Pityriasis Versicolor (Tinea versicolor)

Pityriasis versicolor is a fungal infection of the skin caused by the fungus Malassezia furfur. The infection has a typical skin presentation of hypo or hyper pigmented patches with well demarcated borders and fine scales. These scales are used to make the definitive diagnosis on KOH preparation, which demonstrates a characteristic spaghetti and meatball appearance under the microscope, which represent the hyphae and yeast formations, respectively. The fungus causes hypo and hyperpigmented patches via degradation of fatty acids, which damage melanocytes. It is more common in hot and humid weather. There are various treatments, but classically topical remedies of miconazole or selenium sulfide are used.



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Mechanism

Lipid-Dependent Fungus

Lips Fun-guy

The malassezia fungus flourishes through the degradation of fatty acids. As such, those areas of the body that produce increased amounts of sebum, such as those found on the upper back and shoulders are therefore more commonly affected. The degradation of lipids also produces fatty acids that are damaging to melanocytes.

Fatty Acids Damage Melanocytes

Bacon Acidic-lemon causes Melon to degrade

As a result of the degradation of lipids discussed previously, the fatty acids produced damage surrounding melanocytes and can cause hypopigmented or hyperpigmented patches.

Malassezia Furfur

Mullet Fur

Infection with the fungal organism Malassezia furfur is responsible for pityriasis versicolor. This coccal fungus is essentially the only fungus considered part of normal human flora and requires fatty acids for survival, making it a prime candidate for locations that produce copious amounts naturally, like the trunk and proximal upper extremities indicated previously. Microscopic examination of this oil-loving yeast via lesion scrapings treated with KOH prep reveal a characteristic spaghetti and meatballs appearance, which are the hyphae and yeast, respectively.

Hot, Humid Weather

Hot and Humid Weather with Sun and Clouds

Considering that M. furfur requires fatty acids for survival and human sweat contains more than adequate amounts, it follows that hot, humid weather serves to exacerbate these lesions and the associated cutaneous symptoms.

Signs and Symptoms

Hypopigmentation

Hippo-pig with Hypopigmentation

As mentioned previously, the very pathophysiologic nature of Malassezia furfur preferring the degradation of fatty acids leads to damage to surrounding melanocytes. This allows the classic presentation of pityriasis versicolor as hypopigmented patches with well demarcated borders and fine scales.

Hyperpigmented Patches

Hiker-pig with patches of hyperpigmentation

The damage to the adjacent melanocytes from fatty acid breakdown can alternatively result in hyperpigmented patches with well demarcated borders and fine scales.

Diagnosis

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Spaghetti and Meatball Appearance on KOH Prep

Spaghetti and Meatballs

Diagnosing pityriasis versicolor is made by scraping the lesion and using a KOH prep which results in a characteristic microscopic appearance resembling the classic Italian dish of spaghetti and meatballs. These structures are the hyphae and yeast, respectively.

Fragmented Hyphae with Clusters of Yeast

Fragmented Hyphen

Microscopic examination of lesion scrapings in individuals with pityriasis versicolor demonstrates mildly variable forms of fragmented, truncated, curved, septate hyphae coupled with clusters of yeast cells to produce the classic spaghetti and meatballs appearance.

Treatment

Topical or Oral Antifungals

Ant-tie-fun-guy

As expected in the treatment of a superficial, cutaneous fungal infection, topical antifungals such as miconazole are utilized first. However, recurrence is not unlikely and severe infections may require oral antifungal therapy.

Selenium Sulfide

Selenium Sulfide shampoo bottle

An alternative therapy used in the treatment of pityriasis versicolor is selenium sulfide, which finds its therapeutic modality in its capacity to shed infected stratum corneum to eradicate the fungus. It is also commonly found in shampoos used to combat dandruff.

Zinc

Zinc-zebra

Zinc pyrithione is another dandruff shampoo component that finds employment in treating pityriasis versicolor. It exerts its antifungal properties by disrupting membrane transport processes in fungi.

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