

CASE REPORT

SALMONELLA FOOD POISONING IN A PATIENT WITH ASCARIASIS & ANCYLOSTOMIASIS: BUGS AND WORMS TOGETHER

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ABSTRACT: INTRODUCTION: This is an unusual case presentation of a patient with symptoms of food poisoning along with two parasitic infections, both mode of infection being entirely different, with ascariasis due to ingestion of food contaminated with eggs of *Ascaris lumbricoides* and *Ancylostoma duodenale* due to hookworm penetration through skin (Bare-foot walking). **CASE REPORT:** A 48 year old female patient came with complaints of fever and loose stools for three days. Patient was an agriculturist by occupation with poor personal hygiene with a history of consumption of meat two days prior to the symptoms. Laboratory test showed leukocytosis (Total count-13,000 cu.mm) with both neutrophilic and eosinophilic predominance and anaemia. Microscopic examination of stool revealed the presence of plenty of pus cells and the presence of eggs of *Ascaris lumbricoides* and eggs of *Ancylostoma duodenale*. Also *Salmonella typhimurium* was isolated in the stool culture and confirmed at National Reference Centre. **CONCLUSION:** Food poisoning is a serious health problem. It can cause severe illness and even death. Soil transmitted helminths are common among agriculturist. Washing hands with warm water and soap before handling foods, eating and after using toilets is mandatory to prevent food borne illness and parasitic infections.

INTRODUCTION: Salmonellosis, is one of the most common and widely distributed foodborne diseases, with tens of millions of human cases occurring worldwide every year.^[1] Salmonellosis is the most common cause of food poisoning in developed countries. Ascariasis & Ancylostomiasis are considered as neglected tropical diseases. The morbidity caused by these soil transmitted helminths in developing countries is high. This is an unusual case presentation of a patient with symptoms of food poisoning along with two parasitic infections, mode of infection being entirely different in both. Ascariasis is due to ingestion of food contaminated with eggs of *Ascaris lumbricoides* while *Ancylostoma duodenale* is due to skin penetration by filariform larvae of hook worm. (Bare-foot walking).

CASE REPORT: A 48 year old female patient presented to the outpatient department of CMCHRC in November 2014 with complaints of fever and loose stools for three days. She had 8-10 episodes of diarrhoea/day which were not accompanied by blood and mucus. She had no history of abdominal cramps, vomiting, nausea, belching. She was apparently normal before this episode and was not on any medication. Patient was an agricultural labourer by occupation with poor personal hygiene with history of consumption of meat two days prior to the symptoms. On careful clinical evaluation patient was febrile (101°F), anaemic, not jaundiced, no palpable nodes. Other systemic examination was normal.

Blood sample was collected and sent for complete haemogram, and biochemical investigations. Since patient was admitted with gastroenteritis, stool was sent for ova, cyst and culture- sensitivity. Laboratory test showed leukocytosis (total count-13,000cu.mm) with both

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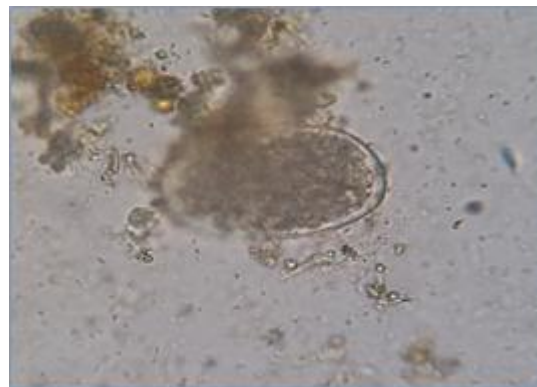
neutrophilic (Differential count: neutrophils-93%, eosinophils-4%) and eosinophilic predominance, anaemia (8.5gms), elevated ESR. Serum electrolytes were within normal limits and renal function test was also normal. Microbiological evaluation showed: stool for ova/cyst- Macroscopic appearance: watery, yellow coloured with no blood or mucous, with no specific odour and visible worms. Microscopic examination revealed the presence of plenty of pus cells and the presence of bile stained oval, thick walled eggs of *Ascaris lumbricoides* and non-bile stained oval, thin transparent hyaline walled eggs of *Ancylostoma duodenale*. Stool culture showed motile gram negative, non-lactose fermenting bacilli with biochemical reaction suggestive of *Salmonella typhimurium*.^[2]

The isolate was sent to the National referral centre (Lady Hardinge Medical College, New Delhi) for further confirmation. The isolate was confirmed as *Salmonella* serovar *typhimurium*. Bacterial culture sensitivity was done which was sensitive to cotrimoxazole, amikacin, Gentamicin, ciprofloxacin, chloramphenicol, ampicillin, ceftriaxone, cefoperazone sulbactam.

The patient was treated with intravenous fluids, Injection. Metronidazole, Injection Ciprofloxacin for 5 days and oral Paracetamol, Ranitidine, Probiotics. Intake output chart was maintained. The patient improved clinically, fever subsided and patient was switched over to oral antibiotic therapy for 5 more days. Deworming was done and iron supplements were prescribed for 1 month. Patient was discharged and reviewed after 2 weeks. Her stool sample was negative for parasitic infections and culture was negative for enteric pathogens.



Egg of *Ascaris lumbricoides*



Egg of *Ancylostoma duodenale*

DISCUSSION: Salmonellosis is an infection caused by *Salmonella* bacteria. Most people infected with *Salmonella* develop diarrhea, fever, vomiting, and abdominal cramps 12 to 72 hours after infection.^[1] Infections are usually contracted from sources such as: Poultry, pork, beef and fish (seafood), if the meat is cooked inadequately. Food poisoning due to *Salmonella* spp are usually sporadic and, in a great majority of cases, there is no identifiable risk factors.^[2] In view of the unsatisfactory storage of food items and rodent nuisance in the house, and food laid out at room temp for long time, by cross contamination as a result of poor hygiene and from faeces of an infected animal or a person. However, the source of contamination cannot be pinpointed.

Ascariasis occurs by eating food or drinks contaminated with *Ascaris* eggs from feces.^[3,4] Hookworm infection is commonly caused by walking barefoot through areas contaminated with fecal matter. The most significant risk of hookworm infection is anemia, secondary to loss of iron (and protein) in the gut.^[3,5]

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A recent study done in CMC Vellore (2013).^[6] showed the prevalence of soil transmitted helminths to be high with *Ancylostoma duodenale*, followed by *Ascaris lumbricoides*. The factors contributing to these infections include bare-foot walking, presence of untrimmed long dirty nails, not washing hands before eating, usage of a designated area for defaecation, and having domestic animals.^[7] In this case report the patient is an agriculture worker with low socio-economic status and low education level.

CONCLUSION: Food poisoning is a serious health problem. It can cause severe illness and even death. Food poisoning is frequently caused by bacteria from food that has been poorly handled, stored or cooked. Parasitic infections are more common in developing countries due to unhygienic practices. Soil transmitted helminths are common among agriculturist. It is strongly suggested not to use untreated manure to fertilize fruits and vegetables, to wash hands with soap and water before handling foods and eating, and after using toilets which is mandatory to prevent food borne illness and parasitic infections.

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