

Abdominal drainage after laparoscopic appendectomy in children should or shouldn't?

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Introduction:

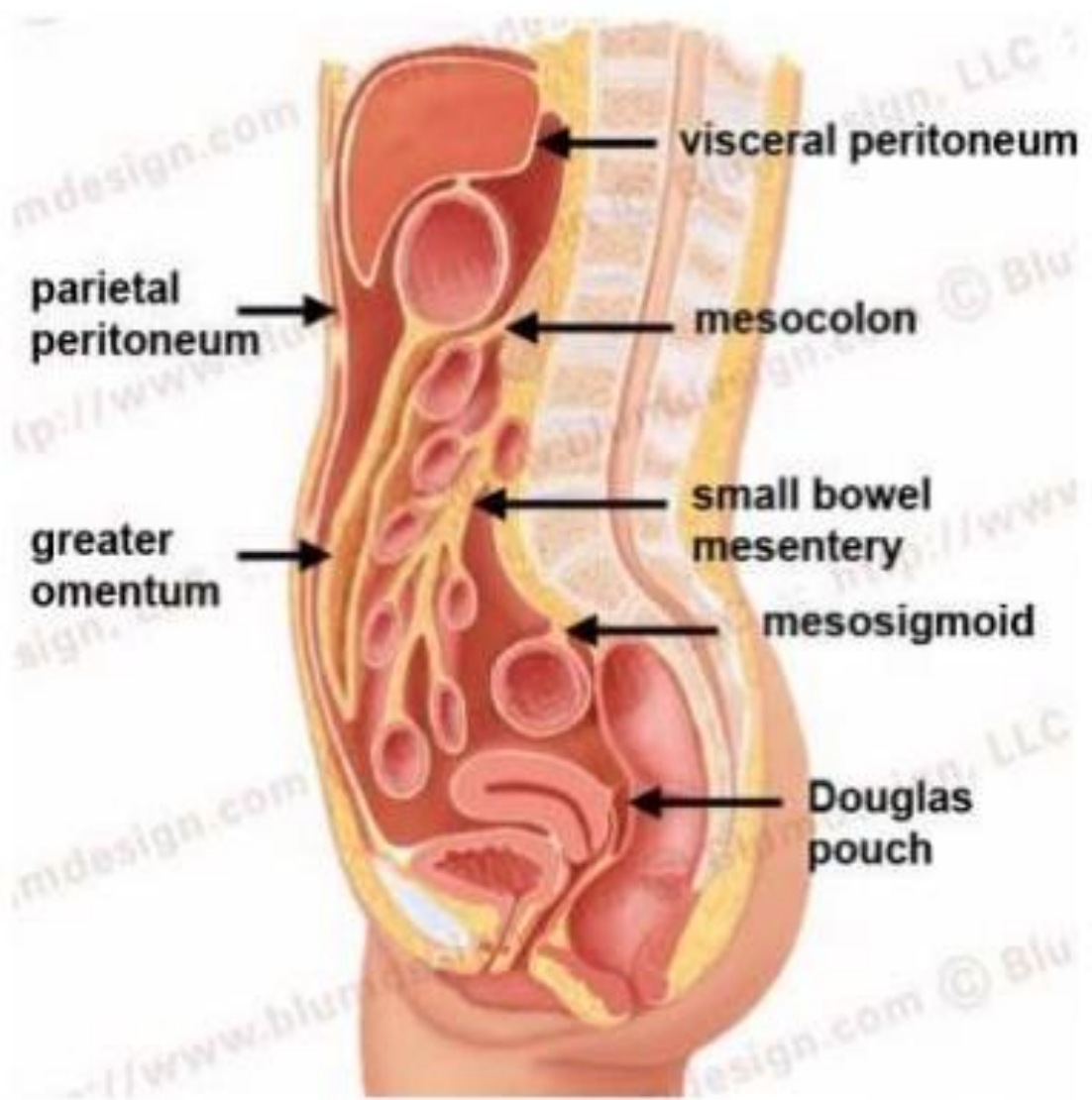
- ▶ The first use of abdominal drainage is attributed to Hippocrates (460–377 BC)
- ▶ In 1887, Lawson Tait defended, “When in doubt, drain.”
- ▶ In 1905, Yates published a study of the use of abdominal drains and he concluded: “Drainage of the peritoneal cavity was physically and physiologically impossible”

Background

- ▶ Perforated appendicitis is more frequent in children than in adults, especially in infants and younger children in whom the rate of perforation can reach 55%– 80%.
- ▶ complicated appendicitis, defined as gangrenous or perforated appendicitis
- ▶ One of the most serious complications of perforated appendicitis is the postoperative abscess formation

Laparoscopic Appendectomy
(Appendix Removal)





Benefit from abdominal drains

- Remove intraperitoneal fluids like blood, ascites, or intestinal juice
- Detect early complications such as postoperative bleed or anastomotic leakage

The complications of the drains are numerous

- foreign body effects
- mechanical problems
- physiological issues (pain, emphysema, pneumoperitoneum)
- inadequate drainage

Research of Belén Aneiros Castro, Department of Pediatric Surgery Hospital, Scandinavian Journal of Surgery 2018, Vol. 107(3) 197–200

Surgical techniques.

	Extracorporeal	Endoloops	Endostapler
No-drainage	63 (85.1%)	5 (6.8%)	6 (8.1%)
Drainage	79 (68.1%)	9 (7.8%)	28 (24.1%)

TABLE 2

Postoperative complications.

	No-drainage	Drainage	p value
Intra-abdominal abscess	17 (22.6%)	34 (29%)	0.32
Wound infection	5 (6.6%)	5 (4.2%)	0.46
Bowel obstruction	1 (1.3%)	6 (5.1%)	0.17

Results:

- ▶ 121 were male and 71 were female with a mean age of 7.77 ± 3.4 years.
- ▶ there were not statistically significant differences between the groups in gender ($p = 0.82$) and mean age ($p = 0.31$).
- ▶ there were no statistically significant differences between the two groups in the rate of intra-abdominal abscess, wound infection, and bowel obstruction ($p = 0.92$ and $p = 0.83$, respectively)
- ▶ however, the drainage group has been statistically associated with an increased requirement of antibiotic and analgesic medication, fasting time, operative time, and length of hospital stay.

Abdominal drainage to prevent intra-peritoneal abscess after open appendectomy for complicated appendicitis (Li Z, Zhao L, Cheng Y, Cheng N, Deng Y)

SUMMARY OF FINDINGS FOR THE MAIN COMPARISON *[Explanation]*

Abdominal drainage to prevent intra-peritoneal abscess after open appendectomy for complicated appendicitis

Patient or population: people undergoing emergency open appendectomy for complicated appendicitis

Setting: hospital

Intervention: drainage

Comparison: no drainage

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	No of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with no drain use	Risk with drain use				
Intra-peritoneal abscess Follow-up: 14 days	107 per 1000	131 per 1000 (50 to 342)	RR 1.23 (0.47 to 3.21)	453 (5 studies)	⊕○○○ Very low ^{a,b,c}	
Wound infection Follow-up: 30 days	254 per 1000	511 per 1000 (224 to 1000)	RR 2.01 (0.88 to 4.56)	478 (5 studies)	⊕○○○ Very low ^{a,b,c}	
Morbidity Follow-up: 30 days	67 per 1000	445 per 1000 (142 to 1000)	RR 6.67 (2.13 to 20.87)	90 (1 study)	⊕○○○ Very low ^{a,c}	
Mortality Follow-up: 30 days month	6 per 1000	27 per 1000 (7 to 101)	Peto OR 4.88 (1.18 to 20.09)	363 (4 studies)	⊕⊕⊕○ Moderate ^a	
Hospital stay (days)	The mean hospital stay in the control groups was 4.60 days	The mean hospital stay in the intervention groups was 2.17 days higher (1.76 days to 2.58 days higher)	MD 2.17 days higher (1.76 higher to 2.58 higher)	298 (3 studies)	⊕○○○ Very low ^{a,d}	
Hospital cost	Not reported					
Pain	Not reported					

Research of Francisco Schlottmann in International Journal of Surgery

- ▶ In the study period 1300 laparoscopic appendectomies were performed
- ▶ Group 1: with intraabdominal drain and Group 2: no drain

Intraoperative variables.

Intraoperative variables	G1 (n:56)	G2 (n:169)	p
Conversion (%)	11 (19.6)	12 (7.1)	0.007
Operative time minutes	97.2 (30–185)	80.7 (20–200)	NS

Table 3

Postoperative variables.

Postoperative variables	G1 (n:56)	G2 (n:169)	p
Overall morbidity (%)	18 (32.1)	36 (21.3)	NS
Clavien I-II (%)	11 (19.6)	25 (14.8)	
Clavien III – IV (%)	7 (12.5)	11 (6.5)	
Clavien V	0	0	
IAA (%)	8 (14.2)	15 (8.9)	NS
Length of stay days	5.2 (1–27)	2.9 (1–22)	0.001

IAA: Intraabdominal abscess.

Result:

- ▶ The rate of postoperative intraabdominal abscess (IAA) did not significantly differ between the two groups (G1: 14.2% vs. G2: 8.9%, p: NS)
- ▶ Median hospital stay was significantly higher in G1 (G1: 5.2 days vs. G2: 2.9 days, p: 0.001)

Conclusion:

- ▶ Drainage after open or endoscopic appendectomy is uncertainly benefit
- ▶ No different outcomes between drainage and no drainage
- ▶ Drainage after surgery may produce some complications : foreign body effects, mechanical problems, physiological issues (pain, emphysema, pneumoperitoneum), or inadequate drainage
- ▶ There is no evidence show the benefit of drains to prevent abcess formation

References

1. Janež J, Routine use of Abdominal Drainage after Laparoscopic Appendectomy: Yes or No?. World J Surg Surgical Res. 2018; 1: 1009.
2. B. Aneiros castro, I. cano, A. garcía, P. yuste, E. ferrero, A. Gómez, Abdominal drainage after laparoscopic Appendectomy in children: An endless controversy?. Scandinavian Journal of Surgery 2018, Vol. 107(3) 197 –200 .
3. Li Z, Zhao L, Cheng Y, Cheng N, Deng Y, Abdominal drainage to prevent intra-peritoneal abscess after open appendectomy for complicated appendicitis. Cochrane Database of Systematic Reviews 2018, Issue 5. Art.
4. Jurij Janež, Is Drainage of Abdominal Cavity Necessary After Laparoscopic Appendectomy? Biomed J Sci&Tech Res 6(2)-2018.
5. Francisco Schlottmann , Romina Reino, Emmanuel E. Sadava, Ana Campos Arbulú, Nicolas A. Rotholtz, Could an abdominal drainage be avoided in complicated acute appendicitis? Lessons learned after 1300 laparoscopic appendectomies, International Journal of Surgery 36 (2016) 40e43

Thank you

