RINGWORM - What's New?

Skin infection is a very important topic in sports medicine for wrestling. It can have a huge negative impact on individual wrestlers, who can be held out of competition, and also, can create a negative impression of our sport in the general public. The organisms causing skin infections are found every where, but the conditions under which we train and compete, make the prevalence of skin infections higher than in many other sports. There are three groups of microorganisms that cause the vast majority of skin infections in wrestling. These are viruses (responsible for herpes), bacteria (responsible for impetigo and boils), and fungi (responsible for ringworm). This article will focus on ringworm and its treatment and prevention.

Despite the name, ringworm is a plant. There are no worms! This type of fungi that grows in skin, are called dermatophytes. They digest a protein in the skin called keratin. Growth of these fungi begins when the spores, which are like the microscopic "seeds" that enter the skin and begin to grow. The growth pattern for ringworm infections are circular patches with scaly, raised borders. Healing in the center produces the typical ring effect. However, rings are not always present. Some people can carry the spores without any itch or rash appearing.

In medical terms we use the word tinea to mean a fungal infection of the skin. There is tinea corporis (body), tinea capitis (head), tinea pedis (athlete's foot), and tinea cruris (jock itch). Ringworm in wrestlers is also referred to as tinea corporis galdiatorum. The conditions necessary for the growth of tinea include: a warm, moist, and dark environment; abrasions; and direct skin to skin contact. Sounds like a wrestling room! The results of a study of high school wrestling teams in Pennsylvania, showed 87% with at least one wrestler with ringworm. Historically, ringworm was often ignored or tolerated. Most cases do not have serious effects, but there has been, and rightfully so, a heightened awareness of the possible transmission of all diseases through competition.

The guidelines set forth by the National Federation of High School Associations require that a wrestler with a skin lesion (sore or rash) have a doctor's authorization to compete. This form states that the condition "is not communicable." The NFHS recommends that standard for this non-communicable state is reached after one week of treatment (two weeks if in the scalp). The NCAA has a standard of 72 hours post treatment. The NCAA also allows the covering of a single lesion, whereas this is not allowed in high schools. The facts are that we do not know at this time with certainty when this non-contagious stage is reached. It seems to be quite variable. Adding to this uncertainty is the fact that there are some people who carry the spores and do not show any outward symptoms, but can be the source of infection in others.

Thankfully, there are a variety of effective drugs. There are over the counter topical creams. Some of these anti-fungals include Desenex, Aftate, Cruex, and Tinactin. More recently, Lotrimin and Lamisil have been added to the arsenal. Lamisil is the medicine of choice given to me by a number of well-respected dermatologists. Wrestlers and trainers would be smart to have a tube in their sport bags. According to Dr. Lawrence Johnson, a dermatologist from Geneva, IL who has worked with USA Wrestling, early lesions of the skin may be difficult to distinguish between herpes, dermatitis, early impetigo, or ringworm. Treatment by these medications are extremely safe, so even if the condition is

misdiagnosed for a day by the wrestler, there is no risk posed by using the ointment. It is very important to obtain a definite diagnosis by a dermatologist. There have been cases when, because of the itch involved, wrestlers will use a hydrocortisone cream. This drug can diminish the symptoms for a while, but the next flare-up will be severe.

Oral medications are also available. These are prescribed in cases involving the scalp, where there are multiple lesions, or sites of infection, in cases of multiple infections on a team, and use to prevent outbreaks in wrestlers who have a history of infection. Dr. BJ Anderson of Minneapolis, has written extensively on this subject and works with many wrestlers, recommends oral Lamisil. He feels that drugs like griseofulvin and fluconazole (Diflucan) are also effective, but for the combination of effectiveness and safety, it is hard to beat Lamisil. If these drugs are prescribed for a period greater than several weeks, liver function is monitored, as there can be some toxicity. Finally, none of these medications are cheap!

The prevention of ringworm infections includes regular screening of wrestlers by a dermatologist, or an athletic trainer who has experience with skin diseases. While the use products such as Kenshield may provide some benefit by providing an actual barrier to the spores, there is no evidence to suggest that it is superior to a program of inspection and quick response. Personal hygiene is of course important. This includes clean workout gear, and showering (including the scalp) right after wrestling. The mat surface should be kept disinfected. This includes reducing the tracking of spores into the area with foot traffic. Some coaches and trainers have their athletes put on their wrestling shoes at matside. To minimize the chance of abrasion, some coaches make sure that the practice gear is smooth and non-abrasive.

While mat surfaces have traditionally received a great amount of attention, studies attempting to cultivate cultures from the surfaces of mats have not been conclusive. Most research stresses the role of skin to skin contact. The vast majority of ringworm infections are found on the upper body. If the mat was the primary mode of transmission, this would not be the case. Anderson attributes the rise in cases of ringworm to the changes we have seen over the last generation, with more emphasis on wrestling on the feet in a contact position. He reviewed old footage and compared to recent matches and found approximately a 30% increase in the amount of head to head, or tie-up contact.

Dr. Tom Kohl, of Reading, Pennsylvania has also done extensive research on skin infections in wrestling. Some of his most recent work has been in the area of ringworm "carriers." These are the people who do not exhibit infections, but carry the spores in their scalp, and can be big time transmitters of ringworm. In my conversation with Dr. Kohl, he told me that he is recommending the periodic team use of Nizoral AD shampoo. This shampoo is now available over the counter, and has the anti-fungal medicine ketoconazole. He feels this may be effective with these "carriers" with teams experiencing persistent outbreaks.

Prophylactic drug therapy (this is the medical term used to describe the use of a drug to prevent contracting a disease) is being used by some dermatologists. Anderson uses Lamisil, whereas Kohl uses a one time per week "pulse" dose of Diflucan. This prophylactic medication is used as teams approach tournament season.

Teams must align themselves with a dermatologist. Dr. Johnson is a great example of a dermatologist who works with local wrestlers from surrounding teams. The high school trainers know that they can refer wrestlers to him and he will see them at the end of regular office hours. Dr. Johnson stresses the need for informed, expert judgment in deciding on the appropriate course of action for individual wrestlers. The time in the season, the level of the wrestler, medical history, family concerns-all of these factors and more go into a decision. Early in the season, he says he is more conservative. Some wrestlers may think that a lesion is ringworm, when in fact it is something else. There is also the possibility of infections with more than one type of organism. Go with an expert who is familiar with wrestling!

Maybe in the future there will be a vaccine or immunization for tinea. At this time, cleanliness, frequent inspection, rapid diagnosis and treatment by a dermatologist, and perhaps even the implementation of some preventative drug therapy, are all weapons to control this problem.

Possible Antifungal Medications for Use With Tinea Corporis (Ringworm)

Drug	Trade name
Tolnaftate	Tinactin - OTC Aftate - OTC
Undecylenic acid	Desenex - OTC Cruex - OTC
Griseofulvin	Grifluvin V ℞ Gris-PEG ℞
Itraconazole	Sporanox ℞
Ketoconazole	Nizoral ℞ Nizoral Shampoo OTC
Oxiconazole nitrate	Oxistat - ℞
Sulconazole	Exelderm - ℞
Fluconazole	Diflucan ℞
Miconazole	Micotin - OTC
Clotrimazole	Lotrimin -OTC Lotrisone (also contains a steroid betamethasone for inflammation - ℞
Econazole	Spectazole Cream - ℞
Butenafine	Lotrimin Ultra - OTC
Naftifine	Naftin - ℞
Terbinafine	Lamisil Topical Cream- OTC Oral - ℞

OTC - over the counter
℞ – by prescription

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