MANAGEMENT OF APPENDICITIS

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CASE PRESENTATION

• O. A., 20-year-old, Female, Student
• Abdominal pain x 4/7
• Vomiting x 4/7
• Colicky periumbilical pain, localize to the right iliac fossa, Progressively worsening,
• Non-bilous & non projectile vomiting; Anorexia
• Low grade fever
• Had a similar episode 3 months prior
• No vaginal discharge
EXAMINATION

• Young lady, not pale, anicteric, acyanosed, afebrile (T=36.7°C)
• Flat abdomen, Right iliac fossa tenderness with Guarding and rebound tenderness
• Normal rectal examination
• Assessment- Acute appendicitis
TREATMENT PLAN

• Open Retrograde appendectomy
• Operative findings- Inflamed appendix
• Discharged 3rd day after surgery
DISCUSSION- INTRODUCTION

• Acute appendicitis- inflammation of the vermiform appendix
• Most common acute surgical condition of the abdomen in Nigeria- 15 -40% of all the emergency surgeries done in most hospitals in the country (USA 10/10000/year)
• Approximately 7% of the population will have appendicitis in their lifetime
• Peak incidence- ages of 10 and 30 years
• Incidence is equal among males and females before puberty
• Teenagers & young adults- Male:Female ratio increases to 3:2
• Surgery is the treatment of choice for appendicitis
• Cost & fear of surgery are some of the main reasons for late presentation in Nigeria
ANATOMY

• Its position varies widely -
  ➢ Retrocaecal - 74%
  ➢ Pelvic - 20%
  ➢ Post ileal/pre ileal - 5%
  ➢ Paracaecal - 1%.

• Location may vary in maldescent of the caecum, situs inversus/non rotation of the bowel, pregnancy
PATHOPHYSIOLOGY...

- Mucosal disruption with bacteria invasion by bowel flora - Inflammation
- Invading organism - of E. coli, Klebsiella & Enterobacter spp.
- Feacolith about 70% of cases, Serosal adhesion and kinking, Luminal stenosis, Parasitic infection – pinworm, ova of schistosomiasis, Tumours - carcinoid, caecal pole tumour

**CATARRHAL TYPE**
- Often from lymphoid hyperplasia (children & young adult)
- Inflammation and oedema occur in the mucosa and submucosa
- Fibrous adhesion formation
- May obstruct the lumen

**OBSTRUCTIVE TYPE**
- Characterized by a much acute course
- Commoner variety
- More severe
- A progressive disease
PATHOPHYSIOLOGY

- Lymphatic flow obstruction
- Followed by venous stasis
- Arterial thrombosis then ischemic necrosis of the wall
- Gangrene then perforation then ensue
  - The initial luminal distension triggers the visceral afferent pain fibers, which enters at the 10th thoracic vertebra level
  - Pain is typical felt in the periumbilical area
  - As inflammation continues, the serosa and adjacent structures becomes inflamed- triggers the somatic pain nerve fiber endings in the parietal peritoneal
Natural history

• Not always a progressive.
• Progressive in obstructive appendicitis, Luminal obstruction, bacterial overgrowth

– Resolution
– Recurrence
– Ruptures
– Appendiceal mass/abscess
– Appendiceal mucocele
PHYSICAL EXAMINATION

**SIGNs**
- Rovsing’s sign
- Obturator’s sign
- Iliopsoas sign
- Aaron’s sign
- Lanz sign
- Diuelafoys sign
- Hayem sonneburg sign

**UNCOMPLICATED**
- Looks ill
- Low grade fever
- Features of peritoneal irritation: tenderness, rebound tenderness, guarding,

**COMPLICATED**
- High grade fever
- Peritoneal irritation: localized/ generalized
- Abdominal mass
- Abdominal distension

"No single evaluation can replace the diagnostic accuracy of the skilful physician."
Diagnostic scoring - Alvarado score

- RIF tenderness: +2
- Increased White cell count: +2
- Pain migrates to RIF: +1
- Rebound tenderness: +1
- Anorexia: +1
- Nausea/Vomiting: +1
- Fever: +1
- White cell count - ‘left shift’: +1

1-4: Very unlikely
5-6: Possible
7-8: Very probable
9-10: Definite

- Predictive yield is higher in Men
- Reliable as a ‘rule out criterion’ [high specificity]
- Not sensitive
Diagnostic pitfalls

- Pregnant state
- Elderly
- Immunocompromised
- Women in reproductive age group
- Children
INVESTIGATIONS

• Full blood count
• Abdominal ultrasound
• Abdominal CT SCAN
• Abdominal X-RAY
• Barium enema
Operative Treatment

• Emergency Open appendectomy
• Emergency Laparoscopic appendectomy
  ✓ 3 ports
  ✓ 2 ports
  ✓ Single port[ SILA]
• Laparoscopic assisted
• Drainage of abscess
  ✓ Percutaneous
  ✓ open
Open appendectomy incisions

- McBurney’s: Right angle to a line joining ASIS and Umbilicus, at the junction of medial 2/3rd and lateral 1/3rd
- Lanz: skin crease centered on the Mcburneys point
- Rockey davies
- Lower Midline
Controversies: Laparoscopy vs open appendectomy

“there is a hidden competition between laparoscopic surgeons and surgeons doing conventional surgery, and this competition influences study”

….RK MISHRA et al, laparoscopic versus open appendectomy. World journal of laparoscopic surgery jan - april 2012 1(1) 19-28
Antibiotics vs Operative treatment

“evidence to date is not definite enough to change routine practice, current evidence provides support for the feasibility and safety of antibiotic therapy in patient with uncomplicated acute appendicitis”

-Evidence base review in surgery group 2013