Fungal Skin Problems that Appear Crusty, Red and Circular

If you have flat, circular red crusty sores, with well-defined edges, or folliculitis, and never ending hive like itching, and other areas on your body where the skin is slightly thick or hard, wet your entire body and wash with an over the counter (OTC) antifungal shampoo, leaving it on for 5 to 10 minutes before rinsing off. Use a soft bath brush to scrub your soapy skin while the shower is turned off during this 5 to 10 minute period of time. Use a heater to warm your bathroom to 80 degrees so you can tolerate standing around wet for 10 minutes. After rinsing off, air dry your body with the heater. Using a towel will tend to wipe off the medicine remaining from the shampoo. Afterwards, do not apply any oil based lotions -- the fungus causing the circular sores is *malessezia*, which is lipophilic, which means it metabolizes fats and oils. Non-comedogenic lotions, like Cetaphil or CeraVe, are non-oily.

Malassezia (previously *pityrosporum*), can also result in tinea versicolor, which is characterized by asymptomatic hypopigmented or hyperpigmented oval, slightly scaly patches measuring 1–3 cm, found on the upper chest, neck, and back. Alternatively, you may have been diagnosed as having seborrheic dermatitis, *Pityrosporum* folliculitis, eczema, or oily dandruff. .

If you instead have psoriasis, which involves larger, thicker, white irregular scaly patches (instead of red circular patches), primarily at your elbows or joints, an antifungal treatment probably will not be effective. However, if you have atopic dermatitis, which involves solid reddened papules (small eruptions resembling pimples) and vesicles (small blister-like elevations on the skin that contain tissue fluid) your itch and scratch cycle may have additional causative factors and an antifungal treatment may not be completely effective but could be helpful.

Three Effective Over the Counter Anti-Fungal Shampoo Treatments for Malassezia

The most effective OTC shampoo is Hegor 150 (Climbazole 1.5%), and was approved in 2009.[1] Hegor 150 is made in France and is available in the US only on EBay and it will be shipped from Europe.

While you are waiting three weeks for your shipment of Hegor 150, you can mail order OTC Nizoral (Ketoconazole 1.0%) shampoo, which is available only online in the US -- after 2011 it has not been sold in brick and mortar drug stores. Nizoral was approved in 1995 and is more effective on *malassezia*,[2] but less so than the Hegor shampoo. Both Climbazole and Ketoconazole work by slowly dissolving fungal cell walls. The only shampoo containing Climbazole sold in the USA is "Mustella Foam Shampoo for Newborns." It probably contains 0.5% Climbazole, or less, and is sold at Target stores and online by many others.

The third alternative shampoo is Selsun Blue (Selenium Sulphide 1.0%), which is sold by all drug stores. Selsun Blue is a 1975 product containing selenium disulfide that activates some of the body's natural defenses against *malassezia* but it does not dissolve the fungal cell walls, which is why Nizoral and Hegor shampoos are recommended. However, the most useful aspect of Selsun Blue is that it is effective **only** against *malassezia* and can thereby provide a quick, easy to purchase diagnosis. Use it for 3 or 4 days, stand in bright sunlight and scratch your scalp. If you see far more white flakes than you ever saw before, you have an abundance of *malassezia*. Alternatively, after using any of these shampoos daily for 3 to 4 days, if your skin turns red in blotches, and flakes off slowly, you have an accurate diagnosis of *malassezia* colonies on your skin.

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[1] www.iranjd.ir/download.asp?code=IJD09124982

[2] http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3100109/ ; *adc.mef.hr/index.php/adc/article/download/887/588*

Also consider applying Selsun Blue Deep Cleansing (salicylic acid 3%) shampoo or Hibiclens (Chlorhexidine Gluconate 4%) occasionally, as fungi are capable of working with other microbes to create symbiotic biofilms, but be careful to keep Hibiclens away from your nostrils, eyes, and ears. Full body application is an off label use of Hibiclens. Selsun's salicylic acid is perhaps a better choice to use as a body-wash to deal with biofilms, but it is a terrible shampoo because it makes hair straw like.

If you have a bacterial skin infection, instead of a fungal skin condition, topical 2% fusidic acid cream (*aka* Fudil or Fucidin) can be mail ordered from India at a cost of about $50 for 20 grams. Fucidin is not sold in the USA, because it is bogged down in an attempt by one manufacturer, Cempra, to obtain a law from the US Congress whereby Cempra has 5-years of exclusivity to sell fusidic acid tablets.[3] Other than big-pharma's profit-motive in the USA, Fucidin has an extremely good track record against bacterial infections worldwide since its introduction in 1962. In fact, it appears that Fucidin is the **only** topical drug effective against gram positive bacteria. (Gram positive bacteria are like staph bacteria, and are the only kind that you are likely to become infected with if you haven't been hospitalized recently, because gram negative bacteria other than cholera are usually found only in hospitals.) However, some people taking oral antibiotics find that the antibiotics make malassezia much worse.[4]

Nevertheless, if your doctor actually took a skin scraping with a razor blade and looked at it under a microscope to accurately diagnose *malassezia*, as most veterinarians would do, and then prescribed 2.5% selenium disulphide, please consider other alternatives. A typical doctor is not very well informed about *malassezia* because it is difficult to culture and study, and the human body has numerous micro biota. However, after DNA genome sequencing on *malassezia* began in 1995, and was accurately concluded in 2005, much medical research has been published and new perspectives on *malassezia* have become widely distributed. Nizoral 2.0% prescription shampoo would be an acceptable prescription choice for a doctor, but in any event, Hegor's Climbazole 1.5% costs only $16 for a 150 ml bottle, is OTC, and is more effective. (However, I believe if your skin barrier is broken or bleeding, Nizoral shampoo rather than Hegor or Mustella shampoo should be used, as explained on page 4 below.)

An OTC veterinary Climbazole based shampoo was available in 2011, but it appears the manufacturer, Duoxo, recently changed the formulation in the US and deleted the Climbazole component.

The use and importing of Climbazole shampoo is legal because the FDA and the EU in 2009 licensed up to 2.0% Climbazole in OTC shampoos. In addition, Climbazole is soluble in isopropanol whereas Ketoconazole is soluble in ethanol, so Hegor's Climbazole shampoo does not have the slight smell like Nizoral shampoo. A 150 ml bottle of Hegor 150 lasts about 3 weeks in daily use, so order three bottles at a time because of the 3-week shipping delay.

Head and Shoulders, a heavily promoted 1960's product, contains zinc pyrithione, 1% or 2%, that is apparently effective on dry dandruff, in other words, where the dandruff is a non-inflammatory condition of the scalp. Zinc pyrithione is thought to improve the bonding and elasticity of the skin, but will **not** treat any part of the red crusty circular inflammation caused by *malassezia*. If your doctor suggests Head and Shoulders, get another opinion. Likewise, none of the other antifungals designed to treat candida, jock itch, athlete's foot, or toenail fungus will have any effect on *malassezia*, except for Lotrimin (Clotrimazole 1%), which is inexpensive and sold everywhere, and could be used to treat biofilms or topical fungi, including *malassezia*. In

[3] cid.oxfordjournals.org/content/52/suppl_7/S542.full.pdf
[4] http://archpedi.jamanetwork.com/data/Journals/PEDS/12008/POA30545.pdf

other words, if you have skin irregularities that are not responsive to Ketoconazole or Climbazole, try Lotrimin to see if your skin responds. Clotrimazole up to a 10% concentration is authorized by the FDA for vaginal use, so it is presumably safe to use anywhere on your skin. Some report that Nystatin is effective, but I have not tried this and don't know much about it.

Corticosteroid lotions in theory will reduce itching, but they cause skin atrophy when used for long periods of time, and always contain oils that will feed *malassezia*. Plus, the histamine rebound after ceasing its use makes the itching problem much worse. While intense itching is one of the most irritating symptoms of a *malassezia* skin condition, in my opinion no one should ever treat it with a topical corticosteroid.[5]

Alternatives Taken Internally

Ketoconazole 200mg tablets are considered effective against *malessezia* and are available by prescription for internal use, but impairment of liver function is a known risk. In addition, you will probably be advised to ingest 400mg of Ketoconazole along with Coca Cola, and then exercise and sweat for an hour, and afterwards to not shower for 3 hours, so that the Ketoconazole can be delivered to your skin, which is not practical for a chronic, recurring immunodeficiency condition. There is no cure, only treatment. However, if you are already immune compromised from some other condition, like Parkinson's or HIV/AIDS, then of course you should follow your physician's advice. Fluconazole tablets are a less harmful antifungal than Ketoconazole tablets, but fluconazole (*aka* Diflucan) is ineffective against *malassezia* and should never be prescribed for it. Climbazole should never be taken internally, although it is safe for topical use.

Treatment Outcomes

All the treatments described here are also useful for dry dandruff, but dry dandruff is merely an annoyance. The same fungus that causes dry dandruff also causes the irritating dermatitis that is seen as itchy red patches all over one's body, but the inflammation must be treated, because the inflammatory skin reaction also causes a histamine response that is harmful to healthy functioning of the adrenal glands if left untreated over the course of a lifetime.

At first, some parts of your skin may appear to turn a red, purple or magenta, which results from your body recognizing that there are fungal foreigners, to which the body's first healing reaction will be inflammation, which is normal. **Do not be dismayed by patches of skin redness** – your body is healing, although it may take weeks or months to become normal.

During the course of this treatment your skin will begin to flake off in small white flakes or in larger white plaques up to 1/4 of an inch. You may ultimately flake off a large portion of the superficial outer layer of your skin, because the fungal plaque or biofilm is composed mostly of proteins and sugars of your own skin. Most of the fungal skin plaques are stiff and less flexible than normal skin, and so the skin may crack and bleed around the plaques. The skin that rubs off may be papery white or surprisingly brown, dark grey or even black, apparently from years of environmental dust being incorporated into a sort of biofilm on the skin.

If you have a flu-like symptoms or slight fever for no apparent reason, it may be a Herxheimer Reaction to the byproducts of the fungus dying off in large numbers. Do not scratch the sores – gently rub off the dead skin. All of the foregoing however should occur with progressively less itchiness. The daily treatment may take weeks or months depending on the level of involvement between the fungus and your immune system, which varies from person to

[5] cornetis.pl/pliki/DK/2004/1/DK_2004_1_7.pdf

person. When your skin has softened and the flaking stops, you can change over to once or twice a week shampoo treatments.

An Effective Antifungal Lotion can be Purchased

It is legal to buy and import Nizoral (Ketoconazole 2%) cream from India without a prescription, for your own use only, at a price of $14 for a 20ml tube, when purchasing six tubes at a time, for a total cost of $84 for 120 ml of cream. As it takes about 12ml of lotion to cover my entire body with lotion, the commercial Nizoral cream was not a viable treatment, because the tubes are tiny, the cream spreads poorly, and I did not have a small response to *malassezia* – it was a large problem all over my entire body that required many months of treatment. Nevertheless, if your doctor prescribes Nizoral 2% cream, you may consider buying Taro 2%, a cheaper generic alternative available with a prescription from many online US pharmacies.

Compounding an Antifungal Lotion

You can legally buy and import Ketoconazole powder from China only for your personal use, and compound a lotion similar to Nizoral 2% or Taro 2% cream, using a 98% Ketoconazole powder (cosmetic grade) at a price of $120.00 for 25 grams.

Home compounding of a final product of 8 ounces of Ketoconazole 2% lotion requires a digital scale accurate to at least 1/10th of a gram, and ½ ounce (15 ml) of 200 proof ethanol (100% denatured wood alcohol) purchased from a chemical supply store, mixed with 4.0 grams of Ketoconazole powder and warmed carefully in a sealed jar, on the stove in a water filled pan, to about 20 degrees below its boiling point of 173 degrees Fahrenheit, for 5 minutes to dissolve the powder. Allow it to cool slightly, and then mix the dissolved Ketoconazole into 8 ounces of Cetaphil lotion in the original lotion container, with 0.6 ml of lemongrass oil. I have found that a 1% Ketoconazole lotion with 0.3% lemongrass oil is equal in effectiveness to a 2% Ketoconazole lotion, using 2.0 grams of Ketoconazole powder to make 8 ounces of 1% lotion. Lemongrass oil appears to work synergistically with Ketoconazole. In this manner, 25 grams of Ketoconazole powder will provide 8 months of treatment with this home compounded lotion.

In this example, purchase an 8 ounce bottle of Cetaphil, pour off 24 grams of the lotion to make space, to use 216 grams of pure Cetaphil lotion. The "sealed jar," used in dissolving the Ketoconazole powder in ethanol, is clear glass, has a plastic stopper with a red rubber seal, and uses a bail type wire closing system, and can be purchased in an upscale food store that sells luxury pancake syrup. A food thermometer, to check the temperature of the water bath, can be purchased at any grocery store. Everclear grain alcohol (ethanol, 191 proof) can be purchased at any liquor store and can be substituted for wood alcohol. Grain alcohol is drinkable so it presumably has less toxicity to the skin than denatured 100% wood alcohol.

Climbazole is solvent in isopropanol (99%). You cannot directly buy US-made Climbazole powder from a manufacturer unless you have a HazMat Certificate, but 25 grams of US-made Climbazole can be purchased OTC at a local chem lab supply store for $94. Home compound this lotion with no more than 0.5% Climbazole, as authorized by the FDA in 2007, and by the EU in 2009 with the restriction that the application not exceed 12% of the skin.

At this time, Climbazole based skin lotions are not sold anywhere in the world. My experience is that Climbazole based lotions are more effective than Ketoconazole based lotions. However, keep in mind that Climbazole based lotions should not be used near the eyes or lips because it is poisonous if ingested. Therefore, I'm **not** currently using Climbazole lotion or

Climbazole 1.5% shampoo above my neck, even though Climbazole is authorized in shampoos and face lotions.

Body washes are not absorbed by the skin as much as a lotion. A 1.2% Climazole body wash can be compounded with 120 ml of Dove Body wash, 1.8 grams of Climbazole, and 1.5 grams of Salicylic Acid used not so much as an exfoliate but to reduce the final pH to 4 to 5, where Climbazole is most effective. 1.5 grams of Salicylic Acid dissolves completely in 3ml of isopropanol, and add 30ml of water because the body wash will thicken dramatically after mixing in the Salicylic Acid. Add the essential oils discussed on page 6 to lessen the medicine like smell. Never ingest Salicylic Acid – it is much more acidic than Aspirin and will severely burn your mouth and throat. Do not use Salicylic body wash if you are dark skinned, as it may cause dark spots where the melanin becomes concentrated.

Using the Compounded Lotion

Shake the compounded lotions each time before using, as they separate slightly. The home compounded lotion with essential lemongrass oil made my eyes slightly bloodshot, so use the commercially available Nizoral 2% cream, or a home compounded lotion without any essential oils, around your eyes. Eyelid skin is very thin and essential oils evidently penetrate to the inside. Two months after first using Ketoconazole lotions I was amazed to discover my eyelids were entirely covered in many layers of sticky, papery skin plaques that slowly flaked off for three months.

I'm currently using an ordinary shampoo, an ordinary face wash, and a Climbazole body wash, and then applying three different home compounded lotions – Ketoconazole 1.5% (no essential oils) on my face; 1.0% Ketoconazole with essential oils on my arms, stomach, lower back and legs; and, Climbazole 0.5%, Ketoconazole 1%, with essential oils only on my upper back. For 100ml of the compounded 1.5% Ketoconazole face lotion, with no essential oils, add 10 ml of CervaVe to create a matte finish, and 5 ml of Eucerin Redness Relief to conceal redness. The compounded three-lotion method is quick and effective, and eliminates the time-consuming wet-shampoo for ten minutes and air-dry procedure. My reasoning for relying on skin lotions is that a rinse-off shampoo is not a very effective delivery system. While hair is somewhat like a textile and absorbs part of any shampoo is applied to it, the skin absorbs much less, but one must also consider that the skin is a large surface area compared to the scalp, as can be deduced from the EU's 2009 report concerning Climbazole.

As no one can predict exactly where the fungus colonies create thickened plaques or biofilms until **after** the affected skin turns flaky white or inflamed red, the lotions are applied over the entire body. I use about 3.5 ounces of lotion per week, or 12ml per day, so you may want to begin treatment with a medicated shampoo, and then compound lotions only if you are still experiencing flaky white or inflamed red skin after two months of using a commercially available shampoo as a body wash. Five unusual observations follow: "Roll A Lotion" will effectively apply lotion to the middle of your back; if the skin on your lips is peeling, drink through a straw; *malassezia* has been reported to cause a loss of hearing that resolved on treatment with Clotrimazole powder;[6] *malassezia* has been reported to colonize silicone in medical catheters so replace the silicone nose pads on your eye glasses; and, research in Saudi

[6] http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2889660/. Surprisingly, and before I found this research, I noticed I had reduced my TV volume by 10% and have better hearing acuity after the plaques on my ears flaked off.

Arabia reported that *malassezia* can colonize soft contact lenses after one week of use, even with daily use of a multipurpose disinfectant.[7]

Pharmaceutical Alternatives

It is legal to buy thirty 200 milligram Ketoconazole Nizoral tablets from India for $65, again, for personal use only. Thirty of these pills yield 5.0 grams of pharmaceutical grade Ketoconazole. However the tablets are rock hard and it takes an hour to pulverize 18 of these tablets into 3.6 grams of Ketoconazole powder, and the tablets include an additional 40% binder by weight that does not dissolve in ethanol. Based on the problem with the binder, pharmaceutical tablets are not recommended for compounding any lotion – it just doesn't work. As discussed above, Ketoconazole has liver toxicity when taken internally and is not recommended for a chronic topical, skin condition.

Natural Alternatives

Researchers in Thailand and Italy report that lemongrass oil is an effective antifungal, especially when added at a 2% concentration to any lotion, shampoo or body wash.[8] I agree, as it does seem to be broad spectrum and very effective.

However, the lemon smell is overwhelming at 2%, so I recommend no more than a 0.3% solution, in a compounded lotion or shampoo. Use a 1ml pipette, or a straw, previously calibrated with water and marked in 0.1ml intervals, to measure the oil and carefully handle the pure lemongrass oil. If spilled, it tends to stain your cuticles a saffron yellow color. If your fingers are very sensitive, wear latex groves as some have reported contact dermatitis from the pure oil. Do not use at concentrations higher than 3%, as all essential oils produce chemical burns at high concentrations. In vitro research from Italy shows somewhat less effectiveness for all other essential oils, including tea tree oil and oregano oil as compared to lemongrass oil, an observation consistent with my own experience. In addition, lemongrass oil is reported to have a very broad spectrum effect on other micro biota, as confirmed by its use in India for thousands of years as a preservative on ancient religious writings.

To improve the overly lemon smell, for 200 ml of lotion or shampoo, consider adding the following essential oils that have antifungal potential and smell good: 2 drops oregano oil, 8 drops Haitian vetiver, 2 drops ylang ylang, 1 drop manuka, 2 drops kanuka Great Barrier Island, 1 drop myrrh, 2 drops black pepper oil, 2 drops spikenard, 1 drop palmarosa, 1 drop Ultrazur G, 1 drop cinnamon leaf, 1 drop rosewood, 2 drops 25% rose blend, and 2 drops clary sage. Vetiver and spikenard have the largest standalone effect on knocking down the lemon smell. The home compounded lotion, with some imagination, smells like a weak version of Vetiver cologne by Guerlain. Never apply a lotion containing essential oils on your eyelids.

Also consider that shaving gels contain oils and lanolin, which is like throwing gasoline on a fire if you are already suffering from *malassezia* skin reactions. *Malassezia* is an unusual fungus, in that is lipophilic, which should be kept in mind when evaluating any treatment. For example, shave before you shower, and add some Nizoral shampoo to the shave gel.

Physicians in China have apparently not been able to find any means of treatment under Traditional Chinese Medicine (TCM) even though Chinese researchers have tried to find such a cure, as TCM is respected by many physicians and researchers educated in China. However, *malassezia* reactions in TCM have been mislabeled as "psoriasis," so my review of TCM based

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[7] http://www.academicjournals.org/AJMR/PDF/Pdf2012/21June/Salih%20and%20Asiri.pdf

[8] *cornetis.pl/pliki/ML/2010/2/ML_2010_2_79.pdf;* www.tm.mahidol.ac.th/seameo/2011-42-2/18-5046.pdf

literature is perhaps speculative. TCM and acupuncture will diagnose the skin condition as internal damp heat and invasive external wind, and will advise a yin replenishing diet. Interestingly, on the final day after three months of once a week acupuncture treatments, I noticed odd 1-inch magenta colored patches in the crooks of both my arms and began to investigate, and ultimately discovered everything I've written here.

Please keep in mind that I'm not a health care professional but felt compelled to investigate because all the doctors and dermatologists I consulted were clueless. If you want to know more, send me a private message and I'll email you the numerous medical studies and textbooks I've acquired on the subject.

Malassezia in Nature

Malassezia is the only member of the Mycota kingdom that is able to metabolize oils. All *malassezia* types that colonize people are also lipid dependent, and as such, will not grow in culture media unless oil is added. (*Malssezia pachydermatis* is not lipid dependent but is thought to cause dermatitis only in dogs and other mammals rather than humans.) *Malassezia's* dimorphic nature, existing as both yeast cells (budding cells) and a much larger hyphae form, can be seen under a microscope by placing a drop of methylene blue, or KOH, on a slide onto which a skin scraping, or clear cellulose acetate tape is placed sticky side down after it has been touched briefly to the skin lesions to pick up superficial scales. Hyphae ("spaghetti") and spores ("meatballs") are visible at 100x.

Malassezia is photo sensitive. Tinea versicolor is an example of the hyphae phase protecting itself from sun damage, and so called "reverse freckles" or white bumps during excess sun exposure are examples of the yeast phase protecting itself from sun damage.

Malassezia prefers skin that is rich in secreted oils, such as the scalp, face, lips, chest, and especially the back. *Malassezia* is normally present on everyone's skin, that is, it's commensal. The reaction that some people have to *malassezia* is not completely understood by medical science, but it is thought to be an immunodeficiency as the fungus co-opts the host's immune reactions so that the host's skin does not recognize the fungus as an invader until the fungus has created a plaque or a biofilm and recruits a keratin barrier in the skin. Some researchers call it a "shag carpet of proteins and sugars" in which fungus grows without being detected. *Malassezia* also interferes with the body's immune system by modifying various interleukins, in order to trick the body from recognizing the fungus as a foreign object, an aspect of medical research that holds promise for the future.

All mammals -- dogs, cats, rhinoceroses, and even sea lions to name a few of the documented cases over the last hundred years -- can potentially suffer from an inflammatory skin reaction to *malassezia*. However, just like people, most of the individual members of any particular mammal species do not suffer an inflammatory skin reaction to *malassezia*, so the problem of skin flare ups continues to puzzle researchers. That other mammals likewise react to *malassezia* tends to refute beliefs that modern environmental toxins are at fault for the inflammatory reaction that some experience. The condition is probably genetic. My father and grandfather had the same skin problems as I do, but my siblings do not. Perhaps the condition has some benefit too, as for example my grandfather was immune to poison ivy.

The condition is far too complicated to explain to people who ask, "What is that spot on your face?" I simply say, "I have an odd genetic condition where my skin produces an excess of keratin." This isn't at all true but it moves the conversation along and appears to satisfy the inquiry. Finally, the condition is infectious to the host but not contagious to other humans or

mammals, except for premature babies, persons with HIV/AIDS or using catheters on dialysis, or with suppressed immune systems.

Good luck!

Calendar of treatments used:

June 4, 2012 to August 9, 2012 -- Selsun Blue 1% shampoo

August 13, 2012 to October 26, 2012 -- Nizoral 1% shampoo

August 27, 2012 to January 5, 2012 -- Nizoral 2% ointment, commercially prepared

October 26, 2012, to January 5, 2012 -- Hegor 1.5% shampoo

November 3, 2012 to December 3, 2012 -- Ketoconazole 2% lotion, home compounded

December 4, 2012 to January 4, 2012 -- Ketoconazole 2% lotion, home compounded with lemongrass and other essential oils

January 5, 2012 to present -- Climbazole 0.5% and Ketoconazole 1% lotion, home compounded, with essential oils, on my back only

January 5, 2012 to present -- Ketoconazole 2% lotion, home compounded without essential oils for my face, and Ketoconazole 1% with essential oils for everywhere else

February 20, 2012 to the present -- 1.2% Climbazole and 1% Salicylic Acid body wash only, not as a shampoo or face wash