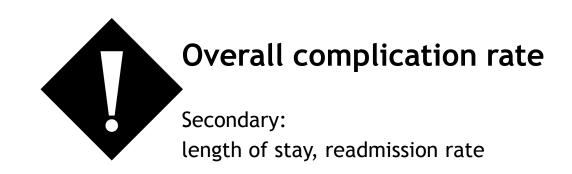




Non operative treatment (NOT)

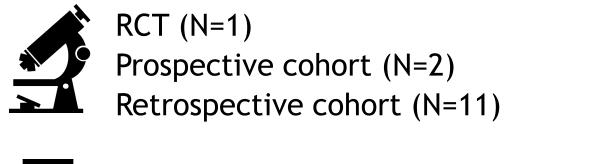


Early appendectomy (EA)





# **Included studies**





# TotalN=1355Non-operativeN=1022N=333

#### Risk of Bias

- Moderate (5 studies)
- Severe (9 studies)

EUPSA | June 2019



## **Overall complication rate**

	NOT	Г	EA			Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% Cl	M-H, Random, 95% CI
Calvert 2014	3	64	13	42	9.6%	0.15 [0.05, 0.50]	
Emil 2007	2	32	3	44	6.8%	0.92 [0.16, 5.17]	
Erdogan 2005	0	21	5	19	3.5%	0.08 [0.00, 1.40]	←
Furuya 2015	0	16	13	15	3.6%	0.03 [0.00, 0.54]	← ↓
Gahukamble 1993	2	59	2	7	6.5%	0.12 [0.02, 0.72]	
Gastrin 1969	6	29	9	19	11.8%	0.44 [0.19, 1.03]	
Gillick 2001	65	411	2	16	8.9%	1.27 [0.34, 4.71]	
Handa 1997	0	6	5	8	3.7%	0.12 [0.01, 1.78]	• • • • • • • • • • • • • • • • • • •
Puri 1981	3	31	11	16	10.0%	0.14 [0.05, 0.43]	
Roach 2007	0	32	5	60	3.4%	0.17 [0.01, 2.95]	• • •
Samuel 2002	9	57	4	25	10.3%	0.99 [0.34, 2.91]	
St Peter 2010	5	20	5	20	10.4%	1.00 [0.34, 2.93]	
Surana 1995	27	189	1	9	6.1%	1.29 [0.20, 8.43]	
Tanaka 2016	1	55	7	33	5.5%	0.09 [0.01, 0.67]	
Total (95% CI)		1022		333	100.0%	0.34 [0.19, 0.63]	•
Total events	123		85				
Heterogeneity: Tau <sup>2</sup> = 0.60; Chi <sup>2</sup> = 27.01, df = 13 (P = 0.01); l <sup>2</sup> = 52%							
Test for overall effect:			•	<b>,</b>			0.01 0.1 1 10 100 Equation NOT Equation EA
		-					Favours NOT Favours EA



# Secondary outcomes

NOT:

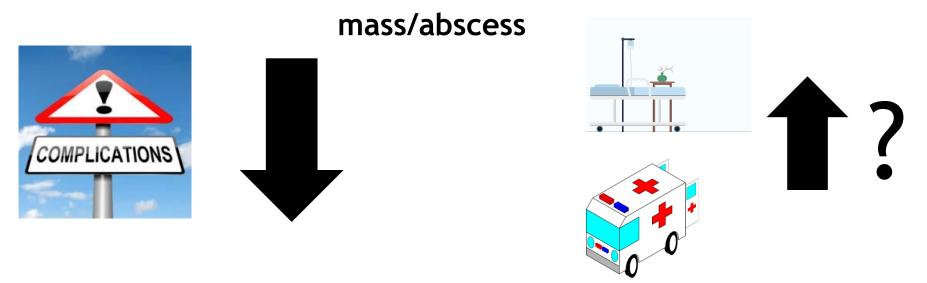
Increased total length of stay (n=9) 2.92 [-0.15 - 5.99] days

Increased readmission rate (n=8) RR 1.75 [0.79 - 3.89]



# Conclusion

- 1. High quality data is lacking
- 2. Non-operative treatment strategy for children with an appendiceal



# Thank you for your attention

Paul van Amstel | MD, PhD-candidate
Department of Pediatric Surgery
Emma Children's Hospital, Amsterdam UMC
Meibergdreef 9, 1100 DD Amsterdam

p.vanamstel@amsterdamumc.nl





