Emergency surgical conditions in the tropics, ulcers and bites

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Emergency surgical conditions in the tropics

- Generalized peritonitis is a common surgical emergency
- In a certain research in India, a total 155 cases of generalized peritonitis:
- The most common cause of peritonitis was peptic ulcer perforation
- Typhoid perforation was the second most common cause.
Emergency surgical conditions in the tropics

- Appendicular perforations were less common than in the west but the clinical picture was the same.
- Tubercular perforations were not uncommon with a previous history of subacute intestinal obstruction and evidence of tuberculosis on chest X-ray suggesting the diagnosis.
- Ruptured amoebic liver abscess - the most common hepatobiliary cause of generalized peritonitis.
Perforated peptic ulcer

• PUD may produce one of the 3 main complications
  – Haemorrhage (15-20%)
  – Perforation (5-10%)
  – Obstruction (5%)
• These can develop without any premonitory symptom
Presentation

• Acute abdominal pain,
• The classic presentation - a prodrome of gnawing abdominal pain for hours to months prior to perforation.
• associated with
  – tachycardia,
  – tachypnea,
  – and hypotension.
• Occasionally, GIT bleeding at the time of perforation.
Physical examination

• Fever, patient lies immobile, occasionally with the knees flexed.
• Bowel sounds are usually absent,
• diffuse tenderness (boardlike).
• Rarely, pain may be located in the RLQ as enteral contents pool in the right gutter, confused with appendicitis.
Investigations

• Elevated white blood count
• Elevations in serum amylase,
• Upright abdominal x-ray shows free abdominal air in approximately 70% of cases.
• abdominal USS
  – If a perforation seals quickly, patients may seek medical attention only after a localized intra-abdominal abscess develops
Operative Management

• >95% require emergent operative intervention.
  – preoperative management
    • adequately hydration
    • broad-spectrum antibiotics
  – closure of the ulcer, the
  – definitive ulcer operation, and
  – appropriate postoperative management.
  – IV H2 antagonist is routine but has little or no benefit
    in patients who receive definitive ulcer operation.
  – 2% mortality reported
Appendicular perforations
Appendicular perforations

- Occurs as a complication of acute appendicitis
  - Appendicular perforation
  - Appendicular mass (phlegmon)
  - Appendicular abscess

- Causes:
  - Late presentation
  - Delay in diagnosis due to
Appendicular perforations

- Appendicitis in infants and young children is difficult to diagnose preoperatively, since these patients cannot provide a history.
- It is unusual to make a firm diagnosis in a patient under the age of 1 year unless perforation has occurred.
- Acute appendicitis during pregnancy especially the third trimester, the uterus is rapidly enlarging and causes displacement of the caecum and appendix into the right upper abdomen.
Appendicular perforations

- In elderly, classic sx of pain, anorexia and nausea are present but less in less pronounced form.
- Rigidity of the RLQ is not so pronounced in elderly pts due to lax abdominal wall.
- Misdiagnosed as subacute intestinal obstruction.
- To worsen the condition, enema may be given
Treatment of appendicular perforation

- Immediate laparotomy and drainage, débridement of the necrotic tissues
- Appendectomy is avoided as faecal fistula may occur
- Broad spectrum antibiotics
Typhoid perforation
Typhoid perforation

• Usually seen in the third week of infection with salmonella typhi in patients with acute disease
• Rarely seen in Europe or North America
• Endemic in regions with poor hygienic conditions and water contamination,
  – India, Pakistan and countries in South America and Africa
Typhoid perforation

- Typhoid bacilli penetrate the Peyer’s patches of the intestine wall, mainly in the distal ileum.
- These collection of lymphoid cells hypertrophy, leading to haemorrhage and then perforation.
- Perforation often is not appreciated in an already severely diseased patient.
- Superinfection resulting from leakage of intestinal bacteria leads to the full-blown suppurative bacterial peritonitis.
Treatment:
Typhoid perforation

• Surgical excision, suture of the perforation and lavage and draining of the abdominal cavity.

• TMP/SMX, chloramphenicol or ciprofloxacin for uncomplicated typhoid, in

• Patients with peritonitis cephotaxime + metronidazole
Typhoid perforation

- Factors affecting mortality and morbidity
  - the age of the patient,
  - duration of perforation before surgery,
  - presence of additional complications,
    - massive rectal bleeding,
    - extent of the surgery
    - the number of perforations present.
Ruptured amebic liver abscess

• Amoebic liver abscess is the commonest extra intestinal manifestation of amoebiasis.

• Intraperitoneal rupture of liver abscess and fulminant necrotizing amoebic colitis are rare occurrences which complicate a severe form of invasive disease caused by Entamoeba histolytica
Ruptured amebic liver abscess

• Clinical picture is that of the bacterial peritonitis
Treatment – Ruptured amebic liver abscess

• surgical drainage
• application of the general principles of treating peritonitis
• Metronidazole in combination with a 3rd generation cephalosporin
Ulcers
Tropical ulcers
(tropical phagedenic ulcers)

• These were once common over most of the tropics,
• There is some disagreement as to what causes them.
• Start as small infected cuts from the sharp grasses of bush paths, which would explain their characteristic distribution
• Primarily infective?
  – sometimes occur in small epidemics in the wet season.
Tropical ulcers development

- **Stage One.**
  - A pustule, or neglected cut, containing Vincent's and fusiformis organisms (both are penicillin-sensitive).
  - This stage is not seen in hospital.
- **Stage Two.**
  - Progression of the cut or pustule to form an acutely painful ulcer with a raised, thickened, and slightly undermined edge.
  - This ulcer grows rapidly for several weeks.
  - A bloody discharge covers the grey slough on its floor, the skin around it is dark and swollen, and muscle, bone, and tendon occasionally lie exposed in its base.
  - After about a month, the pain, swelling, and discharge improve, and it either heals, or it goes on to the next stage.
- **Stage Three.**
  - It becomes chronic, and resembles any other long-standing indolent ulcer.
Tropical ulcers development

• In Stage Two, when an ulcer is still less than 5 or 6 cm, penicillin and dressings will usually cure it.

• Osteomyelitis is rare, but a reactive periostitis may in time raise an ulcer above the surrounding skin.

• Sometimes its edge is thickened and everted, and resembles a carcinoma.
DIFFERENTIAL DIAGNOSIS

• The site of a tropical ulcer is its most important diagnostic feature.

• The differential diagnosis includes:
  – a chronic non-specific ulcer,
  – a squamous cell carcinoma, which resembles a chronic tropical ulcer in that it also has an everted edge
  – Tuberculous ulcer (unusual)
    • a ragged, shallow ulcer, with bluish overhanging edges.
    • Its base is less vascular, and more fibrous.
  – Buruli ulcer (restricted areas only)
    • an otherwise fit child, or young adult, with a huge ulcer with deeply undermined edges, anywhere on the body, and not necessarily on the feet and lower legs
TREATMENT: Acute Ulcers

- Clean with saline soaks, dressing each day and keep it moist.
- Penicillin – an antibiotic of choice.
- When the ulcer is clean, usually within 7 days, and if it is 5 cm in diameter, split skin grafting.
- Smaller ulcers will heal without grafting.
- MOST GRAFTING SHOULD BE DONE AT THE ACUTE OR SUBACUTE STAGE
TREATMENT: *Chronic Ulcers*

- Split skin grafts do not take well on long-standing fibrotic ulcers, or they may take initially, and break down later.
- Ideally, these ulcers need a muscle, or a myocutaneous flap.
- Chronic ulcers cause long standing morbidity, and may become malignant.
- Recurrence rate is high after STSG.
DIFFICULTIES WITH TROPICAL ULCERS

• SQUAMOUS CELL CARCINOMA (epithelioma) development
  – after many years, the BASE OF AN ULCER BECOMES HEAPED UP and irregular, and its edges protuberant and rolled

• This can happen in three years, or it can take thirty.
Buruli ulcer

- Caused by infection with *Mycobacterium ulcerans*,
- Is one of the most neglected but treatable tropical diseases.
- Reported in over 30 countries mainly with tropical and subtropical climates but it may also occur in some countries where it has not yet been recognized.
Buruli ulcer

• As the lesion grows, the skin over it desquamates, becomes pigmented, and then breaks down to form a chronic expanding ulcer, with a necrotic base, and edges which may be undermined 5 to 15 cm.
• Secondary infection occurs, and a foul slough forms.
• Some ulcers remain unchanged for weeks; others cover much of a limb, or the trunk, in a few weeks.
• Heal spontaneously, with much scarring and severe contractures.
TRANSMISSION

• The exact mode of transmission is still under investigation.
• Some patients state that lesions develop at the site of antecedent trauma.
• Research suggests that in Africa, some aquatic insects of the order Hemiptera (Naucoridae and Belostomatidae) can harbour $M. ulcerans$ in their salivary glands and transmit the disease to experimental animals.
TRANSMISSION

• More recent data from Australia suggest that salt marsh mosquitoes test positive for *M. ulcerans* DNA, although transmission by this type of mosquito has not been established.

• Further research is in progress to establish the exact role of insects and other factors in the transmission of the disease to humans.

• If confirmed, BU will be the only known mycobacterial disease to be transmitted by insects.
EPIDEMIOLOGY

- BU frequently occurs near water bodies – slow flowing rivers, ponds, swamps and lakes; cases have also occurred following flooding.
- Activities that take place near water bodies, such as farming, are risk factors, and wearing protective clothing appears to reduce the risk of the disease.
- All ages and sexes are affected, but most patients are among children under 15 years.
EPIDEMIOLOGY

• About 90% of cases the lesions are on the limbs, with nearly 60% of all lesions on the lower limbs.
• Unlike TB, there is no evidence to suggest that infection with the HIV predisposes individuals to BU infection.
• There is also no evidence that the disease can be transmitted from person to person.
• There is little seasonal variation in the incidence of the disease.
Prevalence

- In Côte d'Ivoire, 24,000 cases recorded between 1978 and 2006.
- In Benin, nearly 7000 cases recorded between 1989 and 2006;
- In Ghana >11,000 cases recorded since 1993.
- In Australia, more cases of BU are being reported recently – 25 in 2004, 47 in 2005 and 72 in 2006.
- Increasing number of cases are being reported from Cameroon, Congo, Gabon, Sudan, Togo and Uganda.
Buruli ulcer

SIGNS AND SYMPTOMS

• Common on children, and in some areas women,
• Presents with a painless, small, well demarcated, indurated swelling, attached to the skin, but not to deeper tissues.
• It is almost always single and on the limbs
• It is often near a joint, although the site is more variable in young children.
Buruli ulcer
SIGN AND SYMPTOMS

• There is little pain or tenderness, little or no fever
• The regional lymph nodes are not enlarged.
• Sometimes, bone is affected causing gross deformities.
• Without treatment, massive ulcers result, with the classical, undermined borders.
DIAGNOSIS

• Suggested by
  – the appearance of the swelling and the ulcer,
  – the absence of lymph node enlargement, and
  – the failure to respond to tropical ulcer therapy.

• SPECIAL TESTS.
  – AFB in the chronic phase of the ulcer, and culture.
  – M. ulcerans grows on the media used for M. tuberculosis
  – Direct smear examination
THE DIFFERENTIAL DIAGNOSIS

• In the nodule stage includes:
  – boils,
  – foreign body granulomas
  – low-grade fibrosarcomas.

• In the ulcer stage it includes:
  – tropical,
  – mycotic,
  – parasitic, and
  – malignant ulcers.
TREATMENT

• Current recommendations:
• A combination of rifampicin and streptomycin/amikacin for weeks as a first-line for all forms of the active disease.
• Nodules or uncomplicated cases can be treated without hospitalization.
• Surgery to remove necrotic tissue, cover skin defects and correct deformities.
• Interventions to minimize or prevent disabilities.
TREATMENT

- Excise early lesions, if possible with primary closure (unlikely).
- In ulcerated lesion, control pyogenic infection with antibiotics, and irrigate with saline.
- Excision of all diseased tissue, and skin graft.
- Failure to remove all diseased tissue, the graft will fail, and healing will be slow, with much scarring.
Bites
MAMMALIAN BITES

• Worldwide, thousands of people are killed each year, primarily by large animals such as lions, buffaloes and tigers

• Many victims with minor injuries from animal bites do not present for treatment, so the actual incidence is unknown.

• In Ifakara, several cases attended every year with such injuries
Evaluation

• Patients, especially children, are at risk for blunt and penetrating trauma.
• Teeth and claws can puncture body cavities, including the cranium, and amputate extremities.
• Patients should be treated as trauma victims, with special attention to wound management
Evaluation...cont.

• X-rays for suspected fractures, joint penetration, severe infections, and foreign bodies such as teeth.
• Abdominal USS – visceral injuries
• Tetanus prophylaxis should be current.
Crocodiles bites

• Crocodiles can attain a length of more than 20 feet and travel at speeds of 20 miles per hour in water and on land.
• Attack primarily in shallow water.
• Most injuries occur to the lower extremities.
• Powerful jaws and sharp teeth produce crushing, tearing injuries.
Crocodiles bites

• Hypovolemic shock and near drowning are life-threatening consequences of an attack.
• Other complications:
  – soft tissue and neurovascular damage,
  – fractures
  – infection.
• Massive transfusions are frequently necessary, predisposing the patient to DIC.
• Most wounds require exploration and repair in the operating room
Bites-General Management

• Initial management is focused on airway, breathing, and circulation.
• Patients with extensive blunt and penetrating injuries should be treated as major trauma victims.
• Tetanus status should be updated for all bites and cuts.
• Radiographs to locate foreign bodies and fractures.
Wound Care

- Meticulous wound care is necessary to prevent infection and to optimize aesthetic and functional outcome.
- Wounds should be irrigated with normal saline.
- Débridement of devitalized tissue can decrease infection and promote healing.
- Large wounds should be explored in the operating room.
- Wounds should be loosely closed and drainage provided.
Options available for repair include primary, delayed, and secondary closure. The appropriate method is determined by the anatomic location of the bite, the source of the bite, and the type of injury. Contrary to past beliefs, primary closure of selected bites produces the best outcome for patients without increasing the risk of infection. This is especially true for head and neck wounds, where aesthetic results are more important. Healing by secondary intention generally produces unacceptable scars.
Wound Care…cont.

• Cefuroxime, cloxacillin+metronidazole or amoxicillin-clavulanic acid is acceptable for all bites

• Antibiotics should be administered early and, in serious bites, be given parenterally.

• Cultures for infected wounds that fail antibiotic therapy
Thank you for listening!!!