



LAB #: F\$\$\$\$\$!\$\$\$\$\$
 PATIENT: GUa d'YDUjYbh
 ID: P\$\$\$\$\$
 SEX: Male
 DOB: %%%1970

AGE: 43

CLIENT #: %& ()
 DOCTOR:
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Parasitology/stool x3

PARASITOLOGY/MICROSCOPY *	
Sample 1	
Few	Blastocystis hominis
Rare	RBC
Rare	Yeast
Sample 2	
None	Ova or Parasites
Rare	Yeast
Sample 3	
Rare	Blastocystis hominis
Rare	Yeast
*A trichrome stain and concentrated iodine wet mount slide is read for each sample submitted.	

PARASITOLOGY INFORMATION

Intestinal parasites are abnormal inhabitants of the gastrointestinal tract that have the potential to cause damage to their host. The presence of any parasite within the intestine generally confirms that the patient has acquired the organism through fecal-oral contamination. Damage to the host includes parasitic burden, migration, blockage and pressure. Immunologic inflammation, hypersensitivity reactions and cytotoxicity also play a large role in the morbidity of these diseases. The infective dose often relates to severity of the disease and repeat encounters can be additive.

There are two main classes of intestinal parasites, they include protozoa and helminths. The protozoa typically have two stages; the trophozoite stage that is the metabolically active, invasive stage and the cyst stage, which is the vegetative inactive form resistant to unfavorable environmental conditions outside the human host. Helminths are large, multicellular organisms. Like protozoa, helminths can be either free-living or parasitic in nature. In their adult form, helminths cannot multiply in humans.

In general, acute manifestations of parasitic infection may involve diarrhea with or without mucus and or blood, fever, nausea, or abdominal pain. However these symptoms do not always occur. Consequently, parasitic infections may not be diagnosed or eradicated. If left untreated, chronic parasitic infections can cause damage to the intestinal lining and can be an unsuspected cause of illness and fatigue. Chronic parasitic infections can also be associated with increased intestinal permeability, irritable bowel syndrome, irregular bowel movements, malabsorption, gastritis or indigestion, skin disorders, joint pain, allergic reactions, and decreased immune function.

In some instances, parasites may enter the circulation and travel to various organs causing severe organ diseases such as liver abscesses and cysticercosis. In addition, some larval migration can cause pneumonia and in rare cases hyper infection syndrome with large numbers of larvae being produced and found in every tissue of the body.

One negative parasitology x1 specimen does not rule out the possibility of parasitic disease, parasitology x3 is recommended. This exam is not designed to detect *Cryptosporidium* spp, *Cyclospora cayetanensis* or *Microsporidia* spp.

GIARDIA/CRYPTOSPORIDIUM IMMUNOASSAY			
	Within	Outside	Reference Range
Giardia intestinalis	Neg	Neg	Neg
Cryptosporidium	Neg	Neg	Neg

Giardia intestinalis (lamblia) is a protozoan that infects the small intestine and is passed in stool and spread by the fecal-oral route. Waterborne transmission is the major source of giardiasis.

Cryptosporidium is a coccidian protozoa that can be spread from direct person-to-person contact or waterborne transmission.

Comments:

Date Collected: 09/09/2013
 Date Received: 09/10/2013
 Date Completed: 09/18/2013

INTRODUCTION

This analysis of the stool specimen provides fundamental information about the overall gastrointestinal health of the patient. When abnormal microflora or significant aberrations in intestinal health markers are detected, specific interpretive paragraphs are presented. If no significant abnormalities are found, interpretive paragraphs are not presented.

Microscopic yeast

Microscopic examination has revealed yeast in this stool sample. The microscopic finding of yeast in the stool is helpful in identifying whether the proliferation of fungi, such as *Candida albicans*, is present. Yeast is normally found in very small amounts in a healthy intestinal tract. While small quantities of yeast (reported as none or rare) may be normal, yeast observed in higher amounts (few, moderate to many) is considered abnormal.

An overgrowth of intestinal yeast is prohibited by beneficial flora, intestinal immune defense (secretory IgA), and intestinal pH. Beneficial bacteria, such as *Lactobacillus* colonize in the intestines and create an environment unsuitable for yeast by producing acids, such as lactic acid, which lowers intestinal pH. Also, *Lactobacillus* is capable of releasing antagonistic substances such as hydrogen peroxide, lactocidin, lactobacillin, and acidolin.

Many factors can lead to an overgrowth of yeast including frequent use of antibiotics (leading to insufficient beneficial bacteria), synthetic corticosteroids, oral contraceptives, and diets high in sugar. Although there is a wide range of symptoms which can result from intestinal yeast overgrowth, some of the most common include brain fog, fatigue, recurring vaginal or bladder infections, sensitivity to smells (perfumes, chemicals, environment), mood swings/depression, sugar and carbohydrate cravings, gas/bloating, and constipation or loose stools.

A positive yeast culture (mycology) and sensitivity to prescriptive and natural agents is helpful in determining which anti-fungal agents to use as part of a therapeutic treatment plan for chronic colonic yeast. However, yeast are colonizers and do not appear to be dispersed uniformly throughout the stool. Yeast may therefore be observed microscopically, but not grow out on culture even when collected from the same bowel movement.

Parasites

Parasites were detected by microscopic examination in this stool specimen. Intestinal parasites are abnormal inhabitants of the GI tract that live off and have the potential to cause damage to their host. Factors such as contaminated food and water supplies, day care centers, increased international travel, pets, carriers such as mosquitoes and fleas, and sexual transmission have contributed to an increased prevalence of intestinal parasites.

In general, acute manifestations of parasitic infection may involve diarrhea with or without mucus and/or blood, fever, nausea, or abdominal pain. However, these symptoms do not always occur.

Consequently, parasitic infections may not be diagnosed and eradicated. If left untreated, chronic parasitic infections can cause damage to the intestinal lining and can be an unsuspected cause of illness and fatigue. Chronic parasitic infections can also be associated with increased intestinal permeability, irritable bowel syndrome, irregular bowel movements, malabsorption, gastritis or indigestion, skin disorders, joint pain, allergic reactions, decreased immune function, and fatigue.

Murray MT. Stomach Ailments And Digestive Disturbances. Rocklin, CA: Prima Publishing;1997.

Gittleman AL. Guess What Came to Dinner Parasites And Your Health. New York, NY: Penguin Group; 2001.

Blastocystis hominis

Blastocystis hominis was identified in this specimen. Blastocystis hominis is a common protozoan found throughout the world. Blastocystis is transmitted via the fecal-oral route or from contaminated food or water.

Whether Blastocystis infection can cause symptoms is still considered controversial. Symptoms may be compounded by concomitant infection with other parasitic organisms, bacteria, or viruses. Often, B. hominis is found along with other such organisms. Nausea, diarrhea, abdominal pain, anal itching, weight loss, and excess gas have been reported in some persons with Blastocystis infection.

Metronidazole has been the traditionally considered the most effective drug (recommended adult dosage varies from 250 mg bid for 5-7 days to 750 mg tid x 10 days). Iodoquinol is also an effective medication (650 mg tid x 20 days). Recommended therapy can also eliminate G. lamblia, E. histolytica and D. fragilis, all of which may be concomitant undetected pathogens and part of patient symptomatology. Various herbs may be effective, including oil of oregano. Limit refined carbohydrates in diet.

For more information:

1. Albrecht H, Stellbrink HJ, Koperski K, et al. Blastocystis hominis in human immunodeficiency virus-related diarrhea. Scand J Gastroenterol 1995;30:909-14.
2. Markell EK, Udkow MP. Blastocystis hominis: pathogen or fellow traveler Am J Trop Med Hyg 1986;35:1023-6.
3. Miller RA, Minshew BH. Blastocystis hominis: An organism in search of a disease. Rev Infect Dis 1988;10:930-8.
4. Udkow MP, Markell EK. Blastocystis hominis: prevalence in asymptomatic versus symptomatic hosts. J Infect Dis 1993;168:242-4.
5. Zuckerman MJ, Watts MT, Ho H., et al. Blastocystis hominis infection and intestinal injury. Am J Med Sci 1994;308:96-101.

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Sanford JP. The Sanford Guide to Antimicrobial Therapy. 35th edition. Gilbert DN, Moellering Jr, RC, Sande MA, eds. Hyde Park (VT): Antimicrobial Therapy Inc; 2005.

