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<http://www.cfs-recovery.org/docdarren2.html>

The Chronic Candidiasis Syndrome

*Intestinal Candida
and its relation to chronic illness*

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Introduction

The "**Chronic Candida Syndrome**" also known as the "**Candida Related Complex**" (CRC) is the result of intestinal Candida proliferation. It has recently sparked much attention as being a cause or a factor in various health problems. Candida is a fungus of the yeast category. Although pathogenic strains of Candida share simialar characteristics with food yeasts, food yeasts do not carry the same pathogenicity and ability to strongly adhere to and colonize mucous membranes (Saltarelli). Previously, the syndrome was incorrectly dubbed the "Candidiasis Hypersensitivity Syndrome." Candidiasis, an infection with yeast, has been most noted in AIDS or cancer patients under chemotherapy in which the body's ability to defend itself from pathogens is weakened. It has been seen to be extremely pathogenic in these immunocompromised individuals, and

primarily originates from the gastrointestinal complement of Candida. Infants, diabetics and individuals with various immunological dysfunctions have also been seen to be more susceptible to candidiasis.

The Chronic Candida syndrome is a series of vague, sometimes seemingly unrelated symptoms. The patient may even be referred to a psychiatrist for their "neurotic condition" and the failure of "modern science" to find a physiological diagnosis. Routine blood tests usually don't reveal anything unusual.

Because of the drastic visual symptoms in patients with systemic Candidiasis, the thought of Candida as a pathogen that can afflict immunocompetent individuals has been somewhat ignored. Candidiasis, and especially intestinal Candida proliferation, has recently come to light as a pathogen that can strike immunocompetent individuals (those who have "normal" immune systems). It has been subject to much debate, lack of understanding and has brought about new thinking and research. The entire etiology of the disorder is not fully understood as of yet, however thousands of patients with chronic illnesses have been helped or cured with antifungal and diet therapy (Cater-1, Cater-2, Crook-1, Crook-2, Truss-1, Resseger, Jenzer, Trowbridge, etc.). Despite all the research and findings, most of the medical community is ignorant of Candida as a pathogen that can affect immunocompetent individuals, and medical students are still misinformed about the real consequences of intestinal Candida in both the immunocompetent and immunocompromised.

There are many factors that may contribute to Candida proliferation in the intestines. The primary contributing factor is the use of oral antibiotics (esp. tetracycline). It is common knowledge that antibiotics, especially over a period of time or with repeated uses, **will** eliminate much of the normal microbiota of the gastrointestinal tract. However, there are consequences of the elimination of these important bacteria that compete with other organisms for mucosal epithelial cellular receptor sites. It is recognized by the medical community as a whole that as a result of the elimination of the normal flora defense mechanism, yeasts are allowed to grow excessively in the gut. They may also extend and proliferate in the skin with antibiotic use (Ross).

In obviously immunosuppressed patients, antibiotic use often has extreme or even fatal consequences from Candida proliferation due to elimination of the normal flora.

Antibiotics, which are powerless against yeasts, but destroy bacteria, allow yeasts residing in the gut to grow unregulated. The important ecological factors of the gut are often overlooked due to lack of understanding of gastrointestinal immunity. Antibiotics may also allow various strains of bacteria resistant to the specific antibacterial drug to grow excessively, leading to bacterial overgrowth. In this day and age where many physicians increasingly and liberally prescribe oral antibiotics, often unnecessarily, intestinal Candida proliferation is becoming an ever increasing problem. (Have you ever wondered why so many people recently seem to be suffering from Chronic Fatigue Syndrome and Irritable Bowel Syndrome?) The treatment of teenage acne with such drugs as tetracycline has been implicated as one of the most important factors in the Chronic Candidiasis Syndrome.

The misunderstanding of the importance of Candida as an affliction of immunocompetent individuals may be the result of several difficulties. First, physicians must learn and retain enormous amounts of information. Patients expect their physician to know everything, which is quite impossible given the massive amounts of published biological and medical literature. New and rare disorders can take months or years to find or may never be diagnosed. Second, the immense use of antibiotics started in the early 80's, and only now is there a large enough population that has used a significant amount of antibiotics to realize possible side effects. Third, the true significance of the normal microbiota of the gastrointestinal tract has only recently been established. Previously, it was associated with old wives tales and sometimes frivolous naturopathic medicine. However with the introduction of antibiotics, diseases like AIDS especially, and the onset of systemic Candidiasis following antibiotic treatment, it can not be ignored. It is now considered an extremely important defense mechanism by leading microbiologists.

The use of steroids (cortisones), birth control pills, antacid and anti-ulcer medications (Tagamet, Zantac, Pepcid, Axid) etc., in addition to antibiotics are also **very important** contributing factors since Candida proliferates rapidly in the presence of these substances

(Crook, Saltarelli, Segal, Minoli, etc. - common knowledge). Modern day diets extremely high in sugars are also blamed for the condition and is quite reasonable given knowledge of microbiology. (Sugars are rapidly metabolized by fungi, esp. yeasts, and prevent the growth of bacteria). *In fact, eliminating sugars from the diets of various individuals has been demonstrated to be of equal importance with antifungal therapy, although it certainly can not replace it.* Candidiasis is a serious condition and must therefore be seriously considered and treated. Fungal infections of the skin epithelium are generally difficult to eliminate. The intestines, also composed of epithelium, provide a warm, moist, nutrient-rich, environment favorable to Candida growth, especially when provided the above conditions. Unfortunately, some physicians do not have the time to think that because something can't be seen, doesn't mean it's not there.

Candida has also been suggested to play a part in creating what is called a "leaky gut," an unfavorable increase in intestinal permeability. Undigested macromolecule food particles and toxins are allowed to pass directly into the body creating a host of problems. This creates havoc with the immune system when these particles trigger an immune response sensitizing the individual to normally harmless molecules. When this happens, the individual is suggested to become "environmentally sensitive," responding to various harmless inhalants in the environment the person is exposed to as well as various foods. These reactions do not create typical allergic symptoms. Because of the strain on the immune system to break these undigested molecules down, the body's ability to defend against Candida may be further weakened, creating a cycle. These particles may also pass through the blood/brain barrier, be mistaken for neurotransmitters, and produce other mental symptoms that may create a misdiagnosis of neurotic disorder. Research is currently being done at the National Institute for Health to this end.

Candida has been found to produce 79 distinct toxins. These toxins have been shown to cause massive congestion of the conjunctivae (eyelid area), ears, and other parts of the body in rats (Iwata). It is these toxins that are also suggested to be responsible for many of the symptoms that Candida sufferers have as well as the "die off reaction." **Certainly, there are other complex complicating factors**

that are unknown to us at this point which will require further research and funding to find.

The versatility of Candida has been overlooked. It has been considered that only those who are immunosuppressed are susceptible to Candida infections. However, it is known that women who are not immunosuppressed, develop vaginal yeast infections. The only method in which these are diagnosed are by visual signs. Unfortunately, there is no method besides surgical procedures to easily explore the small intestines. Indeed, there have been case reports of gastric candidiasis viewed by upper endoscopy in immunocompetent individuals (Nelson, Minoli). In addition, there has been further research demonstrating that Candida is responsible for and involved in many forms of psoriasis and other dermatosis (Skinner, Crook, James, Oranje, Buslau). There have also been numerous cases of non-immunosuppressed patients who have developed forms of candidiasis (Magnavita, Hussain, Widder, Crook, Kane, Schlossberg, Schwartz, Minoli, etc.). Again, the only reason these patients were diagnosed, was because of visual signs on the exposed mucous membranes or severe symptoms that required surgical procedures. Yeasts are dimorphic organisms. Under malnourished conditions, Candida can convert from its normal budding form to its mycelial form in which the cells are elongated and attached at the ends, allowing it to grow into different areas. Resistance to phagocytosis in its mycelial form is considered to be an important part in the pathogenicity of Candida.

Many physicians try to compare the immunology of the gastrointestinal tract to that of other organs and systems in the body including the circulatory system. They simply recall being told in medical school that candidiasis affects the severely immunosuppressed only and fail to think beyond. As any competent physician should know, the immunology of the gastrointestinal tract **functions separately as local immunity, the weakest of all immunological activity.** Immunoglobulin G has practically no significance in gastrointestinal immunity and the activity of Immunoglobulin A (to help prevent binding to mucosal cells) is under question. "The lumen of the gastrointestinal tract is actually outside the body" and needs to be judged accordingly (Shorter, etc.). The primary defense mechanisms of the intestines are acidity and motility.

Although obviously not entirely true today, but still with validity, E. Metchnikoff, in his book, **The Nature of Man** published in 1908 (Putnam) felt that toxins absorbed in the gastrointestinal tract were the cause of most of the problems acquired by humans. Because of the local immunity and the physiology of the gastrointestinal tract, it is source of a vast number of human afflictions.

The average physician, when questioned about candidiasis, might look in a patient's mouth for signs of massive proliferation and/or just outright tell the patient they don't have it because there are no extreme visual signs. The doctor may also refer to a patient's complete blood count (on routine blood testing) telling the patient that they are not immunosuppressed, therefore they don't have it. This serves as an example of how textbook minded many doctors are. These symptoms are only demonstrative of the massive infections seen in AIDS and cancer patients where the immune system is suppressed and not localized intestinal Candida proliferation. In addition, the gastrointestinal immune response functions separately from the systemic immune response. The Chronic Candida Syndrome, despite much speculation, does not require a defective or depressed immune response to affect an individual. Rather, it is primarily a consequence of other favorable conditions.

The controversy over the existence of this disorder is due to several factors. The major argument against the elimination of normal flora causing yeast proliferation is the **theory** that eventually your intestinal compliment of normal flora will return after stopping antibiotics and yeast proliferation will "just go away." No conclusive studies have been performed demonstrating this. It has been shown that whatever organisms that has presently colonized an area of the GI tract will remain dominant in that area. The return of normal flora to areas of the GI tract does not necessarily mean that this has stopped the growth of other pathogens nor does it mean that Candida proliferation hasn't damaged the GI tract. When stool cultures report growth of normal flora, it does not mean that their is growth along your entire intestinal tract. It is also suggested that a healthy immune system will be able to overcome the proliferation. However, since it is shown that immunocompetent individuals can develop candidiasis, this is

certainly not the case, especially since Candida is so versatile and given favorable conditions in the intestines. Candida even has a unique property in that it can produce "fungal balls" in its acute stage. The second argument is that "yeast in the intestines is normal and harmless." The statement is that, "yeast can be recovered from the stool of healthy individuals." However no mention has been made of the effects of **proliferated** yeast in the intestines and what amount is normal. The colon is home to many pathogenic organisms in healthy individuals, including parasites in 5-10% of the population that physicians wouldn't dare say are harmless if proliferated (A.N.Y.A.S.). No conclusive studies have been performed demonstrating that intestinal yeast proliferation is harmless. In fact, studies have shown the exact opposite. As any woman who has had a vaginal yeast infection knows, it can certainly create quite a problem. It is preposterous to state that heavy growth of yeasts in the intestines, another mucous membrane, is meaningless. Anyone who has had diarrhea from antibiotics will certainly know this as well. Unlike in a woman's vagina, yeasts are provided a perfect environment with enough food and sugars to create rapid proliferation.

The contributing factor to the reluctance of the medical community as a whole to accept the syndrome is the lack of a absolute definitive scientific proof of the Candida/human interaction. There has also been an extreme lack of complete widely published case reports of those who have been cured with anti-yeast therapy. The treatment has preceded some of the research, and its success in many individuals is proof in itself of the Candida/human interaction. Furthermore, failure of doctors to request proper growth medium or request the use of a gram stain and direct microscopic observation to identify the presence of yeast in stool specimens has also contributed to a lack of diagnosis. In addition, many labs consider yeast a "normal flora" and do not report it unless it is specifically asked for. Other potentially hazardous bacteria are also part of the normal flora when not in excess, however parts of the medical community still choose to ignore yeast proliferation despite the facts.

There are still many more reasons lingering why perhaps there is such a reluctance to accept the syndrome:

1. Widespread acceptance of the yeast syndrome will make many doctors who have misdiagnosed these patients appear ignorant.
2. Symptoms of candidiasis can be a big money maker and doctors legally have an excuse not to treat you since as of yet, there is no definitive lab test capable of an absolute diagnosis.
3. The enormous repercussions of the liberal use of antibiotics and the ignorance involved will put many doctors at fault.

There are however many physicians who do not agree with the above. Doctors who have tried antifungal and diet therapy with their patients (maybe as a last resort) have seen their patients lives dramatically turn around in a matter of a few months or less and can no longer deny the existence of this problem. They enjoy the self-satisfaction of knowing they have made a difference in someone's life where others have failed. If your doctor is kind, compassionate, genuinely interested in medicine and helping people (the kind we would all like to have), perhaps he or she will be more open minded to the many areas of medicine that have not been fully explored. If you have been struggling with difficult symptoms or diseases of unknown origin listed below, perhaps your doctor will help you in a trial of therapy. **Remember, however, it is ALWAYS important to keep an open mind to other possibilities.**

Candidiasis and Allergies

Originally, the Candida syndrome was thought to be a result of an allergy to Candida in the gastrointestinal tract. This was thought to lead to a series of allergy related symptoms and the continued presence of Candida in the intestines. It was significant in that many or all patients who were cured with antifungal drugs also had environmental allergies. Hence, the term "Candidiasis Hypersensitivity Syndrome" was created.

The significance of allergies in patients suffering with the Chronic Candidiasis Syndrome, along with increasing data, has lead to a different perspective. An allergy to Candida would promote its destruction in the host. Several studies have demonstrated the significance of IgE antibodies in the defense against Candida

(Saltarelli). IgE antibodies are those primarily associated with allergies. It has been found that individuals with systemic candidiasis have an average of nearly a 2000% increase in IgE to Candida. In patients with vaginal candidiasis, an average of over a 1000% increase of IgE to Candida was seen.

The results of these studies suggest several things:

1. IgE antibody plays a significant role in defense against Candida.
2. Individuals lacking in IgE to Candida (perhaps due to allergies) may have a lower defensive ability against Candida.
3. Since IgE's in patients with candidiasis were also elevated to other antigens, this would suggest that candidiasis may increase allergic responsiveness.

Finally and most importantly, the disruption in IgE production in patients with allergies may suggest that these patients, as a result of allergies, have a compromised IgE response to Candida.

Samples of Published Medical Research

Candidiasis Syndrome and Chronic Fatigue Syndrome

Presented by Dr. Carol Jessop at the Chronic Fatigue Syndrome Conference, April 15, 1989.

This was a report of anti-candida therapy on 1100 patients presenting symptoms of Chronic Fatigue Syndrome, Irritable Bowel Syndrome, headaches, allergic disorders, emotional disturbances (depression, panic attacks, irritability, and anxiety), etc.

After 3 to 12 months of treatment with ketoconazole and a no sugar, no alcohol diet, a major reduction in symptoms was seen in 84% of the patients. "In September of 1987, 685 of the 1100 patients were on disability; in April of 1989, only 12 of the 1100 were on disability."

Candida Causes Diarrhea in the Normal, Immunocompetent Host

As published in *The Lancet*, February 14, 1976.

James G. Kane, Jane H. Chretien, and Vincent F. Garagusi of the Infectious Disease Service, Department of Medicine, Georgetown University Hospital, Washington, D.C. reported on six cases of chronic, persistent, diarrhea, sometimes associated with abdominal cramps, caused by candida. Five of the individuals had no underlying condition and the symptoms lasted as long as three months until treatment was begun. Blood tests were unremarkable and they report that yeast in stools was best identified by direct microscopic observation. "Symptoms disappeared in 3 to 4 days of oral nystatin therapy."

It is interesting that after 20 years since the publication of this material, most physicians do not request yeast identification in stools, nor do many labs routinely report its presence or quantity unless specifically requested.

A comment from a 1988 report published in **Digestion** entitled *Dead fecal yeasts and chronic diarrhea* follows:

"The authors report 20 patients in whom a large number of dead or severely damaged yeast cells, supposedly *Candida albicans* yeasts, were the possible cause of chronic recurrent diarrhea and abdominal cramps. It is suggested that the presence of large numbers of these microorganisms in stools may be considered among the possible etiologies of diarrhea in the "irritable bowel syndrome." The possible source of these yeast-like cells, the causes of cell damage, and the mechanisms by which these organisms may induce diarrhea should be investigated." (Caselli)

Candida has also been shown to cause severe diarrhea in debilitated elderly patients. Despite this, many physicians remain unaware while their patients suffer with diarrhea. (Gupta, Danna)

Intestinal Yeast Causes Psoriasis

As published in The Archives of Dermatology, Volume 120, April 1984:

Nancy Crutcher, M.D., E. William Rosenberg, M.D., Patricia W. Belew, PhD, Robert B. Skineer, Jr., M.D., N. Fred Eaglstein, D.O. of the University of Tennessee Center for the Health Sciences, 956 Court Ave. Room 3C13, Memphis, TN, and Sidney M. Baker, M.D. of New Haven, Connecticut report on 4 cases of **long term, bodily psoriasis (10-25 years) cured** with oral nystatin within several months. Nystatin, a weak antifungal drug, primarily targets intestinal yeast.

As published in the Acta Derm Venereol in 1994:

Robert B. Skionner, Jr., E. William Rosenberg, and Patricia W. Noah report results of studies that demonstrate that psoriasis of the palms is frequently associated with Candida. 7 out of 9 patients were cured or substantially improved after treatment with anti-fungal drugs.

There have also been numerous other studies published that have correlated dermatological diseases with Candida of the skin and gastrointestinal tract (too numerous to list - see references below). One might think that the publication of such information would provoke nothing less than a revolution in medicine. However, obviously, this has not been the case. Some have considered the loss of profits from psoriasis patients as a factor.

It is also known that HIV infected patients have a high rate of seborrheic dermatitis. "There is an increasing controversy about the significance of Pityrosporum in seborrheic dermatitis. On the other hand, recent clinical evidence and experimental data favor the role of intestinal candidiasis in seborrheic dermatitis: a high quantity of Candida in the feces of the affected patients, elevated phospholipase activity of the Candida sp. with special pathogenic relevance for mucosal adhesion and fast and long-lasting regression of seborrheic dermatitis after vigorous therapy with oral nystatin. Similar findings have been recorded in the seborrheic forms of psoriasis." (Oranje)

An abstract about infantile seborrheic dermatitis follows:

"Infantile seborrheic dermatitis (ISD), a disease occurring in the first months of life, is an erythromatosquamous skin disease of unknown origin. This article represents results of microbial studies in 20 patients with ISD. Isolation of candida in high percentage may indicate a preliminary role of this micro-organism in the etiology of this disease. It is striking that this disease often starts after disturbing the microbial flora of the intestinal tract. Often ISD develops during the transition of breastfeeding to humanized cow milk." (3L)

The physician responsible for highly publicizing the Candida syndrome is Dr. William G. Crook, M.D. with the following two books:

- **The Yeast Connection: A Medical Breakthrough.** Professional Books, Jackson Tennessee. ISBN#0-933478-06-02 Library of Congress Catalog Number:83-62508
- **The Yeast Connection and the Woman.** Professional Books, Jackson Tennessee
(NOT JUST FOR THE WOMAN)

You can obtain these from your local bookstore, library, or below.

It is important to note that many doctors, including Dr. Crook who have had the ambition to write about the yeast disorder are ecologists. Some of the information they present is "extremely far from acceptable." These books do not represent all the opinions of other doctors who acknowledge and know of the syndrome. They just represent the ideas of the doctors who have had the motivation to write about their findings.

Most books about the Candida syndrome are written for the patient and do not include much in the line of the science behind the syndrome. One must turn to hard to obtain, but nevertheless existent case studies and research for scientific foundation. Many of the statements in these books about recovering patients only mention that "the patient felt much better" and do not mention concrete changes in symptoms. This may be an additional problem in the lack of widespread acceptance.

Dr. Crook, president of the International Health Foundation, has tried to report all the possibilities behind the syndrome, as well as information he collects from physicians and patients who have dealt with the Candida problem. It is important to note that his book does not carry all the information behind the syndrome and opinions may vary among the doctors treating it, as research in the syndrome is continuing.

Symptoms

As listed in Dr. Crook's books, **The Yeast Connection** and **The Yeast Connection and the Woman**:

Please note that these symptoms may seem vast and broad ranging. It is the presence of multiple symptoms and not a single symptom that may be an indicator of candidiasis. The following symptoms from Dr. Crook's book have gone beyond what research has commonly shown symptoms of candidiasis to be to provide a broader range of possibilities. Please note the references to medical studies and the list of most common symptoms of candidiasis following Dr. Crook's list if this information is not to be used for experimental purposes.

- Fatigue or lethargy
- Feeling of being drained
- Depression or manic depression
- Numbness, burning, or tingling
- Headaches
- Muscle Aches
- Muscle weakness or paralysis
- Pain and/or swelling in joints
- Abdominal Pain
- Constipation and/or diarrhea
- Bloating, belching or intestinal gas
- Women - Troublesome vaginal burning, itching or discharge
- Prostatitis
- Impotence
- Loss of sexual desire or feeling
- Endometriosis or infertility
- Cramps and/or other menstrual irregularities

- Premenstrual tension
- Attacks of anxiety or crying
- Cold hands or feet, low body temperature
- Hypothyroidism
- Shaking or irritable when hungry
- Cystitis or interstitial cystitis

Other

- Drowsiness
- Irritability
- Incoordination
- Frequent mood swings
- Insomnia
- Dizziness/loss of balance
- Pressure above ears...feeling of head swelling
- Sinus problems...tenderness of cheekbones or forehead
- Tendency to bruise easy
- Eczema, itching eyes
- Psoriasis
- Chronic hives (urticaria)
- Indigestion or heartburn
- Sensitivity to milk, wheat, corn or other common foods
- Mucous in stools
- Rectal itching
- Dry mouth or throat
- Mouth rashes including "white" tongue
- Bad breath
- Foot, hair, or body odor not relieved by washing
- Nasal congestion or post nasal drip
- Nasal itching
- Sore throat
- Laryngitis, loss of voice
- Cough or recurrent bronchitis
- Pain or tightness in chest
- Wheezing or shortness of breath
- Urinary frequency or urgency
- Burning on urination
- Spots in front of eyes or erratic vision
- Burning or tearing eyes

- Recurrent infections or fluid in ears
 - Ear pain or deafness
-

More

- Inability to concentrate
 - Skin problems (hives, athlete's foot, fungous infection of the nails, jock itch, psoriasis (including of the scalp) or other chronic skin rashes)
 - Gastrointestinal symptoms (constipation, abdominal pain, diarrhea, gas, or bloating)
 - Symptoms involving your reproductive organs
 - Muscular and nervous system symptoms (including aching or swelling in your muscles and joints, numbness, burning or tingling, muscle weakness or paralysis)
 - Recurrent ear problems resulting in antibiotic therapy
 - Respiratory symptoms
 - Lupus
 - Hyperactivity/Attention Deficit Disorder
 - Recurrent yeast infections in women
-

Symptoms dominantly ascribed to intestinal Candida and symptoms published in research

Physical

- **High sugar foods will drastically increase your symptoms. - This is a primary diagnostic tool.**
- Inflammation of the hair follicles (candidiasis folliculitis) of various parts of the body (feet, legs, arms)
- Extreme lethargy
- Diarrhea, chronic gas, abdominal cramps alleviated by bowel movements. Perhaps labeled with the term "irritable bowel syndrome."
- Lactose intolerance
- Anxiety, Hyperactivity, Attention Deficit Disorder
- Allergies and allergy symptoms, chemical sensitivities
- Panic attacks

- Sinus problems
- Eye fatigue
- Muscle weakness and bone pain
- White tongue and a white coating
- Psoriasis/seborrheic dermatitis/dandruff, dry, itchy skin
- Rectal itching
- Frequent yeast infections in women
- Frequent urination
- Swollen lips/face
- Symptoms worse after waking
- Facial rash
- Avoiding food helps to alleviate symptoms
- Hives
- Chronic inflammation and irritation of the eye and conjunctivae.

Psychological

- Feeling over being intoxicated which leads to a "hangover feeling"
- Obsessive Compulsive Disorder

Many patients with the Candida Syndrome begin to feel that minute chemicals are responsible for their problems. They may have unnecessarily began eliminating certain foods from their diet and be concerned about the water they drink because they feel it contributes to their problems.

Most recently, it has been suggested that the chronic Candida syndrome may play a part in or be the cause of attention deficit and other psychological disorders in children. This especially includes those children who may have been placed on antibiotics for reasons such as chronic ear infections (which recent evidence may support that some are viral and can not be helped by antibiotics!)

Candida may truly be one of the most important pathogens today.

Future research will certainly yield the facts behind the Candida mystery.

Unfortunately, many individuals with unexplainable medical problems, desperate to find a reason, read Dr. Crook's or Dr. Truss's books and give themselves a false diagnosis. Then, they remain convinced that Candida is the cause of their problems, despite outright failure of antifungal treatment. These individuals may hamper widespread acceptance. Care must be given to not overdiagnose or overly attribute the unexplainable to the Candida Syndrome.

Diagnosis

Diagnosis of intestinal candidiasis is very difficult mainly due to the fact that small amounts yeast lives in everyone's body and is difficult to distinguish whether it is invasive or not. The presence of severe allergies in a patient along with a complete case history, symptoms, and a successful trial of antifungal and diet therapy is the most indicative of the syndrome. While intestinal candidiasis is not limited to those with allergies, it is among these patients where the most success in treatment will be found.

One of the best determining factors is whether sugar triggers symptoms. This can be done with challenges or elimination.

Finding an accurate diagnostic method is currently the focus of much research.

Possible means of lab diagnostic procedures are as follows:

- Serum or urine D-arabinitol levels
 - This is a Candida carbohydrate metabolite that is also a neurotoxin. You may have difficulty finding a lab that will do this.(5,6)
- Serum Candida IgG, IgM, and IgA antibody levels will not be definitive since the body's ability to defend against Candida is limited due to its position in the gastrointestinal tract. Positive or negative responses are difficult to interpret. As mentioned above, Candida IgE may help in diagnosis.
- Stool exams for chronic intestinal candidiasis

- **Your doctor may not know, but yeast in routine stool exams is not reported unless specifically requested! A gram stain for yeast along with direct microscopic examination is the most accurate diagnostic tool for Candida. This will avoid quantification inaccuracies that appear with cultures.**
- Negative or positive responses on cultures are inconclusive. Positive stool results are dependant on shedding of Candida from the intestinal walls. Culture negative results can also be the result of the yeast dieing before it can be cultured or improper selection of growth medium. It is also suggested (by Leo Galland, M.D.) that in advanced cases, the sigmoid colon produces a chemical preventing yeast from growing on normal culture medium, therefore he reccommends direct microscopic observation and special staining.
- It is imperitive that the patient do the stool collection at home at a time when their symptoms are worst. Several stool analyses should be performed as many physicains know the difficulties in finding a particular pathogen in any given sample.
- **Tha patient must not take antifungal drugs 3 days prior to providing a stool specimen.**
- Presence of oral thrush/white coating on the tongue
 - This is thick patches of growth on the tongue and other areas of the mouth that can be scraped off. This is suggested to be normal in many people, but excessive growth may be an indication, especially if it increases with your symptoms.
 - A culture may be considered if this is present.
- Blood alcohol content over a period of 24 hours with sugar intake.
 - Obviously, the patient should avoid alcoholic beverages/medications prior to doing this test. Any level other than zero may indicate a problem.

Of course, it is important to rule out other common disorders that could lead to the symptoms mentioned above.

Great Smokies Diagnostic Laboratory offers the most comprehensive candida analysis and has references to physicians that use their services.

IDL - Immuno Diagnostic Laboratories also offer comprehensive and unique testing. A list of services they provide to physicians can be obtained by contacting them at:

10930 Bridge Street
San Leandro, CA 945777
Phone: 510-635-4555

Treatment

The following treatment regimen MUST BE FOLLOWED EXACTLY for success.

There are primarily two goals in the treatment of chronic candidiasis syndrome:

1. Destruction of yeast proliferation in the body.
2. Reduction of the factors providing a favorable environment for the growth of yeasts.

It is important to note that for the first few weeks of treatment, your symptoms will become worse as you will face "die off" reactions from the yeast cells releasing their contents as they are broken down by the antifungal drugs. This is commonly seen as headache and lethargy.

I have tried to include some proven natural aids. Many people who suffer from this disorder have learned not to rely on science to help them. However, I don't know of any cases of well documented successful treatment without prescription antifungal drugs. Treatment can take several months before optimal effects begin.

Treatment consists of:

1. **Prescription Antifungal Medicine: See your doctor for info.**
2. **Antibiotic, hormone, and antacid/anti-ulcer medication avoidance:**

Avoid all antibiotics and cortisones (steroids), topical and oral, unless **absolutely** necessary. Small amounts of these can have dramatic effects. Antacids and anti-ulcer drugs have been shown to predispose Candida proliferation.

- This includes topical and oral acne medications containing antibiotics-if you do have candidiasis, these have the potential of making your condition worse.
- **Candida overgrowth is frequently associated with the growth of various other pathogens that may require antibiotic treatment.** Of course, MIC's should be performed to determine the most effective antibacterial.
- Avoid antibacterial deodorants (baking soda works good), soaps, (and hand soaps) containing antibiotics, usually **triclosan**. Antibacterial soaps are mainly the result of paranoia, are unnecessary, and have the potential of breeding resistant bacteria. In addition, exposure to small amounts of pathogenic bacteria is helpful in sensitizing the immune system.
- If you have an allergic skin reaction, you **do not need** steroids. Topical or oral benadryl is best despite what some doctors may tell you. The purpose of cortisones is to aid in healing and reduction of inflammation. However, cortisones do not attack the source of the inflammation, histamine.
- Bacterial skin infections do not always require the use of oral antibiotics and you may try topical antibiotics if necessary.
- As a note, 80% of throat infections are viral and do not require antibiotics.

3. Complex sugar and carbohydrate dietary reduction and protein increase:

Intake of dense complex sugars in the diet MUST be eliminated completely! The reason for sure failure of treatment is the misunderstanding of how important it is to remove these complex sugars from the diet. It is important to

remember that sugars are sugars, whether from natural sources or cane sugar. Antifungal drugs will not be successful without removing sugars from the diet. This includes all sweetened drinks & soda, fruits and fruit drinks, corn syrups, and other high sugar containing products. Past publications have emphasized the fact that Candida ferments and rapidly proliferated in the presence of simple sugars. Not only is this the case, but research has shown that sugars dramatically increase the ability of Candida to adhere to epithelial mucosa cells and may be one of the most important factor in the chronic states of gastrointestinal Candidiasis (Saltarelli).

Be sure to READ YOUR LABELS!!!!

Complex carbohydrates/polysaccharides (starches) and even disaccharides (sucrose - table sugar, lactose, sometimes fructose, etc.) can pass far down the gastrointestinal tract before they are broken down into glucose molecules and absorbed. Candida has been suggested to reside and proliferate further down the gastrointestinal tract. Complex sugars and polysaccharides can therefore be made available to Candida (Chan, common knowledge). High protein diets and elimination of concentrated sweet sugars will help avoid this. Monosaccharides such as glucose (especially) and dextrose (an isomer of glucose) are readily absorbed in the duodenum (at the beginning of the small intestines) Glucose can even be absorbed in the stomach. Small amounts of lactose (milk sugar) in fermented sources may actually be helpful - see below.

On the other hand, it is still unknown whether Candida can dominantly proliferate in the upper gastrointestinal tract in patients with the Candida Syndrome. In that case, complex carbohydrate (starch only) consumption would be favorable since Candida can not directly use long chain carbohydrates, which would pass farther down the gastrointestinal tract. Fungi and yeasts are generally tolerant to the low pH environment found in and near the stomach (Tortora).

4. Increase dietary protein and reduce carbohydrates.

If your doctor lets you try an antifungal drug, I recommend a **protein only** diet along with the medication a couple days a week. YES - it is going to be difficult, but it is the rest of your life at stake!! It is not necessary nor recommended to eliminate all carbohydrates from the diet. In fact, a high protein diet can backfire on you in three respects - 1. The break down of proteins produces ammonia, creating a basic environment favorable to yeast; 2. Undigested proteins that are absorbed through the consequential "leaky gut" can put an excess strain on your immune system; and 3. Carbohydrates are not only necessary for energy, but also **provide food for your normal intestinal flora. Without feeding your normal flora, they will die allowing further proliferation of candida.** A summary of the sugar and carbohydrate content of various products, as well as helpful guidelines of what to eat and what to avoid, is available.

5. Probiotics

Much controversy surrounds the role of the normal flora. However, their role in preventing Candida infection can not be ignored. Since the major contributing factor to Candida proliferation is the elimination of the normal flora, it is absolutely necessary for restoration of these colonies. As intestinal yeast colonies are destroyed by antifungal drugs, it is important that they be replaced by normal intestinal bacteria to help prevent recolonization by Candida. **You can not use normal flora to cure intestinal Candida, only to prevent.**

As stated above, it is well known that the most common reason women get vaginal yeast infections and immunosuppressed patients develop systemic candidiasis is due to the elimination of normal flora (as most women know if they have ever been on courses of antibiotics). This ecology factor in yeast infections can not be disputed. These bacteria don't just "crowd out"

intestinal yeast, but they also produce factors such as lactic acid (from lactose), formic acid, acetic acid, and hydrogen peroxide that help to provide an environment and pH unfavorable to yeasts. Unfortunately, you can not use probiotics to eliminate intestinal Candida because the intestines are subject to colonization only when the walls are lacking a dominant colonizing species.

6. The elimination of yeast containing foods was previously suggested when it was thought that the syndrome was from an allergy to yeasts, as there appears to be some cross reactivity in the antigenic determinants of food yeasts and Candida. As stated above, food yeasts do not carry the ability of pathogenic yeasts to colonize mucous membranes. In fact, consuming large quantities of yeast containing foods may actually help stimulate Candida antibody production as they may share similar epitopes. (The epitope is the part of an antigen in which the antibody recognizes.)

7. Treating Candida related intestinal permeability problems (the leaky gut).

- First, you will need to start a rotation diet after you have eliminated sugars from your diet and have started antifungal medications. This is to help determine what foods you might be hyper-sensitive to and that have the potential of creating the most problems as they pass through the inflamed area of the Candida infected intestines and provoke an immune response. Second, intradermal allergy (difficult to have done) testing will help you determine which foods to avoid. Skin prick testing will primarily yield results from IgE responses and not from IgG antibodies (which results from intestinal permeability problems).
- **DGL**

(deglycyrrhizinated licorice) DGL is derived from licorice and has been demonstrated to aid in the production of

intestinal mucosa, the primary defense mechanisms in the GI tract.

8. Glucosamine and N-acetylglucosamine (NAG)

Numerous studies have shown that glucosamine, a derivative of chitin from fungal cells, has the ability to prevent the binding of Candida to epithelial mucosa cells (Saltarelli). It has also been suggested to directly aid in restoration of the mucosa. This is available in many nutrition stores, and may be derived from other sources.

9. Concanavolin A

This is a lectin (a special type of protein) that has also demonstrated to reduce the adhesive ability of Candida. It is found in soybean agglutinin, wheat germ agglutinin, and jack beans (toxic unless cooked).

10. Digestive enzyme supplements

will help to 1. aid in more complete digestion, possibly alleviating the absorption of undigested food particles; and 2. They will aid in absorption in the upper GI tract so as to prevent undigested food from reaching the lower bowel where most candida is suggested to reside.

11. Low residue diet

Because most yeast lives in the lower bowel, a diet limiting the amount of residue will help limit the growth of Candida.

- Avoiding foods which are difficult to digest and may remain unabsorbed.
- Digestive enzyme supplements as stated above.

12. Natural antifungals - undecylenic acid, gentian violet, caprylic acid, garlic, etc.

These have been determined to have **limited** antifungal action and are available in many nutrition stores. **However, I will reserve judgement because some may also have antibiotic action, especially garlic, which can prove detrimental in chronic intestinal yeast.** Undecylenic acid was used as an antifungal agent before many of the new synthetic drugs were introduced. Of course, they do not carry anywhere near the potency of prescription antifungal agents.

13. Alcohol avoidance.

Whether fiber therapy may help or actually do harm is speculative. One of the primary defense mechanism of the gastrointestinal tract is intestinal motility. Problems with intestinal motility can create an environment favorable for micro-organisms to proliferate.

Question & Answer

Q. Are antifungal drugs antibacterial as well?

A. No, antifungal drugs function by preventing the production of cell cholesterols, primarily ergosterol. Sterols are a component of eukaryotic cells and not prokaryotic bacteria. Sterols are an important component of eukaryotic cell membranes. The lack of sterol production causes collapse of the cell membrane and the cell contents to spill.

Q. How long will I need to stay on antifungal drugs and diet therapy?

A. Just as fungal infections are difficult to eliminate from the skin, there are equally or more to eliminate from the gastrointestinal tract, often requiring more than 3 months of therapy, also depending on dietary sugar and carbohydrate intake. While a significant reduction in symptoms will often be seen in less than a few weeks, it is important to continue therapy until symptoms are eliminated.

Q. I have seen over the counter products for treating candidiasis. Can I use natural or alternative medicine to cure candidiasis syndrome?

A. No, these products have no scientific foundation and simply take advantage of the individual desperate to regain their health.

Q. I have been diagnosed with the Candidiasis Syndrome, have tried several antifungal drugs, have eliminated dietary sugars, and have had no success. What now?

A. With no clear cut definition of diagnosis of Candidiasis Syndrome, besides possibly d-arabinitol testing, a diagnosis can not be suggested without success in treatment. It is unlikely that you have the Candidiasis Syndrome and you should look elsewhere. Candidiasis Syndrome is not the cause of all unknown illnesses.

When you are cured

When you're symptoms have disappeared, it is not advisable to abruptly discontinue therapy. Just because your symptoms are gone doesn't mean the yeast is gone. I recommend continuing the therapy for several months following the relief of symptoms to ensure continued success. After therapy is discontinued, this doesn't mean you can go back to a the typical American high sugar diet. Regular stool exams for the presence of yeasts after therapy can be informative.

It is also important to maintain your diet and health such that yeasts will not return. This includes eating healthy and nutritional awareness, vitamin and mineral supplements, and exercise. Finally, make sure you try and maintain your host of normal flora in the intestines.

One of the biggest pitfalls in why the Candida problem hasn't been truly accepted is the lack of highly detailed published case reports and **major attention by the media**. I can not stress how important it is to 1. Take pictures of all your visual symptoms prior to starting treatment; 2. Keep copies of all your medical records and test results for proof of your problems prior to treatment; and 3. Write a complete **highly detailed** documentary of all your problems and meetings with doctors (30 or so pages is not unrealistic); and 4. Send copies to places that count!! Finally, **encourage your doctor to publish your**

case story in a medical journal. I cannot criticize the editors of many medical journals for not taking an interest in the syndrome.

If you have a story you would like me to post on this site please send it to me in text format. Your name and any other information will be confidential unless you say otherwise. In the future, I would also like to publish a book of case stories which have scientific merit. Please send me the names, addresses and phone numbers of any doctors you know that understand and will help people suffering from yeast disorders as I would like to maintain a list to help others.

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