TEST PATIENT

Dr.TEST DOCTOR

NutriPATH
Integrative Pathology Services

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Date of Birth : 01-Jan-1962
Sex : F
Collected : 23/Aug/2019
Received: 23-Aug-2019
123 TEST STREET
BURWOOD VIC 3125
Lab id : **3629217** UR#:

TEST HEALTH CENTRE
123 TEST STREET
BURWOOD VIC 3125

COMPLETE DIGESTIVE STOOL ANALYSIS - Level 4+

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	+	< +	**Mucous** - Mucous production may indcate the presence of an infection, inflammation or malignancy.
Occult Blood	++	< +	**Occult Blood**- The presence of blood in the stool may indicate possible GIT ulcer, and must always be investigated immediately.

Macroscopy Comment

BROWN coloured stool is considered normal in appearance.

MUCOUS PRESENT:
The presence of mucous (or pus), which are normally absent, can indicate Irritable Bowel Syndrome, intestinal wall inflammation (from infection), diverticulitis or other intestinal abscess.
Treatment:
- Investigate and treat possible underlying cause.
- Assess other CDSA markers such as calprotectin, M2PK & microbiology markers.

BLOOD PRESENT: Consider blood vessel injury, inflammation, infection, ulceration, hemorrhoids, severe constipation & other injury.
Treatment:
- Investigate the cause of bleeding using other diagnostic tools such as endoscopy
- Assess other CDSA markers such as calprotectin, H. pylori, M2PK & microbiology markers.

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MICROSCOPIC DESCRIPTION

	Result	Range	Markers
RBCs (Micro)	+	< +	**RBC(Micro)** - The presence of RBCs in the stool may indicate the presence of an infection, inflammation or haemorrhage.
WBCs (Micro)	2	< 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	+	< +	**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.

Microscopy Comment

RED BLOOD CELLS DETECTED: Consider blood vessel injury, inflammation, infection, ulceration, hemorrhoids, severe constipation & other injury.
Treatment:
- Investigate the cause of bleeding using other diagnostic tools such as endoscopy
- Assess other CDSA markers such as calprotectin, H. pylori, M2PK & microbiology markers.

FAT GLOBULES PRESENT:
The presence of fat globules in faeces is an indirect indicator of incomplete fat digestion.
Consider high dietary fat intake, cholestasis, malabsorption & digestion (diarrhoea, pancreatic or bile salt insufficiency), intestinal dysbiosis, parasites, NSAIDs use, short bowel syndrome, whipples disease, Crohn's disease, food allergies & sensitivities.
Treatment:
- Prebiotic and probiotic supplementation
- Supplement hydrochloride, digestive enzymes or other digestive aids
- Investigate underlying causes
- Investigate food sensitivities and allergies
- Remove potential irritants
- Assess other CDSA markers such as pancreatic elastase 1, calprotectin, & microbiology markers.

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DIGESTIVE AND ABSORPTION MARKERS

Chymotrypsin

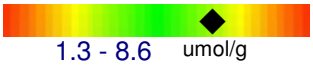
8.2

0.9 - 26.8 U/g

Chymotrypsin - Chymotrypsin is involved in protein digestion. Low levels of chymotrypsin may indicate protein maldigestion due to pancreatic insufficiency.

Short Chain Fatty Acids, Putrefactive

9.9

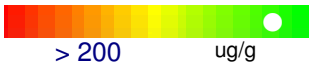


1.3 - 8.6 umol/g

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

Pancreatic Elastase 1

>500



> 200 ug/g

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

26.0

1.3 - 23.7 mg/g

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.

Long Chain Fatty Acids ELEVATED:
Suspect malabsorption, increased mucosal cell turnover, bacterial overgrowth of the small intestine, bile insufficiency.

PANCREATIC ELASTASE: Normal exocrine pancreatic function.
Pancreatic Elastase reflects trypsin, chymotrypsin, amylase and lipase activity.
This test is not affected by supplements of pancreatic enzymes.
Healthy individuals produce on average 500 ug/g of PE-1. Thus, levels below 500 ug/g and above 200 ug/g suggest a deviation from optimal pancreatic function.
The clinician should therefore consider digestive enzyme supplementation if one or more of the following conditions is present:
Loose watery stools, Undigested food in the stools, Post-prandial abdominal pain, Nausea or colicky abdominal pain, Gastroesophageal reflux symptoms, Bloating or food intolerance.

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METABOLIC MARKERS AND SHORT CHAIN FATTY ACIDS

Short Chain Fatty Acids, Beneficial
12.5 > 13.6 umol/g

Butyrate
14.3 10.8 - 33.5 %

b-Glucuronidase
4466.0 337.0 - 4433. U/g

pH
6.2 6.3 - 7.7

Acetate
58.0 44.5 - 72.4 %

Valerate
2.7 0.5 - 7.0 %

Propionate
25.0 0.0 - 32.0 %

Markers

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.

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.

Acetate - Decreased Acetate levels may indicate inadequate colonic function.

Valerate - Decreased Valerate levels may indicate inadequate colonic function.

Propionate - Decreased Propionate levels may indicate inadequate colonic function.

Metabolic Markers Comment

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

Beneficial SCFAs are LOW:
Also indicated by Lactobacilli <2+, Bifidobacteria <4+, E.coli <4+
Suspect increased susceptibility to pathogenic bacterial infection, increased toxic enzyme exposure, increased risk for mucosal barrier defects and immune dysregulation.

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.

LOW pH PRESENT: High Acidity stool.
Consider bacterial overgrowth, lipid or carbohydrate malabsorption, rapid transit time, pancreatic insufficiency.
Treatment:
- Supplement digestive enzymes or other digestive aids
- Assess other CDSA markers such as fat globules, food remnants, transglutaminase IgA & microbiology markers.
- Investigate causes of malabsorption or diarrhoea.

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INFLAMMATION MARKERS

Calprotectin

Range

39.0

Normal <50 ug/g
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.

Eosinophil Protein X

4.0

< 7.0 ug/g

Comment - Eosinophils are functionally involved in the pathophysiology of various inflammatory disorders of the gut. Eosinophil protein X (EPX) offers an alternative to invasive procedures, for evaluating inflammatory disease activity and for predicting relapses in patients with IBD.

Transglutaminase IgA

96.0

10.0 - 100.0 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 Normal:
Low/Absent inflammation of the GIT.
Patients without GIT inflammation and untreated IBS sufferers have levels below 50 ug/g.

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

Negative

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
4.3	>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:
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
Bifidobacteria	++++	2 - 4 +
Lactobacilli	+	2 - 4 +
Eschericia coli	++++	2 - 4 +
Enterococci	+	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 intetinal pH, 3) the reduction of cholesterol, 4) the synthesis of vitamins and disaccharidase enzymes.

OPPORTUNISTIC AND DYSBIOTIC BACTERIA

	Result	Range
Klebsiella	++++	< +++
Citrobacter	++++	< +++
Pseudomonas	NEG	< +++
Proteus	NEG	< +++
Campylobacter	NEG	< +
Salmonella	NEG	< +
Streptococcus	++	< +++
Yersinia	NEG	< +
Other Bacteria.	++	< +++

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.

YEASTS

	Result	Range
Candida albicans	++	< +
Geotrichum spp	NEG	< +
Rhodotorula spp	NEG	< +
Other Yeasts	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	Range
Blastocystis Hominis	NEG	< +
Dientamoeba fragilis	NEG	< +
Cryptosporidium	NEG	< +
Giardia lamblia	NEG	< +
Entamoeba Histolytica	NEG	< +
Other Parasites	NEG	< +

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.

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ANTIBIOTIC SENSITIVITIES and NATURAL INHIBITORS

	Citrobacter freundii	Klebsiella pneumoniae
Antibiotics		
	Susceptible	Susceptible
Ampicillin	NO	NO
Augmentin	NO	NO
Ciprofloxacin	YES	YES
Norfloxacin	YES	YES
Meropenem	YES	YES
Cephalothin	YES	YES
Gentamycin.	NO	NO
Trimethoprim/Sulpha	YES	YES
Erythromycin	NO	NO
Penicillin.	NO	NO
Inhibitors		
	Inhibition %	Inhibition %
Berberine	80%	80%
Black Walnut	80%	80%
Caprylic Acid	80%	80%
Citrus Seed	100%	100%
Coptis	100%	100%
Garlic-	100%	100%
Golden seal	100%	100%
Oregano	100%	100%

LEGEND

Low Inhibition — High Inhibition

0	20	40	60	80	100

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YEAST - SENSITIVITIES and NATURAL ANTIFUNGALS

	Candida albicans
Antifungals	
	Inhibition
Fluconazole	<=0.5=S
Voriconazole	<=0.12=S
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

Non-absorbed Antifungals	
	Inhibition %
Nystatin	60%

Natural Antifungals	
	Inhibition %
Berberine.	60%
Black Walnut.	60%
Citrus Seed.	60%
Coptis.	60%
Garlic	80%
Golden seal.	80%
Oregano.	80%

LEGEND

Low Inhibition — High Inhibition

0	20	40	60	80	100

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WORM EXAMINATION

Ancylostoma duodenale, Roundworm	**Negative**
Ascaris lumbricoides, Roundworm	**Negative**
Necator americanus, Hookworm	**Negative**
Trichuris trichiura, Whipworm	**Negative**
Taenia species, Tapeworm	**Negative**

Negative results indicate the absence of detectable DNA in the sample for the worms reported

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PATHOGEN SUMMARY

OTHER BACTERIA PRESENT:

Organism	Result	Range	Classification

The following group of organisms are deemed commensal, being neither beneficial or pathogenic. Where present, often inadequate levels of beneficial bacteria are also noted. These organisms may become dysbiotic at high levels where treatment may become necessary.

Bacillus species	2+	0 - 3+	Non-Pathogen
Enterococcus faecalis	2+	0 - 3+	Non-Pathogen
Streptococcus agalactiae Group B	3+	0 - 3+	Non-Pathogen
Citrobacter freundii	4+ * H	0 - 3+	POSSIBLE Pathogen
Klebsiella pneumoniae	4+ * H	0 - 3+	POSSIBLE Pathogen

OTHER YEASTS PRESENT:

Organism	Result	Range	Classification
Candida albicans	2+ * H	0 - 1+	POSSIBLE Pathogen

OTHER PARASITES PRESENT:

Organism	Result	Range	Classification

NO PARASITIC ORGANISMS ISOLATED

BACILLUS SPECIES:

Bacillus species are spore forming, gram-positive rods belonging to the Bacillaceae family. There are currently 50 valid species within the genus.

Sources:
Meat dishes are a common source of infection in other species of Bacillus such as B. subtilis and B. licheniformis.

Pathogenicity:
As yet, no toxins or other virulence factors have been identified in association with the symptoms that accompany non-B. cereus species.

Symptoms:
B. licheniformis and B. subtilis are associated with food-borne diarrheal illness.

Treatment:
B. species is almost always susceptible to clindamycin, erythromycin and vancomycin.

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. Enterococci are challenging to treat due their drug-resistant mechanisms.

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Ampicillin is the preferred antibiotic used to treat enterococci infections if required.

STREPTOCOCCUS:

Description:
Streptococcus is a common isolate from gut flora. With the exception of very rare cases, streptococcus species are not implicated in gastric pathogenesis. However, there has been correlations with the presence of streptococcus pyogenes in patients who have, or have recently had scarlet fever. Streptococcus species are also implicated in urinary tract infections and faecal flora are the common source of contamination for urinary tract infections.

Sources:
Recent infections with streptococcus pyogenes or scarlet fever can be linked to the presence of this species in faeces.

Treatment:
Treatment of streptococcus in gut flora is not always recommended. A practitioner may take into consideration a range of patient factors and symptoms to determine if treatment is necessary.

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.

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.

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

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.

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Date of Birth : 01-Jan-1962
Sex : F
Collected : 23/Aug/2019
Received: 23-Aug-2019
123 TEST STREET
BURWOOD VIC 3125
Lab id : **3629217** 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