

Interval Appendectomy

“You cannot escape the responsibility of tomorrow by evading it today” A. Lincoln

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THE PEDIATRIC HOSPITAL FOR:



Albert Einstein College of Medicine
OF YESHIVA UNIVERSITY

Objectives

- Management of Appendicitis in 2014
- Indication for interval appendectomy after non operative management
 - Acute uncomplicated appendicitis
 - Appendiceal phlegmon
 - Appendiceal Abscess
- Risks and benefices of each approach

I Have no Conflict of Interest

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Journal of
**Pediatric
Surgery**

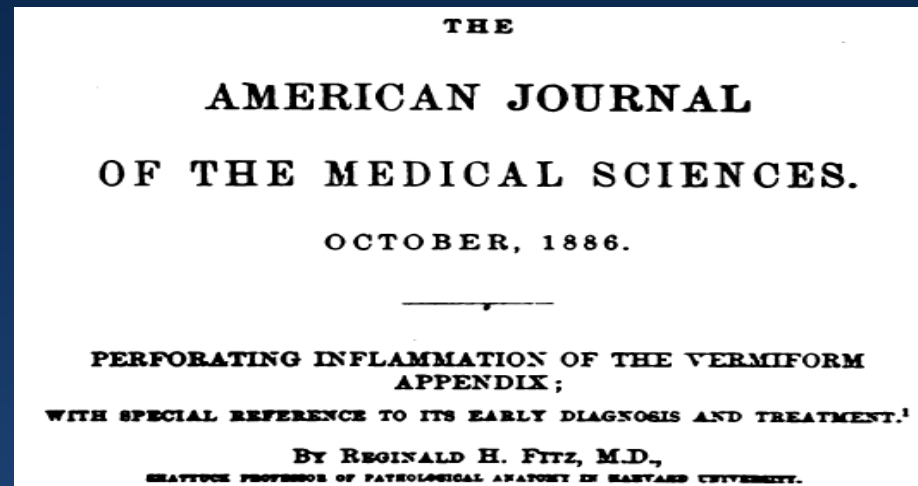
www.elsevier.com/locate/jped surg

Outpatient interval appendectomy after perforated appendicitis

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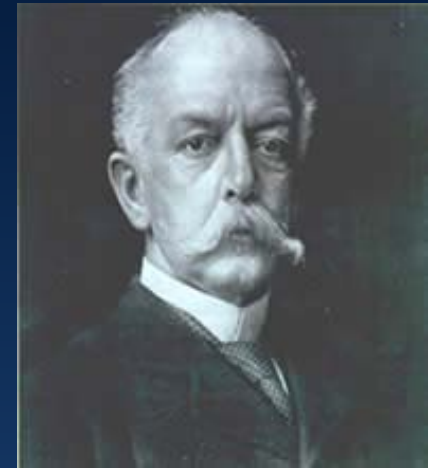
Interval appendectomy for Appendicitis Since 1886.....



- Acute Uncomplicated Appendicitis
- Complicated perforated appendicitis
 - Inflammatory Appendiceal mass
 - Appendiceal Abscess

Appendectomy: The Standard of Care to cure the appendicitis?

- First reported appendectomy
 - 1735 Amyan (English Army Surgeon) w/o anesthesia!
 - 1848 Dr H.Hancock
 - I&D of RLQ abscess and fecolith removal
 - 1885 Dr W.W. Grant (US)
- 1860-1880s
 - attempts at drainage of perforated appendices or appendectomies



1889 McBurney (NY Medical Society)

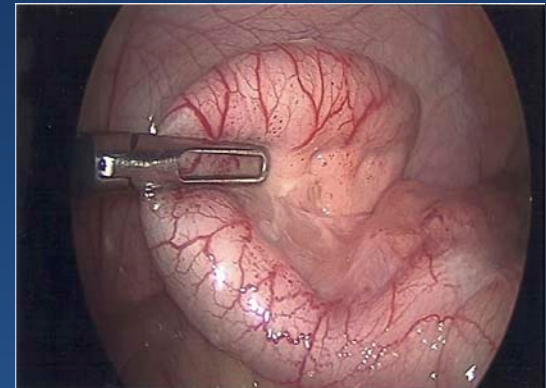
THE INCISION MADE IN THE ABDOMINAL WALL IN CASES OF APPENDICITIS, WITH A DE- SCRIPTION OF A NEW METHOD OF OPERATING.

By CHARLES McBURNAY, M.D.,

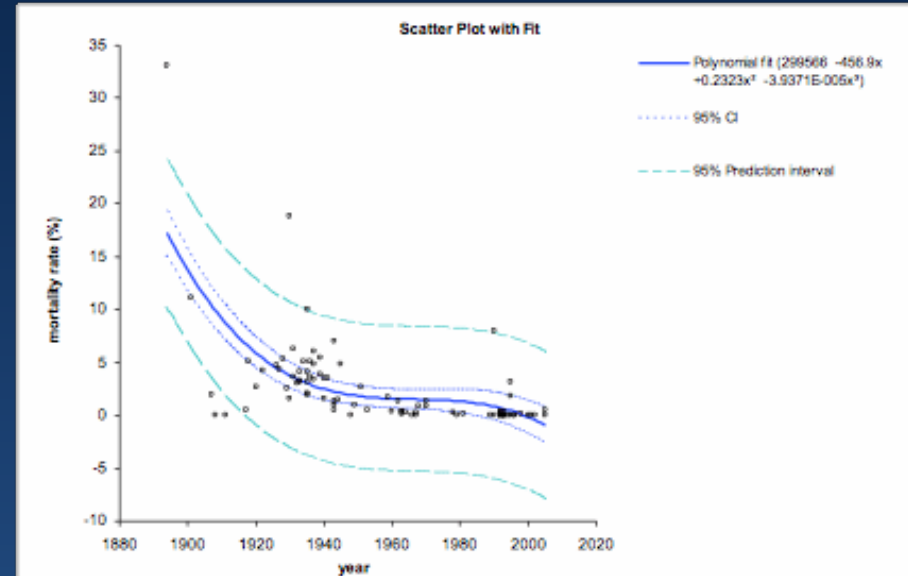
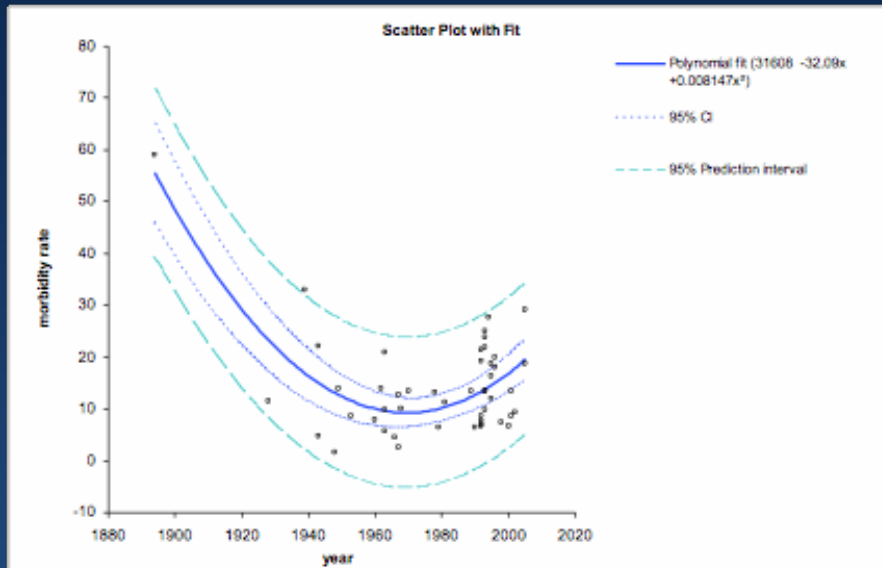
case of abscess. Of late years I have made almost all incisions for appendicitis about as follows: The incision in the skin is an oblique one about four inches long. It crosses a line drawn from the anterior iliac spine to the umbilicus nearly at right angles about one inch from the iliac spine, and is so situated that its upper third lies above that line.

Acute Appendicitis

- One of the most common cause of abdominal pain in ED consults 912 to 28%)
- More than 300,000 Hospital discharges per year
- Lifetime risk 8,6% (male) 6,7% (female)
- Despite advances in imaging
 - Delays in diagnosis
 - Wrong diagnosis (15%)
 - Mortality and Morbidity
- Lawsuits
- Errors and complications cost a lot of \$\$\$\$



Appendectomy: Mortality and Morbidity



Mortality <0.5%

Morbidity <30% (overall)

(Higher morbidity in teaching hospital $p < 0,0001$)

The Rising Morbidity of Appendectomy For Acute Appendicitis Jeffrey D. Sedlack, M.D., FACS

So...can we do a better job?
1901: Teaching residents how to do it?



Roosevelt Hospital

2014 Teaching residents why and when it is
reasonable Not to do it?

1. Interval Appendectomy in Acute non complicated Appendicitis

- Be sure of the diagnosis
 - Pre operative assessment
 - History and clinical exam
 - Predictive values of WBC and CRP
 - CT findings or Sono
 - Scoring system
 - Increase from 83-98% in the pediatric population
- Important for counseling
 - Alternative for management
 - Risk for complications
 - Expected post operative course

Acute Uncomplicated Appendicitis: Antibiotic vs Appendectomy

- Against the Universal indication for appendectomy in acute appendicitis
- Risks of appendectomy
 - Surgical Site Infection (1.9 to 6.1%)
 - Small bowel Obstruction (1.5 to 4.9%)
 - Re operation (0.7 to 3.4%)
- Negative appendectomy:10-15%)
- Background: Non Operative management for intra abdominal infections
 - Diverticulitis
 - Salpingitis

Acute Uncomplicated Appendicitis: Antibiotics vs Early Appendectomy

- Back ground: Spontaneous resolution of Appendicitis
 - Two European studies:
 - More likely to have an appendectomy after CT (48% vs 12% if wait and see) *Eur Surg Res 2008;40:211-219*
 - More likely to have an appendectomy if the surgeon is more “aggressive” in suspected appendicitis *Br Med J 1994;308:107-110*
- Non operative management?

Non Operative management of Acute Appendicitis

- Preoperative assessment can be wrong?
 - Acute appendicitis or Complicated appendicitis
 - Appendicitis or something else (Crohn? Cancer?)
- Morbidity and Mortality?
- “Failure of non operative” treatment?
- Recurrence post non operative management?
- Risk/benefices for patients with co morbidities?

Results of non operative management of Acute uncomplicated appendicitis

- 231, 678 Pts
 - 98,5% early appendectomy
 - 1,5% (3286 Pts) non operative initial management
 - Recurrence:4,4%
 - Failure:5,9%
 - Mortality 0,1 vs 0,3% $p < 0.65$

J Am Coll Surg. 2014 May;218(5):905-13

- French Non Inferiority trial:243 Pts
 - Wrong assessment 18%
 - Failure of medical management: 18%
 - Interval appendectomy (<30d): 29%

Lancet 2011;377:1573-1579

The Non-Inferiority of Antibiotics Vs Appendectomy in Acute Appendicitis?

- Pitfalls of Non operative management
 - Is this really an appendicitis?
 - Which Antibiotics
 - Resistance of E.Coli
 - Spontaneous resolution of appendicitis?
 - 30% to 56% will eventually undergo Appendectomy
 - 23% sooner than expected
 - LOS : Higher 2 days
 - Long term outcomes?
 - Cost Higher \$10,000
- No trials with stringent criteria

Is Interval appendectomy post Non operative management of acute appendicitis necessary?

- Appendectomy
 - 12% within 30 days
 - 29% within a year
 - 26 % with recurrent acute appendicitis
- More medical interventions
 - Central line 87%
 - Home care 43% vs 9%
 - Recovery time prolonged

Interval appendectomy for acute uncomplicated appendicitis

- Not always necessary but no trial with stringent criteria
- Need an excellent assessment at the initial presentation
- Non inferiority but:
 - More expensive
 - Expose to unplanned readmission
 - Risk of bacterial resistance
- Patient should be informed of the alternative
- If surgeon plan to do anyway an appendectomy early appendectomy should stay the right choice

2.Interval Appendectomy for Appendiceal mass

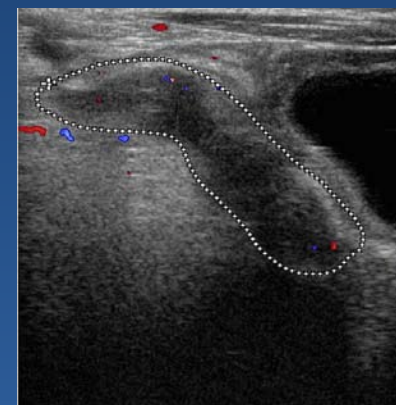
- Diagnosis
 - More frequent in children (8.8% vs 4.8%)
 - Perforated appendicitis
 - CT/MRI vs sonogram
- Management:
 - Antibiotherapy
 - Early appendectomy (<24h)
 - Interval appendectomy (<6-8wks)



Early appendectomy vs Interval appendectomy in children

Arch Surg 2011;146:660-5

- Favor Early Appendectomy
 - Reduce time away to normal activities (13 vs 20d)
 - Adverse events
 - Early appendectomy 30% vs 55%
 - Need for central line
 - Early appendectomy 44% vs 87%
 - Need for Home care
 - Early appendectomy 9% vs 43%
 - Unplanned readmission 34%
 - Duration of procedure
 - Early appendectomy 113' vs 112'

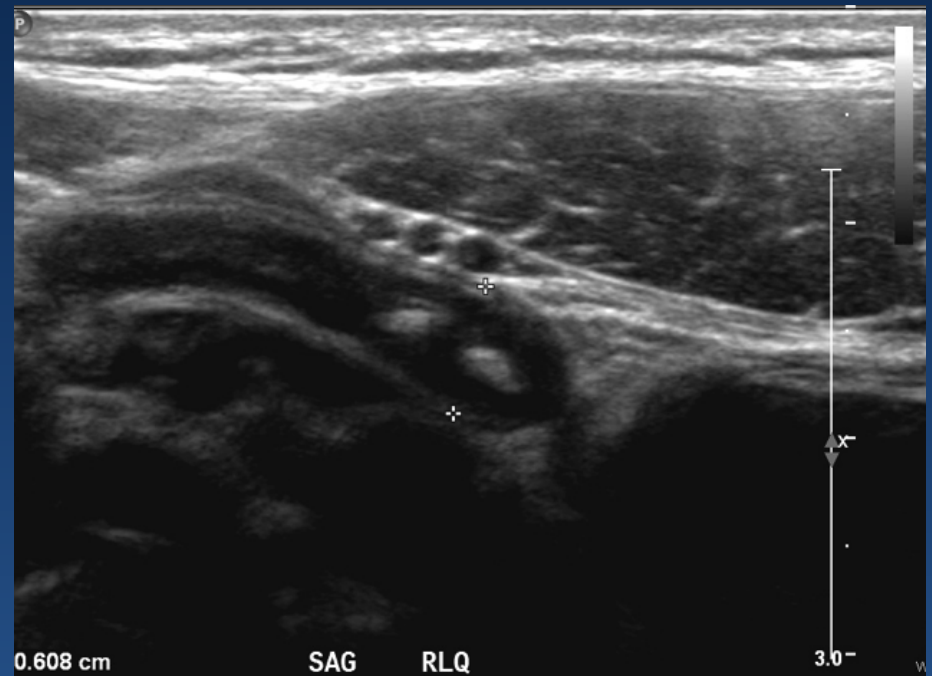


Interval appendectomy in Appendiceal mass: Best practice in adults?

- Yes for 50% of the surgeons
 - Risk of recurrence 11%-25% (
 - Malignancy 1.2% (*Ann Surg* 2007;246:741-748)
- But: Post op complication after interval appendectomy is not lower 23%
 - SSI 15%
 - Pelvic Abscess 5%
 - Pneumonia 5%
- Interval Appendectomy is not justified in 75-90%
- Better replace Interval Appendectomy by Adequate follow-up (CT/Colonoscopy)

Appendiceal mass and Appendicolith

- Guide to proceed with interval appendectomy after successful non operative management
- No randomized data
- Canadian study
 - Recurrence with appendicolith 72%



3. Interval Appendectomy and Appendiceal abscess

- Rare. Delays in presentation
- 3.8% appendicitis
- Diagnosis is confirmed by US or CT
- Traditional approach
 - Percutaneous drainage
 - IV Antibiotics
- Question of Interval Appendectomy



Interval Appendectomy and Appendiceal abscess

- Controversial management
 - Early appendectomy
 - Higher morbidity (x3)
 - Unnecessary resection (ileocecal)
 - Prolonged ileus
 - Interval Appendectomy
 - Not Necessary as recurrence post IR is low: 10%
 - Appendicolith
 - Complication 11%
 - No indication for appendectomy
 - Patient should be aware of risk of recurrence

Conclusions

- Interval appendectomy is the past
 - No clear evidence of benefices in Acute non complicated appendectomy
 - Not indicated in Appendiceal Phlegmon or Appendiceal abscess
 - Low risk of recurrence
 - No difference in post op morbidity compared to early appendectomy
- Interval Appendectomy
 - Appendicolith
 - Recurrence
 - Failure of non operative treatment

Medicine is in constant evolution

- The Nobel Prize in Physiology or Medicine 1949 *"for his discovery of the therapeutic value of leucotomy in certain psychoses"*.

