Grand round on a case of ileocelecal tuberculosis

Presenters
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Introduction:

- Extrapulmonary tuberculosis prevalence:
  - Seropositive: 50-60%
  - Seronegative: 10-15%

- Tuberculous enteritis affect any part of GIT
  - 6th common: 1-3%

- Incidence and severity increase with increasing incidence of HIV infection “immunocompromized state”

- Frequently mimicking other common and rare diseases
Spectrum of GI tuberculosis

<table>
<thead>
<tr>
<th>Site</th>
<th>Presenting Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Peritoneal tbc</strong></td>
<td>Wet/Encycted/ Fibrotic</td>
</tr>
<tr>
<td><strong>Ileocaecal tbc</strong></td>
<td>Mass/Obstruction/Perforation/Malabsorption</td>
</tr>
<tr>
<td>Esophageal tbc</td>
<td>Swallowing difficulty</td>
</tr>
<tr>
<td>Gastrodoudenal tbc</td>
<td>GOO/Epigastric/Chest pain</td>
</tr>
<tr>
<td>Jeojunal tbc</td>
<td>Malabsorption</td>
</tr>
<tr>
<td>Colonic tbc</td>
<td>Abdominal pain/Hematochezia</td>
</tr>
<tr>
<td>Anorectal tbc</td>
<td>Stricture/Fistula</td>
</tr>
<tr>
<td>Others very rare</td>
<td>.............</td>
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Epidemiology


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Pathogenesis

• Four mechanisms “postulated”
  - Swallowing infected sputum
  - Hematogenous spread from active pulmonary or miliary TB
  - Ingestion of contaminated milk or food?
  - Contiguous spread from adjacent organs

• The most common site of involvement is the ileocaecal region
  - Incidence decline proximally and distally
Pathology

- **Tuberculous granulomas**
  - Initially formed in the mucosa or the Peyer’s patches
  - Variable size “often large” and tend to be confluent
  - Aften caseation necrosis
  - Found beneath the ulcer bed, mainly in the submucosal layer

- **Tubercular ulcers**
  - Superficial and usually do not penetrate beyond the muscularis
  - Single or multiple
  - Intervening mucosa is usually uninvolved
  - Transversely oriented

- **NB**: Mesenteric lymph nodes may be enlarged, matted and may caseate
Macroscopic classification “gross morphologic”

Hoon et al
- Ulcerative,
- Ulcerohyperplastic
- Hyperplastic

Tandon and Prakash et al
- Ulcerative (60%)
- Hypertropic (10%)
- Ulcerohypertrophic (30%)

<table>
<thead>
<tr>
<th></th>
<th>Ulcerative</th>
<th>Hypertropic</th>
<th>Ulcerohypertrophic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutritional characteristics</td>
<td>malnourished adults</td>
<td>well nourished adults</td>
<td>Mixed</td>
</tr>
<tr>
<td>Site of involvement</td>
<td>Small intestine</td>
<td></td>
<td>Colonic and ileocaecal lesion</td>
</tr>
</tbody>
</table>
CLINICAL MANIFESTATIONS

- Generally is vague and nonspecific
- Presentation can be acute, chronic or acute-on-chronic
- Diagnosis needs *high index of suspicion*, especially in high-risk groups

<table>
<thead>
<tr>
<th>Factor</th>
<th>Relative Risk/Odds¹</th>
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<tbody>
<tr>
<td>Recent infection (&lt;1 year)</td>
<td>12.9</td>
</tr>
<tr>
<td>Fibrotic lesions (spontaneously healed)</td>
<td>2–20</td>
</tr>
<tr>
<td>Comorbidity</td>
<td></td>
</tr>
<tr>
<td>HIV infection</td>
<td>21–&gt;30</td>
</tr>
<tr>
<td>Silicosis</td>
<td>30</td>
</tr>
<tr>
<td>Chronic renal failure/hemodialysis</td>
<td>10–25</td>
</tr>
<tr>
<td>Diabetes</td>
<td>2–4</td>
</tr>
<tr>
<td>IV drug use</td>
<td>10–30</td>
</tr>
<tr>
<td><strong>Immunosuppressive treatment</strong></td>
<td></td>
</tr>
<tr>
<td>Gastrectomy</td>
<td>2–5</td>
</tr>
<tr>
<td>Jejunoileal bypass</td>
<td>30–60</td>
</tr>
<tr>
<td>Posttransplantation period (renal, cardiac)</td>
<td>20–70</td>
</tr>
<tr>
<td>Tobacco smoking</td>
<td>2–3</td>
</tr>
<tr>
<td><strong>Malnutrition and severe underweight</strong></td>
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</table>

¹ Odds ratio represents the relative risk of active tuberculosis among persons with the factor compared to those without it.
C/F (2)

- Nonspecific chronic abdominal pain “commonest” 80-90%
  - Other sx: Anorexia, fatigue, fever, night sweats, weight loss, diarrhea, constipation, or blood in the stool may be present
  - Vomiting “late”

- On examination
  - RLQ: palpable mass, tenderness, borborygmi

- Other features:
  - Ascites
  - Fistula and stricture
**DIAGNOSIS**

- **Presumptive diagnosis**
  - known active pulmonary tuberculosis (TB) (and/or revealing chest x-ray), together with clinical, endoscopic, and/or radiographic findings suggestive of intestinal TB

- **Definitive diagnosis**
  - Based on a combination of histology and culture of biopsy material “Colonoscopy with biopsy”

Non specific findings include raised ESR, anaemia, and hypoalbuminaemia
Radiological studies

- **Chest X-ray**
  - Sharma *et al*: evidence of active or healed lesions on chest X-ray in (46%) and with acute complications (80%)
  - Tandon *et al*: found chest X-ray to be positive in only 25 per cent

- **Plain X-ray abdomen:**
  - Evidences of: obstruction, perforation or intussusception
  - calcified lymph nodes, calcified granulomas and
Rad(2)

- **Small bowel barium meal:**
  - Chicken intestine
  - hour glass stenosis

- **Barium enema:**
  - Early involvement of ileocaecal manifesting as spasm and oedema of ileocaecal valve “Fleischner” or “inverted umbrella sign”
  - Conical caecum
  - goose neck deformity
  - Stierlin’s sign and String sign: not specific
Rad(3) CT/MRI scan

- Some peculiar findings:
  - Asymmetrical bowel wall thickening
  - Inflammatory mass centered around the cecum and enveloping the terminal ileum
  - Large mesenteric nodes with necrotic centers
  - Ascites
Tuberculous enteritis - computed tomography
Ultrasonography

- Intra-abdominal fluid
  - Gross/pelvic
  - Loculated: “Club sandwich” or “sliced bread” sign, interloop ascitis

- Lymphadenopathy
  - Discrete or conglomerated (matted)
  - The echotexture is mixed heterogeneous
    - Small discrete anechoic areas representing zones of caseation may be seen within the nodes
  - Calcification and caseation
U/S(2)

- Bowel wall thickening:
  - Ileocaecal region “best site”
  - Thickening is uniform and concentric
  - Pseudokidney sign
Colonoscopy

- Excellent tool “under utilized”
- Benefits
  - Macroscopic characterization of lesion “DDX”
  - Screening for complications
  - Noninvasive “histopathology and culture”
  - Bhargava et al:
    - Culture 40%
    - Combined 60%
Ileocecal tuberculous enteritis
Complications

- **Obstruction**
  
  **Incidence:**
  
  - Bhansali and Sethna *et al*: 15.3% “of all”
  - Tandon *et al*: course protracted and subacute

- **Cause**
  
  - Narrowing of the lumen by hyperplastic caecal tuberculosis
  - By strictures of the small intestine, which are commonly multiple
  - By adhesions

Tandon *et al* *india*  
*october 2004*
Complication(2)

- **Perforation**
  - Small intestinal perforations “pneuperitoneum”
  - usually single and proximal to a stricture
  - Ileal “commonest site” with distal stricture

- **Acute tubercular peritonitis**
  - With/without perforation

Ranjan P et al SA 2004
Complication(3)

- **Malabsorption**
  - Incidence:
    - Pimparkar and Donde *et al*: rate increase with bowel stricture (25-63% vs 0-30%)
    - Tandon *et al*: increase with intestinal obstruction (75% vs 40%)
  - Cause
    - Bacterial overgrowth in a stagnant loop
    - Bile salt deconjugation
    - Diminished absorptive surface due to ulceration
    - Involvement of lymphatics and lymph nodes
Need to concentrate: summary Dx

- **Confirmed intestinal tbc: definitive dx**
  - Star treatment

- **High index on suspicion: presumptive dx**
  - Empiric management and follow

- **Moderate to low index of suspicion with unrevealing diagnostic approach**
  - Laparoscopy and/or laparatomy: look for alternative diagnosis
Management

• Principles:
  - Chemotherapy
  - Nutritional therapy
  - Infection prevention and family screening?
  - Management of complication “medical or surgical”
Chemotherapy:

- Antitubercular therapy:
  - Balasubramaniam et al: Short course “conventional” vs long course (12, 18 months)
    - Cure rate 99% vs 94%
  - Duration controversial: WHO “DOTs”
Mx(3)

Surgical treatment: Emergency vs conservative

- **Emergency OP**: acute cases
  - Closed loop bowel obstruction
  - Intestinal ischemia
  - Bowel perforation
  - Massive bleeding
  - Peritonitis
• Conservative approach:
  - Rule out acute cases
  - Preoperative chemotherapy

• Types of surgery:
  - Stricture
    • Short vs long segment
  - Obstruction and fistula
    • Low vs high grade
  - Tubercular perforations
    • Resection anastomosis vs simple closure
  - Bowel debridement surgery

Back to the patient
Epidemiology
Risk factors
Patients presenting feature
Site of the lesion and it’s supporting finding on imaging

Radiographic and colonoscopy findings
Atypical clinical course??
References:

- Online journals and case series from India, South Africa, Botswana
- Uptodate 20.3
- Harrison’s principles 18th edition