Pharmacy Practice I
Spring 2016-17
Gastrointestinal Disorders- Part 1

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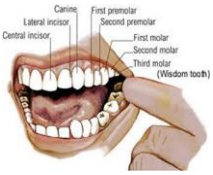
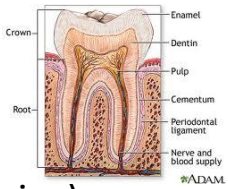
Objective

By the end of the topic, the student should be able to:

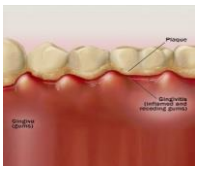
- Develop history taking and perform physical examination of a patient with Gastrointestinal disease such as tooth pain, mouth ulcers, oral thrush, gingivitis, constipation, diarrhoea,
- Distinguish diagnosis and formulate management strategies for a patient with gastrointestinal disease
- Recognize when to refer a patient to a doctor
- Choose appropriate OTC management options for the above mentioned diseases



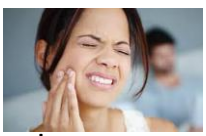
Dental Structure



- Teeth are firmly held by the gum (gingiva)
- Almost 2/3rds of a tooth is buried in the gum
- Normal color of the teeth is white and the gum is pink or brown
- Teeth hold, cut, tear & chew food
- Major disorder of this structure is the build up of plaque, a sticky mixture of bacteria, saliva & food particles causing tooth decay

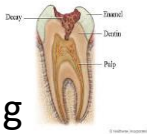


Toothache



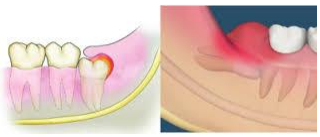
- Pain or discomfort in one or more teeth or in the gums
- Risk factors: poor oral hygiene and a diet rich in sugar
- Not influenced by gender, age
- Symptoms: dull ache to severe throbbing sensation
- May last for few minutes or may be continuous even causing sleepless nights

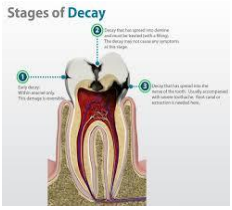
Differential diagnosis- Toothache



- Sharp pain due to biting, drinking or eating hot, cold or sweet foods or fluids-symptoms of tooth decay
- Dull pain while chewing; inflammation of the gums- gingivitis

- Continuous, throbbing and severe pain- advanced tooth decay
- Pain & tenderness at the back of the mouth- eruption of wisdom teeth





Pharmacological Management of Tooth Pain

- Take an over-the-counter (OTC) pain reliever to get pain relief

Analgesics- Paracetamol and NSAIDs

- NSAIDs- Aspirin, Ibuprofen, Diclofenac, Mefenamic acid, Naproxen

Paracetamol- Mild to moderate pain, not effective anti-inflammatory medicine

- *Dose*: Adults- 0.5-1 gm every 4-6 hours, max 4 gm daily
- *Children*: 3-12 months: 60-120 mg;
  1-5 yrs : 120- 250 mg
  6-12 yrs: 250- 500 mg
  Max 4 doses in 24 hours
- Pharmacist make sure of dose of liquid preparations; 125mg/5ml or 250mg/5ml
- *Adverse effects*: rare; stomach pain, rash, blood disorders including thrombocytopenia, leucopenia
- *Dosage forms*:

- Aspirin or aspirin containing medicines; avoid local application (powder aspirin tablet) as it burns, avoid in children for treatment of viral infection; Reye's Syndrome

- Anesthetics- Benzocaine 5-20%- gel/spray, short acting, apply directly to the irritated tooth and gum to temporarily relieve pain

- Dose:2 years and above—Apply a small amount of medicine to the painful areas up to four times a day.

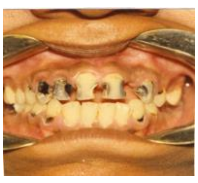
- < 2years- may have to be prescribed by the Dr.

- Methemoglobinemia;

- Local application of clove oil
- Refer to DENTIST for further management

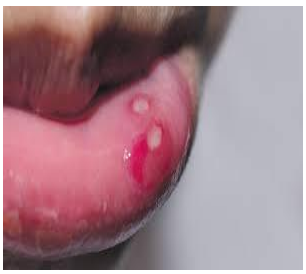
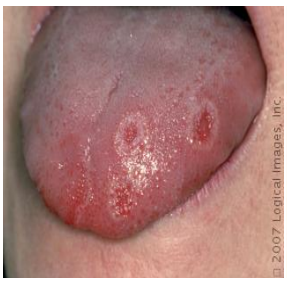
Non Pharmacological management of Toothache

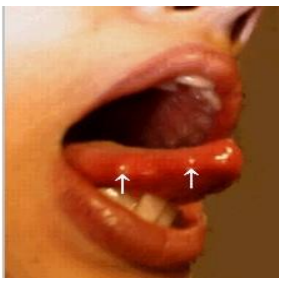
- Includes **pharmacological and non pharmacological** options
- Routine regular brushing & flossing to prevent deposition of food particles & formation of plaques- Ideally brush your teeth between meals or consider using sugar free chewing gum
- Use dental floss to remove any food particles wedged between your teeth.
- Rinse your mouth with warm water/ salt water
- Avoid foods & fluids with high sugar contents, Rinse well
- Regular dental check ups & daily care



Mouth Ulcers

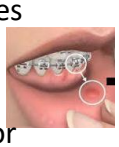
- Minor ulcers- These are around 2-8mm in diameter and usually clear up in 10 days to 2 weeks.
- Major ulcers- bigger and deeper, often with a raised or irregular border. Take several weeks to heal and may leave a scar in the mouth.
- Herpetiform ulcers- a cluster of dozens of smaller sores the size of pinheads.



Mouth Ulcers

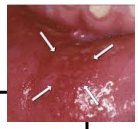
- Mouth ulcers are common; mainly minor type
- Causes- Stress, trauma, acidic foods, nutritional deficiencies (iron, zinc and vitamin B12), infection, braces, ill fitted dentures, medicines (β blockers, analgesics)

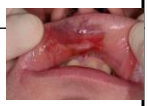


- Clinical presentation- Shallow, roundish, grey-white in color and painful, small, usually less than 1 cm in diameter and occur singly or in small crops of up to five ulcers; common sites are tongue margin and inside the lips and cheeks.
- Ulcers heal in 7- 14 days

- Ask questions to help diagnosis
- Oral cavity should be inspected to confirm diagnosis

Mouth Ulcers



Number of ulcers 	Single or ulcers in small crops- minor ulcers A single large ulcerated area – suggests more serious pathology- refer Numerous ulcers- herpetiform ulcers
Duration	Any mouth ulcer for longer than 3 weeks- serious cause
Location of ulcers	Ulcers on the side of the tongue, inside of the lips and cheeks suggests- minor ulcers Ulcers located towards the back of the mouth suggest major ulcers
Size and shape 	Irregular- shaped ulcers- trauma Pinpoint ulcers- herpetiform ulcers Large ulcers- major ulcer
Associated pain	A painless ulcer suggests sinister pathology: refer
Age	Age 10-50 yrs: minor ulcers

When to refer patients: mouth ulcers

- Children under 10 years
- Duration longer than 3 weeks
- Painless ulcer
- Diarrhoea, Signs of systemic illness eg. Fever,
- Ulcers in crops of 5-10 or more and very big

Management of ulcer

- Treatment may be needed if ulcers are severe, painful or interfere with daily activities (such as eating).
- Symptomatic management- to relieve pain and reduce healing time.
- Medicines - antiseptics, corticosteroids and local anaesthetics.

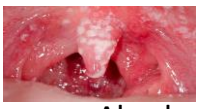
Non pharmacological management options

- Avoid hard, sharp, spicy and acidic foods and drinks until the ulcer heals – stick to soft foods that are easier to chew.
- Avoid things that you think may be triggering your ulcers, such as specific foods.
- Reduce your stress levels by doing an activity that you find relaxing, such as yoga, meditation or excercise.

Management of mouth ulcer

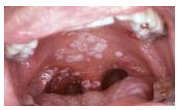
- Analgesics- Choline salicylate gel, Benzydamine mouthwash/ spray
- Benzydamine is not suitable for children under 12 years of age and not for more than seven days in a row. ADR- mouth feels numb/sting with first use
- Local anaesthetics- lignocaine/ lidocaine 5% ointments or lozenges, benzocaine
- Benzocaine may cause hypersensitivity reactions; redness or irritation of the gums occurs after topical application

- Antiseptic mouthwash- Antimicrobial mouthwash helps kill bacteria, viruses or fungi that could infect the ulcer and also favour healing.
- Chlorhexidine or povidone iodine; however iodine should not be used more than 14 days
- Chlorhexidine causes temporary brown staining of teeth.
- Topical Corticosteroids- Reduce inflammation and pain, and helps faster healing.
- Hydrocortisone oromucosal tablets to be dissolved next to the ulcer site.
- Triamcinolone dental paste, beclomethasone soluble tablets are other alternatives
- Saline mouth wash- decrease the pain of traumatic ulceration



Oral thrush

- Also known as oral candidiasis
- Overgrowth of the yeast *Candida albicans*,
- Common amongst the very young and the elderly population
- Symptoms- Creamy white lesions on tongue, inner cheeks, and sometimes on the roof of the mouth, gums and tonsils
- Slightly raised lesions with a cottage cheese-like appearance
- Redness or soreness that may be severe enough to cause difficulty eating or swallowing
- Slight bleeding if the lesions are rubbed or scraped, Loss of taste

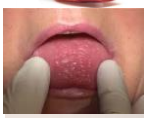


Causes include

- In adults/elderly- are prolonged use of oral antibiotics, smoking, use of birth control pills
- Common amongst those on immunosuppressant medication, immunocompromised patients- HIV, Leukemia, diabetics, chemotherapy, steroid inhalers, poor oral hygeine, ill-fitted dentures, xerostomia (dry mouth)

When to refer

- Diabetics
- Duration of > 3 weeks
- Immunocompromised patients



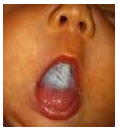
Management of Oral thrush

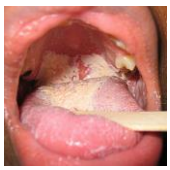
The goal of treatment- to <u>stop the rapid spread</u> of the fungus, and the <u>cause</u> of the infection

If breast feeding, both mother and child should receive treatment

If thrush is caused by something reversible, such as taking antibiotics, then that should be corrected depending on the cause

To reduce discomfort, try drinking cold liquids, or eating frozen or ice treats; eating soft, easy-to-swallow foods; drinking from a straw if the patches are painful





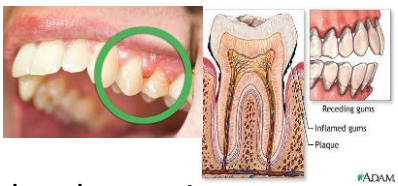
Pharmacological Management of oral thrush

- **Nystatin-** oral suspension/ oral paint; 4 times daily after food; for 5- 7days, to be continued for 2 days after symptoms have cleared to prevent relapse and reinfection

- **Miconazole** oral gel (Daktarin) applied on oral lesions after food, should continue treatment for at least 2 days after the infection is cleared
- Patients should be told to hold the gel in the mouth as long as possible
- Adults & children > 6yrs: 5 ml of the gel X 4 times daily
- Children < 6 yrs: 5 ml X 2 times daily

- **Amphotericin-** lozenges 10 mg
- **Fluconazole**- if infection is unresponsive, or if patient has dry mouth, once daily

Gingivitis



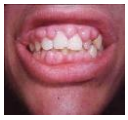
- Inflammation of the gums
- Symptoms can be mild and painless but patients might notice- swollen red gums, that bleed easily with slight trauma eg brushing

- Caused by an excess build-up of plaque on the teeth, which can be prevented by regular tooth brushing

- Medicines which cause- warfarin, heparin, NSAIDs, amlodipine

- Plaque might be visible and bad breath might be noticeable
- Refer-foul taste associated with gum bleeding, signs of systemic illness and if the bleeding is spontaneous

Management of Gingivitis

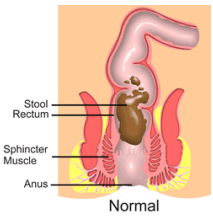


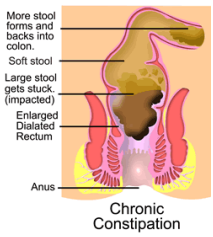
- Maintain good oral hygiene- prevention of plaque build-up by daily brushing
- Flossing to areas where toothbrush can miss

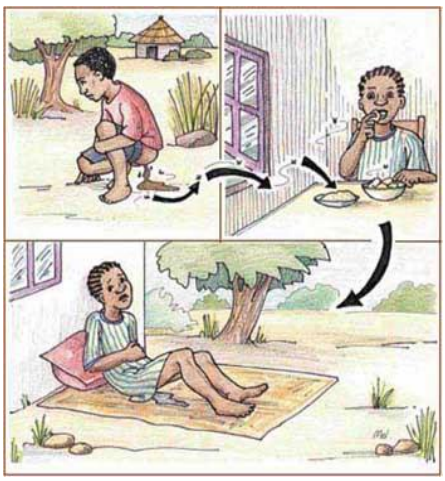
- Mouth washes containing the antibacterial Chlorhexidine 0.1% or 0.2% (Corsodyl), Hexetidine (Oraldene), Povidone- iodine (Betadine)

- Avoid use of Betadine in patients with thyroid disorders and in pregnancy
- Chlorhexidine seems to be safe in children, but may stain tongue and teeth brown temporarily

Constipation & Diarrhoea







Constipation

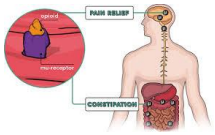
- Difficult to define, usually self-diagnosed by the patient
- Hard, difficult to pass stools & painful defecation are typical symptoms of constipation
- Characterised by the passage of hard, dry stools less frequently than the person's normal pattern.
- Most important information is: What change in bowel habit & over what period of time- bowel frequency, hard/soft, last bowel movement, previous history

Bowel habits

- Stool frequency of 1/day– 3 stools/week to be normal, reassure/ advise patient accordingly
- Identifying how long these symptoms have occurred will help in deciding when to refer
- Sudden change which has lasted > 2 weeks or prolonged change should be referred
- Many constipated patients will have these associated symptoms- abdominal discomfort, bloating, and nausea.
- Sometimes blood in the stool- due to piles/hemorrhoids or anal fissure

When to Refer

- Change in bowel habits longer than 2 weeks
- Severe abdominal pain, esp. in the elderly
- Blood in stools
- Failure of previous OTC medication
- Prescribed medication-induced constipation



Diet & Medication

- Enquire of the patient's change in diet and lifestyle
- In adequate intake of food and fluids by sick people
- Amount of fibre, fruits & vegetables in the diet- Insufficient
- Various medications may cause constipation, which includes:
- Overuse/misuse of laxatives especially stimulant ones
- **Analgesics-…., Antacids-….**
- **Anticholinergics-…., Antihistamines….**
- **Anticonvulsants…, Antidepressants…**
- **Antihypertensives…, Iron,**

Management

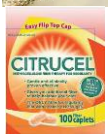
Non-pharmacological:

- Change in lifestyle e.g. increase fluid intake, avoid carbonated drinks, increase fibre in diet, green leafy vegetables & fruits
- Complementary Medicine: Acupuncture, Herbals, Ayurveda, Abdominal massage
- Combination of adequate exercise, high fibre diet, and occasionally by appropriate laxative

Pharmacological Management options

Patients would prefer privacy

Medicines of choice are:



- Bulk forming laxatives: ispaghula, methylcellulose, sterculia
- Osmotic laxatives: lactulose, magnesium sulphate, glycerol, macrogols
- Stimulant laxatives: Senna, Bisacodyl, glycerol
- Stool softeners: Docusate, liquid paraffin

Bulk forming laxatives- Ispaghula, Methylcellulose, Sterculia

- Similar to the normal physiological mechanisms involved in bowel evacuation
- Work by swelling in the gut and increasing faecal mass so that peristalsis is stimulated.
- Advise patients to increase fluid intake, fibre in diet
- Laxative effect may take up to 72 hours to act

- Available as granules or powder, taken with a full glass of liquid/ fruit juice
- Sodium content of bulk laxatives should be considered in patient requiring a restricted sodium intake.

Osmotic laxatives- (e.g. Lactulose, Magnesium sulphate, Glycerol, Macrogols

- Act by maintaining the volume of fluid in the bov
- Lactulose may take 1–2 days to work.
- May cause flatulence, cramps and abdominal discomfort

- Glycerin suppositories- have both osmotic and irritant effects and usually act within 1 h.

- They may cause rectal discomfort.

Stimulant laxatives- Bisacodyl, Senna, Docuaste, Glycerol

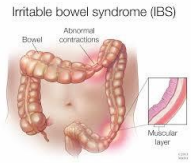
- Act by increase intestinal motility/ peristalsis
- Bisacodyl tabs 5mg one od;
- May produce griping/cramping pains
- work within 6–12 h when taken orally.
- Use for maximum of 1 week.
- Bisacodyl is irritant to the stomach, suppository shows effect within 15 min -1 hour
- Docusate sodium appears to have both stimulant and stool softening effects
- Senna, Castor oil- not much used, better agents are available

Diarrhoea

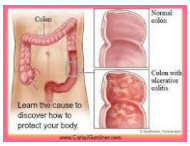
- Diarrhoea is defined as an increased frequency of bowel evacuation, with the passage of abnormally soft or watery faeces.
- Electrolyte and fluid imbalance may occur
- Abdominal cramps, nausea, vomiting, flatulence and weakness or malaise may also occur.
- Diarrhoea is either: **acute**-started less than 7 days ago, **persistent** (> 14 days) or **chronic** (> 1 month)

- Most cases of diarrhoea will be acute and self-limiting.
- Acute diarrhoea- often infective in origin, rapid in onset, produces watery stools frequently
- Ask questions about food intake, about family members or friends
- Particular care is needed in the very young and the very old- risk of dehydration
- Assess the degree of severity- related to the nature and frequency of stools

Causes-



- Viral or bacterial infection
- Medicine induced
- Chronic diarrhoea may be caused by Medical conditions e.g. IBS, ulcerative colitis



- Watery stools but no blood: signs of viral infection (rotavirus)

- Watery stools with blood: signs of bacterial infection e.g. shigella

- Watery stools with foul smell: bacterial infection e.g. salmonella

When to Refer

- Diarrhoea for more than

- 1 day in children less than 1 yr
- 2 days in children under 3 yrs and elderly patients,
- 3 days in older children and adults- due to danger of dehydration

- Signs of severe dehydration
- Presence of blood or mucus in the stool
- Suspected drug induced
- Associated with severe vomiting and fever
- Recent travel abroad
- History of change in bowel habit

Medicine Induced Diarrhoea

- Magnesium containing antacids
- Broad spectrum antibiotics
- Excessive alcohol intake
- Proton pump inhibitors
- Anti hypertensives- Methyldopa, furosemide

Management

- The basis of treatment is electrolyte and fluid replaceme
- Antidiarrhoeals are useful in adults and older children.
- Oral rehydration sachets may be used with antidiarrhoeals in older children and adults.
- 5mg sachets- 200ml water
- 30mg sachets- 1 liter of water

Oral rehydration therapy

- Appropriate advice by the pharmacist- how the Oral Rehydration Salt (ORS)/powder should be reconstituted.

- Only water should be used to make the solution
- Amount of rehydration solution to be offered to patients

Age	Quantity of solution (per watery stool)
Under 1 year	50 ml (quarter of a glass)
1–5 years	100 ml (half a glass)
6–12 years	200 ml (one glass)
Adult	400 ml (two glasses)

Management…

- The solution can be kept for 24 h if stored in a refrigerator
- Diet- Avoid cow's milk and fatty food, drink lot of fluids
- Antibiotics should be used only for infectious diarrhoea
- Loperamide (imodium) capsules- effective antidiarrhoeal, can be given to older children and adults, NEVER IN CHILDREN < 5 yrs
- Advise the patient who takes loperamide to drink plenty of fluids