

Review on Jock Itch

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Abstract

Jock itch is a annoying contagious pathogenic fungal infection also known as Tinea cruris mostly occur in groin area, inner thighs and buttocks. Nowadays Jock itch is a widespread pathological infection with substantial history influencing human population. It prevails most common among people with Diabetes mellitus, and also to athletes due to prolonged exposure to moisture. Jock itch usually causes redness, flakiness, peeling r cracking of skin in the groin, thigh and buttocks area. The other causative factors are moisture, irritation and bacterial overgrowth. Jock itch is an infectious disease which spreads by close skin contact or by sharing the clothes and other accessories like shoe socks, scarf or towels. Men are more susceptible to Jock itch particularly obese person due to greater number of folds on the skin where they are likely to contract an infection. An itchy, stinging burning rash forms on infected skin. Usage of Antifungal cream continuously for 2-4 weeks is highly recommended treatment by physicians for Jock itch followed by keeping groin areas clean and avoiding excess moisture. Few people are prone to Jock itch due to maintenance of poor hygiene, possible altered immune status and predisposing skin conditions like eczema. In this review causes, symptoms and its impact on health has been discussed in detail.

Keywords: Antifungal Cream; Eczema; Groin Area; Jock Itch

Introduction

The term "tinea" denotes fungal infections and cruris comes from the Latin word for leg. Dermatophyte infections are caused by dermatophytes: a group of filamentous fungi that require keratin for growth. Tinea cruris also known as Jock itch caused by pathogenic dermatophytes caused by a mold like fungus belongs to three genera *Trichophyton*, *Epidermophyton* and *Microsporum* [1,2]. It is a common type of contagious superficial fungal infection affects the groin areas, occurs mostly in males but females can still develop jock itch. Worldwide it has been estimated 10 - 20% population is affected by fungal infections. Depending on the sites of infection it differ according to geographical location, nature of organism and also environmental differences. Jock itch and athletes foot are caused by same fungus tinea which leaves scaly patches on skin. The conditions are named by the part of body where the infection

occurs. If the infection occurs on foot it is called athletes foot and if it's in groin area it is called jock itch. Jock itch reported by primary care doctors and dermatologists produces itchy rashes on groin areas. Jock itch occurs due to overgrowth of fungus basically prevails on skin in small amount however it can multiply rapidly and grow in warm, moist areas. Diagnosis of Jock itch can be confirmed by microscopy or culture test and extensive range of topical antifungal drugs are used to treat jock itch [3-5].

Jock itch causes and risk factors

Jock itch causative organism is fungi which normally live on skin, hair and nails called dermatophytes. Due to accumulation of moisture in thigh, and buttock, fungus multiplies out of control and start to cause symptoms. The fungus is extremely contagious since it can spread from infected person to others by sharing clothes

and towels. Remaining in sweat soaked clothes after exercising cause the fungus to multiply very fast. The fungus could remain on various surfaces like exercise equipment too and produces musty smell. People who spend more time in exercise have excess sweating and it is prime factor for Jock itch. Depending on the severity of infection, the musty smell also increases and additionally the normal bacteria survives in skin fold may also contribute to a Jock itch smell. Normally the infection often spreads from the feet to the groin areas since the fungus can move from hands or on a contaminated towel, bedsheet [6,7].

The various risk factors are

- **Adulthood:** Adult male and teenagers are mostly affected by Jock itch which involves the portion of the upper thigh opposite the scrotum.
- **Gender:** Jock itch affects both sexes with a male predominance (3:1). This infection is more common in men due to moisture entrapment between the scrotum and thighs.
- **Race:** Jock itch affects all races but commonly prevails in hot humid tropical climate conditions.
- **Obesity:** Due to more skin folds present in obese people chances of prevalence of Jock itch are high
- **Hyperhidrosis:** People who tend to sweat a lot means their skin is suitable for fungal growth due to excess moisture. Ex: Excessive sweating while playing sports
- **Occlusive clothing:** Wearing tight clothing and underwear causes Jock itch since tight fabrics entrap moisture against skin and create environment for fungal growth and not drying the skin properly after bathing or swimming. Usage of public showers and lock rooms also contribute to Jock itch.
- **Weak immune system:** People with weakened immunity are more likely to develop fungal infection quickly.
- **Diabetes:** People with Diabetes are prone to get Jock itch easily [8-10]
- **Signs and Symptoms:** According to Centers for Disease Control and Prevention (CDC) symptoms generally occurs between 4 and 14 days after the skin comes in contact with the fungi.

Jock itch normally begins with reddened area in groin and frequently spreads to the upper thighs or anus in moon shaped. Developed rash may be ring shaped and bordered with a line of small blisters.

- Reddish scaly circular rash with raised edges
- Itching burning painful rash
- Cracking, flaking or peeling skin in groin, thigh and buttocks
- Ring shaped rash
- Like a blister the rash can ooze fluid
- Rash gets worsened after application of OTC hydrocortisone (anti itch) cream
- Changes in skin color
- Dermatophytic folliculitis may present as papules and pustules along the border [11,12].

Medical prognosis

Doctors usually diagnose Jock itch by examination of rash in the groin and confirmed on skin scraping for mycology. Scrape off a small sample of the flaky infected skin to examine under microscope or test in laboratory. Sometimes skin biopsy is performed usually to exclude other flexural skin conditions.

KOH test

Skin scrapings are placed in liquid containing Potassium Hydroxide which will destroy all cells except fungal cells and then the sample viewed under microscope to check for fungus growth. Skin is scraped with a scalpel or by glass slide making where the dead cells fall off on to a glass slide. Then few drops of Potassium hydroxide are added to it and slide heated for few minutes. Potassium hydroxide dissolves the material binding the skin cell together releasing hyphae. Fluorescent staining with optical brighteners considered as the effective method for microscopical detection of fungi in skin scales and also in specimens from nails and hair. These substances bind to chitin which is the main cell wall component of fungi

- Doctor's examination of groin area
- Skin culture test
- Skin biopsy performed with a special stain called periodic acid -Schiff (PAS) for the identification of fungus [13-15].

Treatment

Jock itch is fairly easy to treat. Over the counter (OTC) antifungal creams, lotion, sprays or powders may work in milder infection. Most serious infections need prescription medicine either topical or in pill form. The non prescription products, topical antifungal

medication used to treat Jock itch include Clotrimazole, Miconazole, Terbinafine and Ketoconazole. Oral medication should not be used unless the topical treatment fails. Oral antifungal medications like itraconazole, terbinafine required for those with widespread infection or causes inflammation difficult to heal. Even mild topical steroid can be used for short term to lessen itchiness but not suitable for long term use. Creams are applied twice daily for 2-4 weeks [16,17].

Newer topical antifungals

Luliconazole, an azole antifungal has fungicidal action available as 1% cream formulation and should be applied once daily for 1-2 weeks and it has been approved by US Food and Drug Administration. Recently lipid based amphotericin B gel showed good pharmacological properties against dermatophytosis with no adverse effect. Microemulsion formulations of griseofulvin reveals good cure rates in dermatophytosis [18- 20].

Preventive measures

To reduce the risk of Jock itch following preventive measures are useful.

Personal hygiene

The prime factor to avoid Jock itch is keeping the body clean. Taking regular bath after work out or playing sport may lessen the risk. Good hygienic practices like regular handwashing reduce the risk of infection. Always the skin should be clean and dried especially in groin areas.

Stay dry

Moisture produces an ideal environment for fungal growth hence drying the inner thighs and groin areas and patting with a clean towel after showering is essential. Powders can be used in the groin area daily to reduce sweating. Walking in barefoot should be avoided. Taking bath in non-soapy water is recommended until the skin clears, since the infected skin can be irritated by soap.

Avoid sharing

Usage of towels, bedsheets or any other personal items to others strictly avoided

Wear clean clothes

The underwear should be changed daily or more often if sweats a lot. Sports uniform should be washed properly after each use.

Avoid tight clothes

Tight clothing and underwear trap moisture next to skin and cause fungal growth. Men should choose loose boxers over briefs when possible. Wearing loose fitting clothes especially cotton underwear's and socks during hot and humid condition is suggested which can prevent sweat from creating the warm moisture environment in which the fungus thrives.

Cleaning exercise equipment

Periodical cleaning of exercising equipment is essential since the fungus can survive on hard surfaces easily.

Wearing sandals

Wearing sandals during public showers or at the swimming pool should be followed so as avoid contact with infected surfaces [21-23].

Complications of Jock ich

It is not life threatening and complications are uncommon. The treatment is considered as effective if no prolonged symptoms persist but chances of recurrence prevail. The itchy rash spreads on to the thigh genitals and buttocks causing secondary infections like cellulitis or abscess formation from scratching or rubbing leads to lichenification and secondary bacterial infections. Moreover temporary skin discoloration occurs followed by irritant and allergic dermatitis [24,25].

Conclusion

Worldwide the superficial mycotic infection is 20-25% of which dermatophytes are most common agents. Fungi that invade and multiply within keratinized tissues like skin hair and nails are called as Dermatophytes. Perspiration appears to be more influential variable in the development of infection. These infections predominantly occur in tropical and subtropical countries like India, where the temperature and relative humidity are high. Additionally the rise in urbanization, modification of life style factors like usage of tight fashioned clothes, occlusive footwear too causes fungal infections. The term Jock itch typically describes an itchy rash in groin areas. People with Jock itch are often associated with athlete's foot and athlete's foot is called as tinea pedis. Jock itch normally starts by producing a red itchy rash in groin, the crease where the leg meets the trunk and then slowly spreads to thighs, buttocks or anus. Jock itch normally responds to treatment with an antifungal

cream/gel/lotion once or twice day for one to two weeks. Patient education should be focus on personal hygiene and wearing loose fitting garment is encouraged. Jock itch usually responds promptly to treatment. Drinking of turmeric water or turmeric tea is advised to get internal benefits. Walking barefoot in damp places such as gyms, locker room, shower may increase the risk of fungal infection since these public places are rich in fungal spores. To reduce Jock itch prevalence proper hygiene is essential but intervention is crucial since the infection will not resolve by itself [26,27].

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