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TEST PATIENT

Date of Birth : 01-Jan-1959
Sex : F
Collected : 11/Aug/2021
Received: 11-Aug-2021

Lab id : **3759609** UR#:

Dr.TEST DOCTOR

TEST HEALTH CENTRE
123 TEST STREET
BURWOOD VIC 3125

COMPLETE DIGESTIVE STOOL ANALYSIS - Level 3+

MACROSCOPIC DESCRIPTION

	Result	Range	Markers
Stool Colour	**Brown**	Brown	**Colour** - Brown is the colour of normal stool. Other colours may indicate abnormal GIT conditions.
Stool Form	**Formed**	Formed	**Form** -A formed stool is considered normal. Variations to this may indicate abnormal GIT conditions.
Mucous	**NEG**	< +	**Mucous** - Mucous production may indcate the presence of an infection, inflammation or malignancy.
Occult Blood	**NEG**	< +	**Occult Blood**- The presence of blood in the stool may indicate possible GIT ulcer, and must always be investigated immediately.

MICROSCOPIC DESCRIPTION

	Result	Range	Markers
RBCs (Micro)	**NEG**	< +	**RBC(Micro)** - The presence of RBCs in the stool may indicate the presence of an infection, inflammation or haemorrhage.
WBCs (Micro)	**0**	< 10	**WBC(Micro)** - The presence of WBCs in the stool may indicate the presence of an infection, inflammation or haemorrhage.
Food Remnants	**+**	< ++	**Food Remnants** - The presence of food remnants may indicate maldigestion.
Fat Globules	**NEG**	< +	**Fat Globules** -The presence of fat globules may indicate fat maldigestion.
Starch	**NEG**	< +	**Starch** - The presence of starch grains may indicate carbohydrate maldigestion.
Meat Fibres	**NEG**	< +	**Meat Fibres** - The presence of meat fibres may indicate maldigestion from gastric hypoacidity or diminished pancreatic output.
Vegetable Fibres	**+**	< ++	**Vegetable Fibres** - The presence of vegetable fibres may indicate maldigestion from gastric hypoacidity or diminished pancreatic output.

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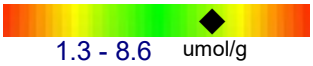
DIGESTIVE AND ABSORPTION MARKERS

Short Chain Fatty Acids, Putrefactive

12.0



Short Chain Fatty Acids, Putrefactive - Putrefactive SCFAs are produced when anaerobic bacteria ferment undigested protein, indicating protein maldigestion.

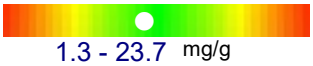
Pancreatic Elastase 1

180

Pancreatic Elastase is used to assess pancreatic exocrine function.
Pancreatic insufficiency is associated with diabetes mellitus, cholelithiasis, pancreatic tumour, cystic fibrosis and osteoporosis.This test is not affected by substitution therapy with enzymes of animal origin. PE-1 levels decline with age.

Long Chain Fatty Acids

13.0



Long Chain Fatty Acids - Elevated levels of total LCFAs in the stool may indicate inadequate lipid absorption

Absorption Comment

Putrefactive SCFAs are ELEVATED:
Suspect hypochlorhydria, exocrine pancreatic insufficiency, or protein malabsorption.
Other causes include bacterial overgrowth of the small bowel, gastrointestinal disease, and/or rapid transit time.

PANCREATIC ELASTASE: MILD TO MODERATE INSUFFICIENCY.
Pancreatic insufficiency reflects trypsin, chymotrypsin, amylase and lipase activity.
PE1 is also useful in monitoring exocrine pancreatic function caused by: Chronic pancreatitis, Autoimmunopathies & connective tissue diseases, Chronic inflammatory bowel disease, Intestinal malabsorption with mucosal atrophy.
Treatment:
• Digestive enzyme supplementation
• A low-fat diet to control steatorrhea (excess fat in stools)
• Vitamin and mineral supplementation
• Investigate underlying causes for reduced pancreatic function (for eg. Coeliac disease, duodenal enteropathy, pancreatitis).

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METABOLIC MARKERS

Markers		
b-Glucuronidase	5000.0	337.0 - 4433. U/g
pH	7.8	6.3 - 7.7
Short Chain Fatty Acids, Beneficial	12.0	> 13.6 umol/g
Butyrate	40.0	10.8 - 33.5 %
Acetate	40.0	44.5 - 72.4 %
Propionate	15.0	0.0 - 32.0 %
Valerate	5.0	0.5 - 7.0 %

b-Glucuronidase - Increased levels of b-Glucuronidase may reverse the effects of Phase II detoxification processes.

pH - Imbalances in gut pH, will influence SCFA production and effect.

Short Chain Fatty Acids, Beneficial (Total) - Elevated SCFAs may indicate bacterial overgrowth. Inadequate SCFAs may indicate inadequate normal flora.

Butyrate - Decreased Butyrate levels may indicate inadequate colonic function.

Acetate - Decreased Acetate levels may indicate inadequate colonic function.

Propionate - Decreased Propionate levels may indicate inadequate colonic function.

Valerate - Decreased Valerate levels may indicate inadequate colonic function.

Metabolic Markers Comment

In a healthy gut Short Chain Fatty Acids are exhibited in the following proportions;
Butyrate, Acetate, Propionate (16% : 60% : 24%)

LOW BENEFICIAL SCFAs:
Low Short chain Fatty Acid, Beneficial levels may be indicated by reduced beneficial flora such as Lactobacillus, Bifidobacterium, Escherichia and other normal bacterial gut flora levels.
Suspect increased susceptibility to pathogenic bacterial infection, increased toxic enzyme exposure, increased risk for mucosal barrier defects and immune dysregulation.

ELEVATED BUTYRATE LEVEL:
Butyrate is a short chain fatty acid that is extremely important for gut health. It is the main fuel source for gut cells, which helps keep the gut cell barrier intact, can reduce inflammation, and helps control appetite. Elevated levels are associated with carbohydrate intolerance and diarrhoea.

beta GLUCURONIDASE ELEVATED:
Suspect increased activation and enterohepatic recirculation of toxins, hormones, and various drugs within the body. Increased burden on glucuronidation pathway is associated with increased risk of colorectal, prostate and breast cancers.

Treatment:
Consider Calcium-D-glucarate which may assist with lowering B-glucuronidase levels. It is also suggested to introduce a low-calorie/vegetarian diet for 4 weeks which may also be beneficial with lowering faecal B-glucuronidase levels.

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VALERATE:
Valerate is a short chain fatty acid that is important for gut health. Although Acetate, propionate, and butyrate make up the the most abundant SCFAs in gastrointestinal tract (95%), Valerate and other SCFA's make up the remaining and work optimally when within range.

HIGH pH PRESENT: Low Acidity stool.
Alkaline pH may be related to decreased SCFA's (particularly butyrate) and suggests inadequate intake or digestion of fibre.

Elevated pH.
Suspect: Increased risk of colon cancer, Inadequate bacterial short chain fatty acid production,

Causes include insufficient flora, dietary fiber, or water, Inadequate acid-producing organisms,Lactobacillus sp., Bifidobacteria, etc., Hypochlorhydria, Ammonia
production in bowel, May be stimulated by high meat diet, Slow transit time (more time for short chain fatty acid absorption).

Consider the following actions:
Consider supplementation with probiotics (including Lactobacilli and Bifidobacteria),
Increase dietary fiber (esp. soluble) and water will foster SCFA production and help to normalize transit time,
Support digestion, Supplementation with betaine HCl or herbs to stimulate gastric acid production, including gentian, ginger, peppermint, cardamon, etc.

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INFLAMMATION MARKERS

Calprotectin

Range

Normal <50 ug/g
66.0 Mildly Elevated 50 -100 ug/g
Highly Elevated 100+ - 250 ug/g
Extremely Elevated >250 ug/g

Comments: Calprotectin is a protein that is abundant in neutrophilic granulocytes and is a sensitive and direct indicator of bowel inflammation.
In patients with Inflammatory Bowel Disease (Crohn's Disease, Ulcerative Colitis), including those in relapse, there is a close positive correlation between faecal Calprotectin levels and the degree of inflammation; patients with Irritable Bowel Syndrome do not have elevated levels of Calprotectin. Calprotectin is very stable in stool samples.

Secretory IgA, Faecal

249.0

400.0 - 2000.0 mg/L

Comment - Secretory IgA is an antibody responsible for immune function of the GIT mucous membranes. Elevations may indicate a pathogen infection/overgrowth.

Transglutaminase IgA

143.0

10.0 - 157.0 ug/g

Comment- Tissue transglutaminase is the most specific test for Coeliac Disease. Gluten-sensitive patients react to Gliadin (found in wheat, barley and rye gluten) and to an antigenic component of the gut endomysium, now known to be tissue Transglutaminase (tTg), which uses gliadin as a substrate in creating antigenic neo-epitopes which generate the immune response in genetically susceptible individuals. After several weeks on a Gluten-free diet, tTg antibody levels may return towards normal levels.

Inflammation Markers Comment

CALPROTECTIN MILDLY ELEVATED:
MILD TO MODERATE inflammation of the GIT.
Patients without GIT inflammation and untreated IBS sufferers have levels below 50 ug/g.
The inflammatory response could be due to IBD, infection, polyps, neoplasia, or the use of non-steroidal anti-inflammatory drugs (NSAIDs).
Calprotectin may also be elevated in children with chronic diarrhea secondary to cow's milk allergy or multiple food allergies.

Whether inflammatory or neoplastic, the cause of elevated calprotectin MUST be ascertained by endoscopy or radiography. If these evaluations do not yield signs of overt disease, other tests may be considered to uncover causes of chronic bowel inflammation:
- Intestinal Dysbiosis Assessment - Organic Acids
- IgG/IgA 96 Food Allergy Assessment
- Celiac Antibodies Panel

FAECAL TRANSGLUTAMINASE IgA: Negative
Tissue Transglutaminase is the most specific test for Coeliac Disease.
Levels less than 100 are considered NEGATIVE.

Treatment:
No treatment required. However, If there is clinical suspicion of Coeliac disease consider testing serum Coeliac markers.
Also assess IgG/IgA Food sensitivity tests to identify specific food intolerances.

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TUMOUR/ULCER MARKERS

H. PYLORI, Antigen

POSITIVE

Comment - Helicobacter Pylori antigen indicates the patient's current status and is not affected by the presence of other organisms, antacids, barium sulphate, blood or fat. This test may be used on its own to monitor the success of eradication therapy one month after completion of the therapy.

M2 Pyruvate Kinase

	Range
	<= 4U/ml
8.3	>4 U/ml

Comment - The majority of human tumours strongly over-express the tumour M2 isoform of the glycolytic enzyme Pyruvate Kinase (M2-PK), which is released from tumour cells and is quantitatively detectable in body fluids. M2-PK is the key regulator of tumour metabolism and its measurement in faeces identifies gastrointestinal tumours, even in the absence of gastrointestinal bleeding.

Tumour/Ulcer Markers Comment

H. PYLORI ANTIGEN:
This test, if POSITIVE, indicates the presence of a current infection and is not affected by the presence of other organisms, antacids, barium sulphate, blood or fat.
If the patient has diagnosed gastritis or a peptic ulcer consider:
- Standard triple therapy: eg. PPI, clarithromycin and amoxicillin/or metronidazole, 7-14 days
- Lactobacillus Probiotics

If the patient is asymptomatic consider natural products including:
- Black currant seed oil and fish oil
- Lactobacillus Probiotics
- Vitamin C
- Mastic gum.

M2-PYRUVATE KINASE: POSITIVE
M2-PK values greater than 4 U/mL may indicate gastrointestinal adenoma, colorectal cancer or other gastrointestinal carcinomas.

PLEASE NOTE:
Reference range is based on an adult population.
Raised levels can also occur in acute and chronic inflammatory bowel disease and other digestive tract diseases, so these conditions need to be excluded firstly.
Suggest repeat test for M2-PK to verify the current result.
M2-PK has a lower sensitivity and specificity in diagnosing pancreatic cancer compared to Ca 19-9. However, in patients with adenocarcinoma there is a simultaneous increase of M2-PK and Ca 19-9. In addition, M2-PK is more commonly elevated in metastatic disease and may be an additional criterium to decide on radical surgery of pancreatic cancer.
Tumor M2-PK has a higher sensitivity than markers CEA and CA72-4, and is a valuable tumor marker for the detection of gastrointestinal cancer.

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BENEFICIAL BACTERIA

	Result	Range		Result	Range
Bifidobacterium longum.	2+	2 - 4+	Lactobacillus plantarum	1+ *L	2 - 4+
Bifidobacterium bifidum	1+ *L	2 - 4+	Lactobacillus rhamnosus.	2+	2 - 4+
Bifidobacterium animalis	2+	2 - 4+	Lactobacillus paracasei	1+ *L	2 - 4+
Bifidobacterium pseudocaten.	1+ *L	2 - 4+	Lactobacillus casei	2+	2 - 4+
Bifidobacterium breve	2+	2 - 4+	Lactobacillus acidophilus	1+ *L	2 - 4+
Escherichia coli	2+	2 - 4 +	Enterococci	2+	1 - 2 +

COMMENTS:
Significant numbers of Lactobacilli, Bifidobacteria and E coli are normally present in the healthy gut: Lactobacilli and Bifidobacteria, in particular, are essential for gut health because they contribute to 1) the inhibition of gut pathogens and carcinogens. 2) the control of intestinal pH, 3) the reduction of cholesterol, 4) the synthesis of vitamins and disaccharidase enzymes.

PATHOGENIC BACTERIA

Organism	Growth	Range	Classification
Aeromonas species	NEG		
Campylobacter	NEG		
Salmonella	NEG		
Shigella	NEG		
Yersinia	ISOLATED		
Yersinia_enterocolitica	1+ *H	< 1+	Pathogen

COMMENTS:
The above Pathogenic Bacteria are those that have the potential to cause disease in the GI tract. A result of ISOLATED may require a notification to the Department of Health and also cross tested via a secondary method such as PCR or sequencing. Should this be the case, you will also be notified.

OPPORTUNISTIC AND DYSBIOTIC BACTERIA

Organism	Growth	Range	Classification	Organism	Growth	Range	Classification
Klebsiella pneumoniae	4+ *H	< 4+	Possible Pathogen	C. diff Endotoxin A	1+ *H	< 1+	Possible Pathogen
Citrobacter freundii	2+	< 4+	Non-Pathogen	Enterococcus faecium.	2+	< 3+	Non-Pathogen
Klebsiella oxytoca	1+	< 3+	Non-Pathogen	Clostridium difficile	1+	< 3+	Non-Pathogen

COMMENTS:
Commensal bacteria are usually neither pathogenic nor beneficial to the host GI tract. Imbalances can occur when there are insufficient levels of beneficial bacteria and increased levels of commensal bacteria. Certain commensal bacteria are reported as dysbiotic at higher levels.

Dysbiotic bacteria consist of known pathogenic bacteria and those that have the potential to cause disease in the GI tract. A detailed explanation of bacteria that may be present can be found in the Pathogen Summary at the end of this report.

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YEASTS

Organism	Growth	Range	Classification
Rhodotorula spp	**2+**	NEG - +++	Non-Pathogen
Candida albicans	**1+**	NEG - +	Non-Pathogen
Geotrichum spp	**NEG**	NEG - +	
Other Yeasts	**NEG**	NEG - +++	

COMMENTS:
Yeast may normally be present in small quantities in the skin, mouth, and intestine. A detailed explanation of yeast that may be present can be found in the Pathogen Summary at the end of this report.

PARASITES	Result
Blastocystis Hominis	**NOT DETECTED**
Dientamoeba fragilis	**DETECTED**
Cryptosporidium	**NOT DETECTED**
Giardia lamblia	**NOT DETECTED**
Entamoeba Histolytica	**NOT DETECTED**
Other Parasites	**NOT DETECTED**

COMMENTS: Parasites are organisms that are not present in a normal/healthy GIT. A detailed explanation of parasites that may be present can be found in the Pathogen Summary at the end of this report.

TEST PATIENT

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ANTIBIOTIC SENSITIVITIES and NATURAL INHIBITORS

Antibiotics

	Klebsiella oxytoca	Klebsiella pneumoniae	Citrobacter freundii	Yersinia_entero colitica
	Susceptible	Susceptible	Susceptible	Susceptible
Amoxicillin	N/A	N/A	N/A	N/A
Augmentin	N/A	N/A	N/A	N/A
Ciprofloxacin	S	S	S	N/A
Norfloxacin	S	S	S	S
Meropenem	S	S	S	N/A
Cefazolin	N/A	N/A	N/A	S
Gentamycin.	N/A	N/A	N/A	N/A
Trimethoprim/Sulpha	S	S	S	N/A
Erythromycin	N/A	N/A	N/A	N/A
Penicillin.	N/A	N/A	N/A	N/A

LEGEND

S = Sensitive | R = Resistant | N/A = Not Tested

Inhibitors

	Inhibition %	Inhibition %	Inhibition %	Inhibition %
Berberine	60%	80%	60%	80%
Black Walnut	40%	40%	40%	60%
Caprylic Acid	100%	100%	100%	60%
Citrus Seed	40%	40%	40%	60%
Coptis	40%	40%	40%	60%
Garlic-	60%	60%	60%	80%
Golden seal	20%	20%	40%	100%
Oregano	20%	20%	60%	60%

LEGEND

Low Inhibition — High Inhibition

0	20	40	60	80	100

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YEAST - SENSITIVITIES and NATURAL ANTIFUNGALS

	Candida albicans	Rhodotorula spp
Antifungals		
	Inhibition	Inhibition
Fluconazole	<=0.5=S	256=NI
Voriconazole	<=0.12=S	4.0=NI
Itraconazole		

INHIBITION CATEGORY

R	Resistant	This category indicates that the organism is not inhibited by obtainable levels of the pharmaceutical agent
I	Intermediate	This category indicates where the minimum inhibiition concentrations (MIC) approach obtainable pharmaceutical agent levels and for which response rates may be lower than for susceptible isolates
SDD	Susceptible, Dose Dependent	This category indicates that clinical efficay is achieved when higher than normal dosage of a drug is used to achieve maximal concentrations
S	Susceptible	This category indicates that the organisms are inhibited by the usual achievable concentration of the agent
NI	No Interpretative Guidelines	This category indicates that there are no established guidelines for MIC interpreatation for these organisams

	Candida albicans	Rhodotorula spp
Non-absorbed Antifungals		
	Inhibition %	Inhibition %
Nystatin	60%	60%
Natural Antifungals		
	Inhibition %	Inhibition %
Berberine.	60%	60%
Garlic	40%	40%
Black Walnut.	40%	40%
Citrus Seed.	40%	60%
Coptis.	20%	60%
Golden seal.	20%	60%
Oregano.	20%	40%

LEGEND

Low Inhibition — High Inhibition

0	20	40	60	80	100

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PATHOGEN SUMMARY

KLEBSIELLA:

Sources:
Isolated from foods and environmental sources.
Klebsiella appears to thrive in individuals on a high starch diet.
Avoiding carbohydrates such as rice, potatoes, flour products and sugary foods reduces the amount of Klebsiella in the gut

Pathogenicity:
Part of the normal GI flora in small numbers, but can be an opportunistic pathogen.
Klebsiella is capable of translocating from the gut when in high numbers.
Certain strains of K. oxytoca have demonstrated cytotoxin production.

Symptoms:
K. pneumoniae and K. oxytoca have been associated with diarrhea in humans.
Cytotoxin-producing strains are associated with acute hemorrhagic enterocolitis.
Increased colonization of Klebsiella in the stool has been found in HLA-B27 + AS patients.

Treatment:
Currently, standard texts provide no specific antimicrobial guidelines for GI overgrowth of Klebsiella .
Third generation cephalosporins and fluroquinolones are the recommended antimicrobial agents for extra-intestinal sites.

Other Herbal antimicrobials include:
Lemon and clove, Burr marigold, Thyme, Licorice, euphobia, cordyceps.

CITROBACTER:

Sources:
Common in the environment and may be spread by person-to person contact. Several outbreaks have occurred in babies in hospital units. Isolated from water, fish, animals and food.

Pathogenicity:
Citrobacter is considered an opportunistic pathogen and therefore can be found in the gut as part of the normal flora.

Symptoms:
Citrobacter has occasionally been implicated in diarrheal disease, particularly C. freundii and C. diversus and C. koseri

Treatment:
Currently, standard texts provide no specific antimicrobial guidelines for GI overgrowth of Citrobacter.
Carbapenems and fluroquinolones are the recommended antibiotics for extraintestinal sites.

ENTEROCOCCUS:

Description:
Enterococcus species are gram-positive bacterium that are part of normal flora in the human gut. It can however be implicated in a variety of infections of which urinary tract infections are the most common. These infections can be exceptionally difficult to treat due to the genus exhibiting antibiotic resistance.

Sources:
Enterococcus infections spread from person to person through poor hygiene. Because these bacteria are found in faeces, people can transmit the infection if they don't wash their hands after using the bathroom. The bacteria can get into food or onto common touched surfaces.

Treatment:
Treatment of Enterococcus species in gut flora may not be necessary or recommended. However, overgrowth of this genus may be implicated in other infections such as urinary tract infections.

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Enterococci are challenging to treat due their drug-resistant mechanisms. Ampicillin is the preferred antibiotic used to treat enterococci infections if required.

CANDIDA

Sources:
Most sources of Candida infection are thought to be of endogenous origin.While yeast are ubiquitous in the environment and are found on fruits, vegetables and other plant materials, contamination from external sources is linked to patients and health care workers.

Pathogenicity:
A normal inhabitant of the GI tract. May become an opportunistic pathogen after disruption of the mucosal barrier, imbalance of the normal intestinal flora and/or impaired immunity.
Risk factors for colonization include: Antibiotics, corticosteroids, antacids, H2 blockers, oral contraceptives, irradiation, GI surgery, Diabetes mellitus, burns, T cell dysfunction, chronic stress and chronic renal disease.

Symptoms:
The most common symptom attributable to non-invasive yeast overgrowth is diarrhea. Symptoms of chronic candidiasis affect four main areas of the body.
1. Intestinal system - symptoms include: diarrhea, constipation, abdominal discomfort, distention, flatulence and rectal itching.
2. Genital Urinary system - symptoms include: menstrual complaints, vaginitis, cystitis and urethritis.
3. Nervous system - symptoms include: severe depression, extreme irritability, inability to concentrate, memory lapses and headaches.
4. Immune system - symptoms include urticaria, hayfever, asthma, and external otitis.
Sensitivities to tobacco, perfumes, diesel fumes and other chemicals.

Treatment:
Currently, standard texts provide no specific antifungal guidelines for GI overgrowth of Candida.
Oral azoles have been recommended for extra intestinal infections.
Susceptibility testing is advised due to increasing drug resistance.

GEOTRICHUM SPECIES:
Geotrichum are yeast belonging to the Endomyceteaceae family.

Sources:
This organism can be found in soil, dairy products and in human skin and mucosae.

Pathogenicity:
Usually only considered an opportunistic pathogen in immune-compromised hosts. Geotrichum candidum is the etiological agent of Geotrichosis. Geotrichum may also play a role in IBS.

Symptoms:
Symptoms of Geotrichum infection have been associated with diarrhea and enteritis.
Symptoms of Geotrichosis may resemble those of candidiasis.

Treatment:
Currently, standard texts provide no specific antifungal guidelines for GI overgrowth of Geotrichum. Oral azoles and have been recommended for extra intestinal infections. Susceptibility testing is advised owing to increasing drug resistance.

YEAST NOT CANDIDA ALBICANS or RHODOTORULA SPECIES or TRICHOSPORON SPECIES

Sources:
Yeast are ubiquitous in the environment and can be found on fruits, vegetables and other plant materials.
They can also live as normal inhabitants both within and on the body.

Pathogenicity:
Less common yeast such as those outlined in this section should only be considered opportunistic pathogens in the Immunocompromised host.

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BURWOOD VIC 3125

Disseminated infections may include the intestinal tract and are usually associated with immunosuppressive diseases or conditions such as leukemia, organ transplant, multiple myeloma, aplastic anemia, diabetes mellitus with ketoacidosis, ICU patients, lymphoma, solid tumors and AIDS.
Immunosuppressive therapy such as corticosteroids, chemotherapeutic agents and cyclosporine can also enhance fungal overgrowth.

Treatment:
Currently, standard texts provide no specific antifungal guidelines for GI overgrowth of the fungi mentioned.
Treatment is at the discretion of the practitioner, and should be based upon clinical symptoms and a positive reculture of the organism.

CLOSTRIDIUM:
Source:
The genus Clostridium are anaerobic gram positive, spore-forming bacteria.
The organism has many natural habitats including hay, soil, cows, horses and dogs.
Almost 50% of neonates carry this organism asymptomatically as part of their gastrointestinal flora during the first year of life. This rate decreases sequentially to about 3% in adults and less in children over two years of age.

DIENTAMOEBA FRAGILIS:
It is closely related to Histomonas and Trichomonas species. D. fragilis is known to cause non-invasive diarrheal illness in humans.90% of children are symptomatic, whereas only 15-20% of adults are. The most common symptoms associated with D. fragilis are intermittent diarrhea, fatigue, abdominal pain, fatigue, nausea, anorexia, malaise and unexplained eosinophilia. Diarrhea is predominately seen during the first 1-2 weeks of infection and abdominal pain may persist for 1-2 months.

Treatment:
Iodoquinol (650 mg tid x 20 days) or Tetracycline (500 mg qid x 10 days) or Metronidazole (500-750 mg tid x 10 days) have been used to treat D. fragilis. Another alternative is Paromomycin (500 mg tid x 7 days).

YERSINIA SPECIES:
Description:
Yersinia sp. are found naturally in numerous wild and domestic mammals and birds.
Infections may be acquired by ingestion of contaminated food or water, or, rarely by direct person-to person transmission in schools and hospitals.

Yersinia infection has been shown to induce chronic inflammatory bowel disorders such as chronic diarrhea and IBD. Rheumatoid arthritis, reactive arthritis and unspecified arthralgias have also been noted after Yersinia infection.

Treatment:
Intestinal infections with Y. enterocolitica and Y. pseudotuberculosis are usually self limiting and do not require antibiotic therapy. In cases of complicated gastroenteritis, doxycycline or trimethoprim-sulfmethoxazole are the antibiotics of choice.

PLEASE NOTE:
Yersinia detection has been confirmed through a secondary PCR test.
Yersinia is a Notifiable Disease in Queensland, South Australia, Western Australia and Tasmania.
If applicable, the laboratory has notified the relevant state Department of Health.
If applicable, the practitioner is also required to notify the state Dept of Health.

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Date of Birth : 01-Jan-1959
Sex : F
Collected : 11/Aug/2021
Received: 11-Aug-2021

Lab id : **3759612** UR#:

TEST HEALTH CENTRE
123 TEST STREET
BURWOOD VIC 3125

The Four "R" Treatment Protocol

REMOVE	Using a course of antimicrobial, antibacterial, antiviral or anti parasitic therapies in cases where organisms are present. It may also be necessary to remove offending foods, gluten, or medication that may be acting as antagonists. Consider testing IgG96 foods as a tool for removing offending foods.	ANTIMICROBIAL	Oil of oregano, berberine, caprylic acid
		ANTIBACTERIAL	Liquorice, zinc carnosine, mastic gum, tribulus, berberine, black walnut, caprylic acid, oil of oregano
		ANTIFUNGAL	Oil of oregano, caprylic acid, berberine, black walnut
		ANTIPARASITIC	Artemesia, black walnut, berberine, oil of oregano
		ANTIVIRAL	Cat's claw, berberine, echinacea, vitamin C, vitamin D3, zinc, reishi mushrooms
		BIOFILM	Oil of oregano, protease
REPLACE	In cases of maldigestion or malabsorption, it may be necessary to restore proper digestion by supplementing with digestive enzymes.	DIGESTIVE SUPPORT	Betaine hydrochloride, tilactase, amylase, lipase, protease, apple cider vinegar, herbal bitters
REINOCULATE	Recolonisation with healthy, beneficial bacteria. Supplementation with probiotics, along with the use of prebiotics helps re-establish the proper microbial balance.	PREBIOTICS	Slippery elm, pectin, larch arabinogalactans
		PROBIOTICS	Bifidobacterium animalis sup lactise, lactobacillus acidophilus, lactobacillus plantarum, lactobacillus casei, bifidobacterium breve, bifidobacterium bifidum, bifidobacterium longum, lactobacillus salivarius ssp salivarius, lactobacillus paracasei, lactobacillus rhamnosus, Saccaromyces boulardii
REPAIR & REBALANCE	Restore the integrity of the gut mucosa by giving support to healthy mucosal cells, as well as immune support. Address whole body health and lifestyle factors so as to prevent future GI dysfunction.	INTESTINAL MUCOSA IMMUNE SUPPORT	Saccaromyces boulardii, lauric acid
		INTESTINAL BARRIER REPAIR	L-Glutamine, aloe vera, liquorice, marshmallow root, okra, quercetin, slippery elm, zinc carnosine, Saccaromyces boulardii, omega 3 essential fatty acids, B vitamins
		SUPPORT CONSIDERATION	Sleep, diet, exercise, and stress management