3- Gastrointestinal protozoal infection

A- Amoebiasis

It is common worldwide and common all over Iraq . It is caused by Entamoeba histolytica (pathogenic type) its cyst irregular shape has four trophozoites it is either infect the colon or the liver to cause amoebic liver abscess . It spread between human through its cysts , there is a cyst of Entamoeba disper which is non pathogenic but similar microscopically to E. histolytica cyst only differentiated by molecular study , isoenzyme study and monoclonal antibody study .

Pathophysiology : Human consume its food contaminated with cyst of E. histolytica which contains four trophozoites , in the small bowel the cyst wall lyses and liberate the throphozoites which invade colonic mucosa in caecum or in sigmoid ,rectum or anal canal to form colonic amoeboma or amoebic abscess ,or the trophozoite not invade the colonic mucosa remain in the lumen of colon to develop to mature E. histolytica cyst discharge with stool to infect new human and the circle continues . If the colon invaded by trophozoite it cause flask shape ulcer with surrounding healthy mucosa and deep ulcer surrounded by granulation tissue called amoeboma or amoebic abscess . It may cause hemorrhage ,palpable mass in rectum ,filling defect by radiography and rarely it cause perforation . The trophozoite may transfer through hepatic venules to the liver ,multiply in the liver with destruction to hepatic parenchyma which cause liver abscess the fluid pinkish color at first then it became chocolate color . The trophozoite may penetrate through the skin to cause perigenital ,perianal or periabdominal surgical wound .

Clinical features

a- Intestinal amoebiasis (amoebic dysentery) : Incubation period 2 weeks – years .
   Acute intestinal amoebiasis is presented with abdominal pain with blood and mucus unformed stool ,if chronic infection the patient will complain of alternating diarrhea and constipation of poorly formed stool contain streaks of blood and mucus and it is offensive in odor associated with abdominal pain ,there is tenderness in the caecum and sigmoid colon region .

Differential diagnosis : Ulcerative colitis , bacillary dysentery ,in caecum similar to appendicitis .

b- Amoebic liver abscess : Usually involve the right lobe of the liver the patient complains of intermittent fever (hectic fever) with sweating ,right hypochondrial pain and may radiate to right shoulder pain exacerbated by coughing , with hepatomegally which is tender . Abscess may rupture to peritoneum ,if large enough it penetrate the diaphragm to pleura lead to amoebic pleural effusion and if in left lobe it may ruptured to pericardium lead to pericardial effusion .

Diagnosis :

1- General stool examination showed red blood cells ,mucus threads , Entamoeba trophozoite ,E. cyst may seen normally so it may not indicate infection .Recurrent stool examination is needed to detect trophozoite (disease prove) .

2- Sigmoidoscopy may be needed to visualize flask shape ulcer with scrapping smear to detect E .histolytica .

3- Antibodies are detected by immunofluotrescence (anti-entamoeba antibody) positive in 95% of hepatic amoebic abscess and intestinal amoeboma ,60 % in amoebic dysentery .

4- Amoebic liver abscess is diagnosed by neutophilia leuckocytosis . abdominal ultrasound sensitive for its diagnosis , aspiration of abscess fluid showed anchovy sauce or chocolate color fluid but rarely to find entamoeba in the fluid .

5-Entamoeba DNA diagnosis by PCR is used in rare cases .

Management

Intestinal amoebiasis and early hepatic amoebiasis has good response to metronidazole tablets 800 mg 3 times daily for 5 -10 days . Or other long acting nitroimidazole group like tinidazole or ornidazole (2 gm daily for 3 days) . Nitazoxanide 500 mg twice daily is alternative drug .

Diloxanide furoate or paromomycine 500 mg 3 times daily is used to treat luminal cysts .

Liver abscess is treated by aspiration or surgical drainage if medical treatment is failed .

Prevention : By educating people about the disease and its source not to drink unclean water or not eating unclean vegetables where it may contains entamoeba cysts .

B- Giardiasis

It is common worldwide parasite and common all over Iraq . It is caused by Giardia Lamblia parasite has cystic form which can remain viable in water for three months so the disease transmitted to human through drinking contaminated water, its trophozoite form is flagellated and attach to duodenal and jejunal mucosa where it cause its disease .

Clinical features :

After incubation period of 1-3 weeks ,The patient complains of abdominal diarrhea ,abdominal pain and distension ,anorexia ,nausea and vomiting and there is upper abdominal tenderness , it may cause chronic diarrhea and malabsorption syndrome .

Diagnosis : General stool examination showed cyst of giardia which is diagnostic .If diagnosis remain suspicious we do endoscopy with jejunal fluid study for cyst of giardiasis and may need jejunal biopsy to showed giardia in the epithelial surface .

Treatment : Tinidazole tablets 2 gm single dose , or metronidazole 400 mg 8 hourly for 10 days or 2 gm of metronidazole once daily .

C- Cryptosporidiosis

Cryptosporidium Parvum is coccidian protozoal parasite infection . Incubation period 7-10 days , it infect human and animals ,transmitted to human by contaminated water . It cause abdominal pain and watery diarrhea ,it is self limiting disease cure by itself . In immunocompromised like HIV patient it is problem case cause chronic watery diarrhea diagnosed Acid fast stain of the stool with microscopy exam or immunofluorscence study . Endoscopy and duodenal biopsy may show oocyte . treatment to improve immunity and it will improve .

D- Cyclosporiasis : It is caused by Cyclospora cayetanensis ,also transmitted by contaminated water cause abdominal pain and watery diarrhea ,more sever in immunocompromised patients .Diagnosed by fecal oocyte in stool exam . Treated by co-trimoxazole 960 mg 12 hoyrly for 7 days .