Amoebiasis
(Amebic Dysentery)

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- An infection with a protozoan parasite that exists in two forms, the hard infective cyst & the more fragile trophozoite, causing Intestinal or extraintestinal disease. Intestinal disease varies from acute or fulminating dysentery with fever, chills & bloody or mucoid diarrhea, to mild abdominal discomfort with bloody diarrhea or with mucous alternating with episodes of constipation or remission.
- Amebic granuloma (Ameboma) is usually found in the wall of large intestine, this must be differentiated from CA.
- Ulceration of the skin usually found in the perianal region, penile lesions may occur in active homosexuals, dissemination via the blood stream may occur & produce abscess of liver, lung or brain.

- **Diagnosis:**

1. Microscopical demonstration of trophozoites or cysts in a fresh or suitably preserved fecal specimens.
2. Smears of aspirates or scrapings obtained by proctoscopy or aspirates of abscess or secretions of tissue.
   a) The examination should be done by well-trained microscopist using a fresh specimen.
   b) The presence of trophozoites containing RBC's is indicative of invasive amoebiasis.
3. Serological test for extraintestinal amoebiasis, such liver abscess by HIA immunodiffusion & ELISA.
4. Ultrasound & CT scan to reveal the presence & location of an amebic abscess.

- **Differential Diagnosis:**
- Ulcerative colitis (corticosteroid may exacerbate the amebic colitis), CA colon.
- **Infectious agent:**
- ***Entamoeba histolytica***, this must be differentiated from the non pathogenic ***Entamoeba dispar***.
- **Occurrence:**
- Amoebiasis is omnipresent (could be present at any time & place). Globally amoebiasis is the 3rd most common parasitic cause of death after malaria & shistosomiasis. Invasive amoebiasis is a disease of young adults, liver abscess occur predominantly in male. Amoebiasis is rare below the age of 5 years, especially below 2 years, when dysentery is typically due to shigellae. High rates of amoebiasis occur in areas with poor sanitation. 500 million people / year are infected with *E. histolytica* & 8 % develop clinical disease. 40,000-100,000 deaths / year are attributable to invasive amoebiasis.

- **Reservoir:**
- Human (usually chronically ill or asymptomatic cyst passer).
- **Mode of Transmission:**

1. Ingestion of contaminated food or water containing amebic cysts.
2. Sexually oral-anal contact.

- **Incubation Period:**
- Few days – several months or years (commonly 2-4 weeks).
- **Period of Communicability:**
- During cyst passage in stool which may continue for years.
- **Susceptibility:**

➢ Those harbouring *Entamoeba dispar* do not develop the disease.

➢ Reinfection is rare.

- **Prevention & Control:**

A- Preventive measures:

1. Health education about personal & food hygiene.
2. Sanitary disposal of human feces.
3. Protect public water supplies from fecal contamination.
4. Treatment of a known carrier.
5. Supervision of the sanitary practices of people who prepare & serve food in public eating places.

B- Control measures:

1. Report to the health authority (in selected endemic areas).
2. Isolation & enteric precautions.
3. Exclusion of infected person from food handling.
4. Sanitary disposal of feces.
5. Investigate the contacts.
6. Specific treatment:
   - Intestinal & extraintestinal: metronidazole (flagyl), followed by Iodoquinol, parmomycin or diloxanide furoate.
   - Liver abscess: Chloroquine sometimes added to metronidazole or dehydroemetine for refractory liver abscess treatment. Surgical aspiration of liver abscess may be required, if there is a risk of rupture or if the abscess continues to enlarge despite therapy.
   - Asymptomatic carrier: Iodoquinol, parmomycin or diloxanide furoate.

- Hemorrhagic Fevers

- It’s a clinical syndrome accompany many arbo viruses diseases which represent mainly hemorrhagic manifestations.
- **History:**
- For 300 years yellow fever was the only epidemic viral disease known to be associated by grave hemorrhagic manifestations.Since 1930 many viral etiologies for hemorrhagic fever was recognized, they are now responsible for many epidemiological situations in the occurrence of hemorrhagic fevers.

- **Classification:**
- Hemorrhagic fevers are classified according to the vector:

M.O.T	Name	Virus	Epidemiology	Countries
Mosquito borne	Yellow fever Dengue fever Rift Valley fever	Flavi viruse Flavi viruse Buny virus	Endemic Epidemic	USA, Africa and Asia
Tick borne	Kyasanur fever Forest fever Creamin Congo fever Omsk fever	Buny virus Buny virus Naire virus Areno virus	Endemic Epidemic	India Iraq, India, Dubai Siberia
Rodent borne	Argentinian fever Bolivian fever	Areno virus Buny virus	---	South America
Unknown	Hantan fever	Buny virus		Korea

- **Clinical Manifestations:**
- Despite the diverse viral etiologies, there are many similar clinical manifestations:

Sudden onset of headache, backache, myalgia, conjunctivitis and prostration. On the 3rd day hypotension occur and haematological manifestations include bleeding gums, epistaxis, haemoptysis, haematamesis, hemorrhage into various organs. Leucopenia and leucocytosis because of DIC, eventually death occur within 2 weeks.

- **Creamin Congo Hemorrhagic Fever (Tick Borne):**

Responsible for many epidemics during the 15th century, also during the 2nd world war by creamin virus. It was isolated in 1968 from mice, similar to that of Congo virus but more virulent.

It occurred in Iraq in 1979, present also in Iran, Pakistan … etc. Incubation period is brief 3-6 days. Clinical features of sudden onset with serious hemorrhagic manifestations and acute blood loss for 3-7 days. Neurological manifestation may occur many years after recovery. Transmitted by infected tick, fatality rate is 13-25 % but indirect transmission. During an epidemic in some of previous USSR countries cases reached 14/1000 (attack rate). The infection morbidity rate is 6:1. The mammals affected include small rodents, ground birds, cattle, sheep and human lab workers. Seasonal variation during seasons of tick activity (April & June), but in central Asia there is no seasonal variations.

- **Treatment :**

  No specific treatment but we give passive immunization on the 3rd day, and conservative therapy.

- **Dengue Fever:**

  Caused by flavi virus, transmitted by mosquito, fetal manifestations include positive Tornique test, females affected more than males, rate of infection is 5-8/1000, there is no racial or ethnic difference, the treatment in by immunization and conservative therapy.

- **Yellow Fever:**

In USA and Africa (tropic and sub torpic), responsible for major seaport epidemic in USA, UK and Europe in the 18^{th} and 19^{th} centuries. The infection give life long immunity.

- **Clinical features:**

Variable from unapparent, mild, moderate, sever to malignant involving three systems, Blood (heam), liver (jaundice) and kidney (albuminuria & ureamia). During the epidemic the attack rate is 20 %. In Ethiopia about 2 million people were affected, 100.000 infected and 30.000 died. The case fatality rate usually high. Blacks are usually more resistant clinically.

- **Rift Valley Fever:**
- Epidemic happened in 1977 in Egypt, about 200.000 were affected and 98 died.
- It’s mosquito borne, caused by Buny virus, few cases passed into fulminant hepatitis, 1 % present with hemorrhagic manifestations.

- Whooping Cough

- An acute bacterial disease of the respiratory tract. The initial catarrhal stage characterized by insidious onset with an irritating cough which becomes paroxysmal attack gradually (usually within 2 weeks & last for 1-2 months).
- **Paroxysms:** are characterized by repeated violent cough, each series of paroxysms has many coughs without intervening inhalation& can be followed by a characteristic crowing (or high pitched inspiratory whoop). Paroxysms frequently end with the expulsion of clear, tenacious mucous (often followed by vomiting).

Infants less than 6 months old, adolescents & adults often do not have the typical whooping or cough paroxysm. The case fatality rate is less than 1% in infants under 6 months of age in USA. Pertussis is one of the most lethal diseases of infants & young children especially among non immunized population, and those with underlying malnutrition, multiple enteric & respiratory infections. Pneumonia is the most common cause of death.

Occasionally fatal encephalopathy (probably hypoxic) may occur. Morbidity is slightly higher in adult females than males. Recently in USA, pertussis has been recognized with increasing frequency in adolescents & young adults with variable severity, many of these cases occur in previously immunized persons (waning immunity).

- **Diagnosis:**

1) Clinically.
2) Isolation of the organism from nasopharyngeal specimens obtained during catarrhal & early paroxysmal stage.

- **Parapertussis:**

Is a similar to pertussis but usually milder disease, usually occur infrequently in school age children. The diagnosis is by: Culture, biological& immunological tests.

- **Infectious Agent:** *bordetella pertussis*.

- **Occurrence:**
- Common among children (young), everywhere in the world .Outbreaks occur periodically. Decline in the incidence & mortality rate has occurred during the past 4 decades, especially in communities with active immunization programs &where good nutritional & medical care are available.
- **Reservoir:** human.
- **Mode of Transmission:** directly air borne route.
- **Incubation Period:** 7-20 days.

- **Period of Communicability:**

Highly communicable in the early catarrhal stage before the paroxysmal cough stage. It will decrease & becomes negligible in (3weeks). In patients not treated with antibiotics the disease extends from the early catarrhal stage to 3 weeks after onset of typical paroxysm. But when treated with erythromycin, the period of communicability is less than 5 days after onset of therapy.

- **Susceptibility & Resistance:**

In non immunized person the susceptibility is universal. It is predominantly a childhood disease (high incidence under 5years of age). Milder & missed atypical cases occur in all age groups. One attack lead to prolonged immunity.

- **Methods of Control :**

1- Preventive measures:

a) Education of the public (parents) about the danger of whooping cough &on the advantage of immunization at 2 months of age & immunization schedule.

b) Active primary immunization against *B. pertussis* infection with 3 doses of DPT vaccine (consist of a suspension of killed bacteria, in combination with diphtheria & tetanus toxoids).

2- Control of patient, contacts & Immediate environment:

a) Report to local health authority.

b) Respiratory isolation for known cases, especially from contact with young children &infants (non immunized infants)until the patient have received at least 5 days of a minimum 14 days course of antibiotic, suspected cases who do not receive antibiotic should be isolated for 3 weeks.

c) Quarantine: inadequately immunized household contacts (below 7 years of age) should be excluded from school, until the cases &contacts have received 5days of a minimum 14days course of appropriate antibiotic. Or (for 21 days after last exposure).

d) Protection of contacts: Passive & active immunizations to protect against infection following recent exposure are not effective. Close contacts (below 7 years) who have not received 4 DPT doses or have not received a DPT dose within 3years, should be given a dose (after exposure) as soon as possible. A 14 days course of Erythromycin for house hold & other close contacts regardless of immunization status & age is recommended.

e) Investigations of contact & source of infection.

f) Specific treatment: erythromycin shortens the period of communicability, but does not reduce symptoms, expect when given during the incubation period, in the catarrhal stage or early in the paroxysmal stage of the disease.

- **DPT vaccine:**

(DPT): which is given at age 2,4,6 months of age then booster doses are recommended at 15-18 months of age &at school entry. Vaccines containing pertussis are not recommended after 7 years of age, since reactions to the vaccine may increased in older children & adults. DPT was given simultaneously with oral polio virus vaccine (OPV) & with hepatitis B vaccine.

DPT should be delayed if the child has an intercurrent febrile infection & in young infants with progressive neurological disease. This is to permit the diagnosis to be established & to avoid possible confusion about the cause of symptoms.

In cases of progressive neurological illness the child should receive DT rather than DPT vaccine (stable neurological disorders, such as well controlled seizures are not a contraindication. DPT is contraindicated to those who experience sever reactions such as convulsions, fever (> 40.5 C^o), we give instead DT.

When an outbreak occurs, protection of health workers who have been exposed to pertussis cases by using a 14 days course of erythromycin is considered.

- **Epidemic Measures:**

To protect preschool children from exposure & to ensure adequate preventive measures for unexposed children under 7 years of age, a search for unrecognized & unreported cases is indicated. Acceleration immunization with the 1stdose at 4-6 weeks of age & the 2nd, 3rd doses at 4 weeks intervals and for those whose schedule is incomplete, immunization should be completed.

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