NON OPERATIVE TREATMENT OF ACUTE APPENDICITIS – IS THIS APPROPRIATE IN SOUTH AFRICA

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INTRODUCTION

- Acute appendicitis is the commonest surgical emergency.
- About 300000 appendectomies are performed in the USA annually.
- Life time incidence is between 7 to 14%.
- The incidence seem to be low in South Africa but complications are high.
- Affects men and women equally.

AETIOLOGY REVISITED

- The aetiology is a matter of great debate
- **Obstruction theory**: Appendix gets obstructed leading to stasis and increased intraluminal pressure. Bacterial proliferation occurs with recruitment of inflammatory cells and pus formations. High pressure leads to ischaemia,necrosis, gangrene and perforation.

Aetiology cont.

- **Non obstructive theory**: Bacteria invades lymphoid tissue in the appendix wall.
- The lumen is not obstructed and this does not progress to gangrene.
- This process may resolve spontaneously.
- This may represent two different disease entities.

DIAGNOSIS

- Diagnosis is clinical.
- Inflammatory markers.
- RIPASA Score (Age , Gender).
- Alvarado score.
- Appendicitis inflammatory response score (AIR) score (CRP).
- Imaging.

COMPLICATED APPENDICITIS

- Duration of symptoms predicts complications.
- Incidence of complications is high in South Africa (38%).
- Other predictors include,
  - poor health insurance status
  - Poor health service utilisation
  - Level of healthcare
- Time for presentation in USA is 57.2 hours for ruptured appendicitis. Less than 24 hours in acute appendicitis.
- South Africa: 88.8 hours. 64.8 hours for non-ruptured and 105.6 hours for ruptured appendicitis.

TREATMENT

- Appendicectomy to prevent complications has been advocated by R Fritz since 1886.
- McBurney(1889) recommended early appendicectomy.
- Claudius Amyand: performed the first appendectomy
- Laparoscopic approach for cases where diagnosis is unclear is advocated.
- First report on antibiotics treatment was by Mcpherson(1945) in BMJ.
- Coldrey in 1959 reported on 471 patients with acceptable morbidity and mortality.
- The study from china (1977); 7% Recurrence.
- US submariners also had high success rate.

British Journal of Surgery 1995, 82, 166–169

Randomized controlled trial of appendicectomy *versus* antibiotic therapy for acute appendicitis

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ANTIBIOTIC THERAPY ALONE

- 3 RCT tested this notion.
- Success rate was high.
- Recurrence was about 15%.
- Limitations to this trials.

Appendectomy versus Antibiotic Treatment in Acute Appendicitis. A Prospective Multicenter Randomized Controlled Trial

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HANSSON TRIAL

Randomized clinical trial

Randomized clinical trial of antibiotic therapy *versus* appendicectomy as primary treatment of acute appendicitis in unselected patients

J. Hansson[1], U. Körner[1], A. Khorram-Manesh[3], A. Solberg[2] and K. Lundholm[1]

Table 1. Major Randomized Clinical Trials Comparing Antibiotic Therapy With Appendectomy in Patients With Acute Appendicitis

Source	Inclusion Criteria	Age Group, y	No. of Patients	Antibiotic Used for Nonsurgical Patients	Completeness of 1-Year Follow-up	Appendectomy in Patients Treated With Antibiotics[a]	Limitations
Styrud et al,[8] 2006	Clinical diagnosis and CRP >10 mg/L	18-50	Surgery: 124 Antibiotic: 128	IV: cefotaxime plus tinidazole Oral: ofloxacin plus tinidazole	Not stated	31/128 (24)	Female patients excluded, primary end point unclear
Hansson et al,[7] 2009	Clinical diagnosis	>18	Surgery: 167 Antibiotic: 202	IV: cefotaxime plus metronidazole Oral: ciprofloxacin plus metronidazole	Surgery: 47% Antibiotic: 54%	96/202 (48)	52.5% of patients in the antibiotic group crossed over to the surgery group
Vons et al,[9] 2011	CT imaging	>18	Surgery: 119 Antibiotic: 120	IV: amoxicillin plus clavulanic acid Oral: amoxicillin plus clavulanic acid	Surgery: 87% Antibiotic: 90%	44/120 (37)	Included patients with complicated acute appendicitis (appendicolith), suboptimal antibiotic for intra-abdominal infections

Abbreviations: CRP, C-reactive protein; CT, computed tomography; IV, intravenous.

[a] Data are expressed as No./total (%).

OTHER TRIALS

- APPAC TRIAL: multicentre, open label, non inferiority RCT. Antibiotic treatment did not reach a prespecified non inferiority criterion compared to surgery.
- NOTA TRIAL: mean hospital stay, off sick days, pain score favoured the antibiotic group.
- Short term failure was 11.9%.
- Long term failure of 13.8%.
- Svensson: study in children, had 92% success rate in antibiotic group. Long term failure was 38%. Conclusion: although no safety issues, antibiotic not recommended.
- WSES: world congress in Egypt 2015 , Concluded that antibiotics can be successful in select patients willing to accept recurrences up to 38%.

COMMON FEATURES OF RCT

- Consenting adults should not be pregnant.
- No immune compromised patients were included.
- There should be no signs of sepsis.
- IV antibiotic were given for 48 hours.
- Continuous assessment every 6-12 hours was done.
- Discharged on oral antibiotics for 7-8 days.
- Surgery undertaken if no improvement in 48 hours
- Confirmation of diagnosis is done before treatment.

ADVANTAGES

- Less pain at discharge.
- Negative appendicectomy rate is lessened.
- Hospital stay is short.
- Days off work significantly reduced.
- Complications associated with surgery and anaesthesia are eliminated.
- Financial cost of treatment is much less. 1 Million hospital days, 3 Million U.S.D For surgery group.
- Laparoscopy may increase the costs.
- Efficacy was shown to be similar to surgery.
- Morbidity and mortality not increased.

DISADVANTAGES

- Antibiotic resistance.
- Allergy to antibiotics.
- Missing other pathology.
- Recurrence.
- Uncertainty.
- Lingering Symptoms (Quality of life)

RISK FACTORS FOR FAILURE OF CONSERVATIVE TREATMENT

- Faecolith.
- High CRP.
- Signs of Small bowel obstruction.
- Poorly marginated focal mesenteric infiltrates.
- Clinical progression.

SOUTH AFRICAN SITUATION

- Late presentation: already a selection process has occurred. Resolution unlikely.
- Most patients have complications at presentation.
- Most patients do not respond on antibiotic whilst waiting for theatre.
- Imaging not always readily available.
- Availability of antibiotics and human resource to monitor patients could be a challenge.
- Follow up, to at least 12 months, is not always feasible for our patients.
- HIV is common in S.A, this factor has not been tested in antibiotics trials.

KALAFONG HOSPITAL

- JANUARY 2015 – JUNE 2016
- 242 APPENDICECTOMIES DONE.
- 209 RECORDS FOUND.
- AGE: 15 – 62 years
- FEMALES: 83
- MALES: 126
- DURATION OF SYMPTOMS: 1-14 DAYS

HIV STATUS

- UNKNOWN: 160 (76.6%)
- POSITIVE: 14 (6.7%)
- NEGATIVE: 35 (16.7%)

HISTOLOGY

- ACUTE INFLAMATION: 53 (25%)
- SUPPURATIVE: 95(45%)
- NORMAL HISTOLOGY: 46(22%)
- OTHERS: 2(0.96%) Mucinous Neoplasm.

OUTCOME

- MORTALITY: 0
- MORBIDITY: 27 (12.9%)
- Reported mortality: 0.07-0.7% (0.5-2.4%)
- Reported morbidity: 10-19% (12-30%)

CONCLUSSION

- The role of antibiotics treatment is not appropriate in South Africa.
- Appropriate, adequately powered RCT with standardised inclusion criteria are needed.
- Analysis on intention to treat, comparing benefit over surgery should be done.
- Gold standard remains appendicectomy
- Mortality is low
- Complications are reasonably low and manageable.

CONCLUSION CONTINUITY

- Role of antibiotics should be as a bridge to surgery.
- In areas where surgical expertise is not immediately available, Antibiotics could be of benefit.
- Antibiotic only treatment may be feasible in a select group of patients who can be followed closely for clinical progression.
- Should perhaps be used only in a clinical trial.

THANK YOU