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TINEA PENIS – RETKA LOKALIZACIJA DERMATOFITNE INFEKCIJE

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SAŽETAK

Uvod/Cilj: Dermatofitne infekcije muških genitalija nisu česte i cilj ovog rada je da prikaže retku lokalizaciju ovog oboljenja na telu penisa zdrave muške osobe.
Prikaz bolesnika: Prikazujemo muškarca starog 34 godine sa anularnim eritemoskvamoznim poljem na telu penisa koje je praćeno svrabom. Na drugim delovima kože nije imao promene. Preparat uzorka promene sa tela penisa napravljen uz dodavanje kalijum hidroksida je pozitivan, a u kulturi je izolovan *Trichophyton mentagrophytes.* Pacijent je tretiran topikalnom antifungalnom terapijom tokom dve nedelje i kožne promene su se povukle.
Zaključak: Iako je genitalna lokalizacija dermatofitne infekcije retka, o ovom oboljenju bi trebalo razmišljati, dijagnostikovati ga i rano lečiti da ne bi postalo fokus za rekurentne gljivične infekcije.

Ključne reči: tinea, muške genitalije, *Trichophyton mentagrophytes*

Uvod

Gljivične superficijalne infekcije penisa i skrotuma najčešće su izazvane kvasnicama koje su deo normalne mikrobiote muških genitalija iz genusa *Candida* ili speciesa *Malassezia,* a znatno ređe dermatofitima, keratofilnim mikroorganizmima koji invadiraju rožaste strukture kože, dlake i nokta (1). Dermatofitna infekcija genitalija je relativno retka u odnosu na infekciju koja zahvata vlažnu ingvino-kruralnu regiju kod muškaraca (2,3), što se objašnjava smanjenom sekrecijom ekrinih znojnica u predelu genitalija te umanjenom hidratacijom kože penisa (4). Cilj ovog rada je da prikaže retku lokalizaciju dermatofitne infekcije na telu penisa kod zdrave muške osobe.

Prikaz pacijenta

Prikazujemo pacijenta starog 34 godine koji se javio dermatologu zbog promene na telu penisa praćene svrabom, koju je primetio pre deset dana. Pregledom je utvrđeno prisustvo jasno ograničenog eritematoznog polja sa skvamom koje se nalazilo na telu penisa (slika 1A). Nije imao nikakvih drugih promena po koži, vidljivim sluznicama i noktima i bio je dobrog opšteg zdravlja. Upućen je u laboratoriju gde je sa kožne promene strugan-jem uzet materijal (skvama) kojem su dodate dve kapi 20% rastvora kalijum-hidroksida (5) i direktnim mikroskopiranjem su uočeni gljivični elementi – transparentni fragmenti hifa. Zasejavanjem ostatka materijala na selektivnu podlogu DTM (engl. *Dermatophyte Test Medium*) agar sa dodatkom cikloheksimida, hloramfenikola i gentamicina, koji inhibiraju porast bakterija i plesni, nakon inkubacije na temperaturi od 25°C u vlažnoj atmosferi bez svetla (6) posle 11 dana uočen je porast kolonija sivkasto-beličaste boje i praškaste površine koje ukazuju na *Trichophyton mentagrophytes* (slika 2). Mikroskopske kulturelne karakteristike su uočene na nativnom preparatu i na preparatu sa celofanskom lepljivom trakom i LPB (engl. *Lactophenol blue* – laktofenol plavo) kontrastnom bojom (slika 3) u vidu septiranih hifa, velikog broja grozdasto raspoređenih mikrokonidija okruglog oblika. Takođe su viđene i spiralne hife, dok makrokonidije nisu uočene.

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CASE REPORT

TINEA OF THE PENIS – A RARE LOCALIZATION OF A DERMATOPHYTE INFECTION

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SUMMARY

Background/Aim: Dermatophyte infection of male genitalia is not common and the aim of this paper is to show the rare localization of this disease on the shaft of the penis in a healthy man.
Case report: We present a 34-year-old man with pruritic annular erythematous scaly patch on the shaft of the penis. There are no other skin lesions. Sample preparation of changes from the body of the penis made with the addition of potassium hydroxide is positive, and culture revealed *Trichophyton mentagrophytes*. The patient was treated with a topical antifungal therapy for two weeks and skin lesions resolved.
Conclusion: Although genital localization of dermatophyte infection is rare, this disease should be considered, diagnosed and treated early otherwise it may become a focus for recurrent fungal infections.

Key words: tinea, male genitalia, *Trichophyton mentagrophytes*

Introduction

Fungal superficial infections of the penis and scrotum are most frequently caused by yeasts that are part of the normal microbiota of male genitalia from *Candida* or *Malessezia species*, and much less frequently by dermatophytes, keratinophilic microorganisms that invade the keratinized structures of the skin, hair or nails (1). A dermatophyte infection of the genitalia is relatively rare in comparison to the infection that affects the moist inguinal-crural region in men (2,3), which is explained by reduced secretion of eccrine sweat glands in the genital region and reduced hydration of skin on the penis (4). The aim of this paper is to show the rare localization of a dermatophyte infection on the shaft of the penis in a healthy man.

Case report

We present a 34-year-old patient who came to the dermatologist because of a change on the shaft of the penis accompanied by pruritus, which he had noticed ten days before. The examination revealed the presence of a clearly defined erythematous scaly patch on the shaft of the penis (Figure 1A). There were no other lesions on the skin, visible mucosa and nails and his general health status was good. He was referred to the laboratory, where the material (squama) was collected from the skin change by scraping, to which a drop of 20% potassium hydroxide solution was added (5), and direct microscopy revealed fungal elements – transparent fragments of hyphae. By planting the rest of the material on the selective medium, DTM (Dermatophyte Test Medium) agar containing cycloheximide, chloramphenicol and gentamicin, which inhibit the growth of bacteria and fungi, after incubation at a temperature of 250C in a humid atmosphere without light (6), the growth of grayish-white colonies with a powdery surface indicating Trichophyton mentagrophytes was observed (Figure 2). Microscopic cultural characteristics were observed in the native preparation and in the preparation with cellophane adhesive tape and LPB (Lactophenol blue) contrast dye (Figure 3) in the form of septate hyphae, a large number of clustered microconidia of round shape. Spiral hyphae were also observed, while macroconidia were not observed.

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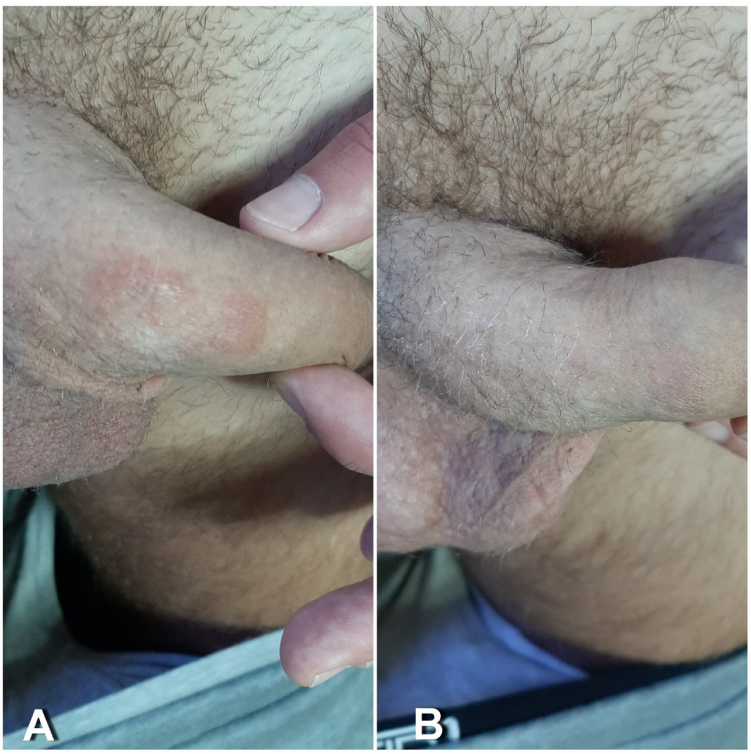
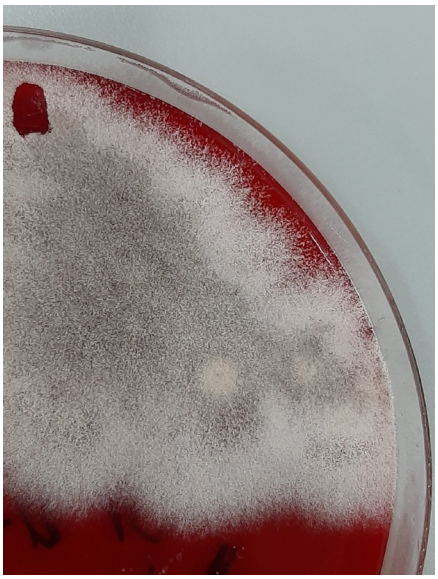


Slika 1. A – anularno eritematozno polje sa skvamom na telu penisa; B – kompletna regresija promena nakon terapije

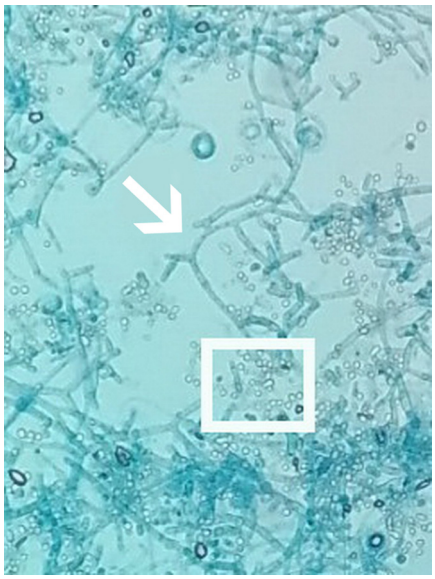
S obzirom na to da je dijagnostikovana dermatofitna infekcija penisa i da pacijent nije imao na drugim delovima kože manifestacije gljivične infekcije, pregledan je i njegov seksualni partner koji nije imao znake dermatomikoze. Pacijent je često bio u kontaktu sa kućnim ljubimcima svojih prijatelja. U terapiji je koristio 1% terbinafine krem dva puta dnevno i nakon dve nedelje promene na koži su se potpuno povukle (slika 1B).

Diskusija

Različite regije kože mogu biti zahvaćene dermatofitnom infekcijom, a najčešće lokalizacije su na trupu i ekstremitetima (*Tinea corporis*) i ingvino-kruralnim i interglutealnim predelima (*Tinea cruris*), dok je zahvaćenost genitalija znatno ređa (7). Studija iz Indije na 2200 pacijenata sa različitim dermatofitnim infekcijama je opisala zahvaćenost



Slika 2. Praškast rast kolonije *Trichophyton mentagrophytes*



Slika 3. Laktofenol plavo priprema: grozdasto raspoređene mikrokonidije okruglog oblika označene kvadratom i septirane hife označene strelicom

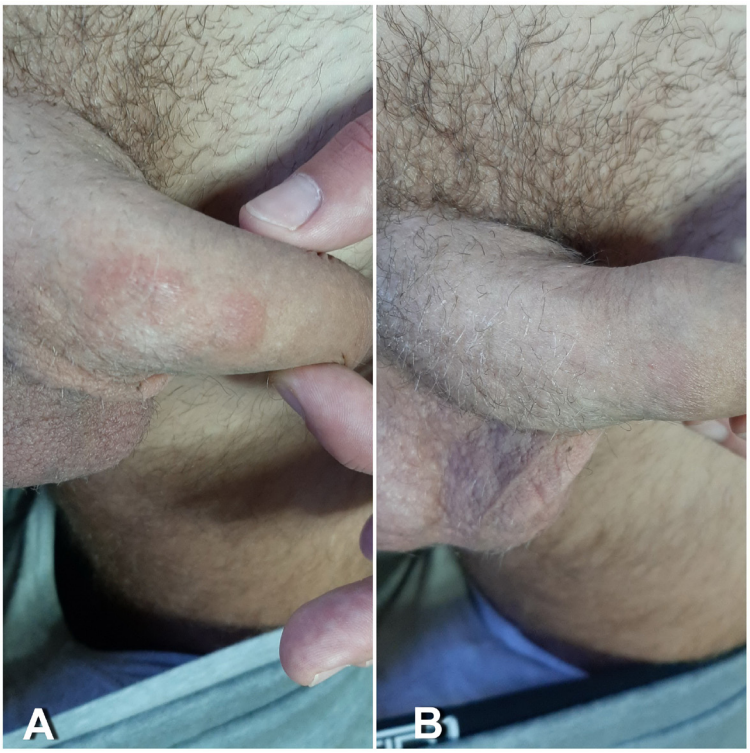


Figure 1. A – an annular erythematous scaly patch on the shaft of the penis; B – complete regression of the lesion after treatment

Considering that a dermatophyte infection of the penis was diagnosed and that the patient did not have any other manifestations of fungal infection on other parts of the skin, we also examined his sexual partner, who did not have any signs of dermatomycosis. The patient was often in contact with his friends' pets. He used 1% terbinafine cream two times a day during the treatment, and after seven weeks the skin changes completely disappeared (Figure 1B).

Discussion

Different regions of the skin can be affected by dermatophyte infection, while the most common localizations are on the trunk and extremities (*Tinea corporis*) and inguinal-crural and intergluteal areas (*Tinea cruris*), while it appears less frequently on the genitalia (7). A study from India which included 2200 patients with various dermatophyte infections described how the penis was affected in 1% of patients (8). According to the results of

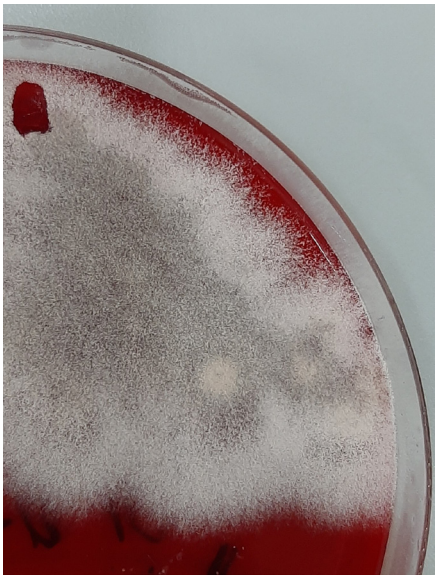


Figure 2. *Powdery growth of Trichophyton mentagrophytes*

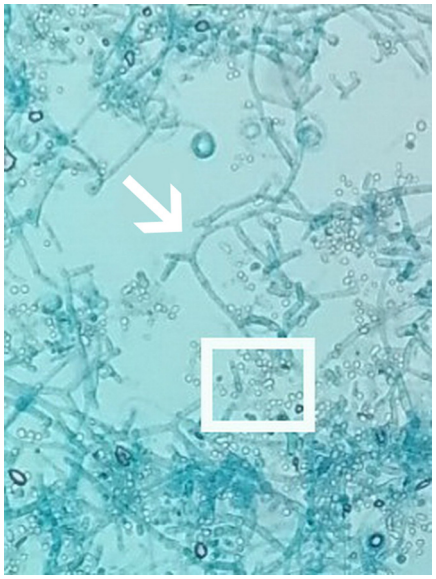


Figure 3. Lactophenol blue mount: round shaped microconidia arranged in clusters marked with a square and septate hypha marked with an arrow

penisa kod 1% obolelih (8). Prema rezultatima istraživanja sprovedenog u Sarajevu u Bosni i Hercegovini učestalost javljanja dermatofitne infekcije muških genitalija iznosila je 5,4% (9). Nasuprot ovim podacima u tropskim regijama je opisana češća zahvaćenost kože penisa, naročito kod pacijenata sa simptomatskom dermatofitnom infekcijom kruralne regije i iznosila je oko 20% (10,11).

Dermatofitnoj infekciji penisa često prethode gljivične infekcije ingvino-kruralne regije i stopala ili noktiju na nogama, koje predstavljaju rezervoar zaraze (2,3,9,10), mada se lezije na penisu mogu javiti i bez zahvaćenosti drugih delova kože (9) kao što je opisano i kod našeg pacijenta. Pored prethodno pomenutih već postojećih gljivičnih infekcija kože, kao faktori rizika za nastanak dermatofitne infekcije penisa pominju se povećana lokalna vlažnost, maceracija kože, tesan, često sintetički donji veš, atopijski dermatitis, *diabetes mellitus* i imunosupresija (1).

Najčešći uzročnici dermatofitoze muških genitalija su *Trichophyton rubrum*, *Trichophyton mentagrophytes* (izolovan i kod našeg pacijenta) i *Epidermophyton floccosum* (2,3,12,13). Studija sprovedena u Bosni i Hercegovini (9) je pokazala da je *Microsporum canis* bio najčešći uročnik infekcije penisa što se objašnjava visokom prevalencijom ovog patogena u pomenutoj geografskoj regiji (14). Zbog nedostatka molekularne tipizacije nismo bili u mogućnosti da kod našeg pacijenta utvrdimo da li se radi o antropofilnom ili zoofilnom soju *Trichophyton mentagrophytes* jer je morfološka diferencijacija klasičnim mikroskopskim i biohemijskim metodama često problematična, čak i u rukama iskusnih mikologa.

Tinea penis se klinički najčešće manifestuje u vidu jasno ograničenih anularnih polja sa skvamom, kao što je prikazano i kod našeg pacijenta, a ponekad se na penisu mogu pojaviti i pustule. Promene su obično lokalizovane pri bazi ili na telu penisa, nešto ređe na skrotumu a izuzetno retko i na prepucijumu (7). U diferencijalnoj dijagnozi dermatofitne infekcije penisa u obzir dolaze psorijaza, atopijski dermatitis i anularne promene u sekundarnom stadijumu sifilisa. Zdravstveni radnici bi uvek trebalo da razmišljaju o sifilisu kada su prisutne genitalne lezije kod mladih seksualno aktivnih osoba jer je ovo oboljenje u poslednjoj deceniji u porastu u našoj sredini (15). Klinička dijagnoza se potvrđuje laboratorijskom detekcijom spora i hifa u direktnom mikroskopskom preparatu i kultivisanjem materijala na selektivnim podlogama, a u terapiji se obično koriste lokalni antimikotski preparati koji dovode do brzog povlačenja kožnih promena.

Zaključak

Iako je genitalna lokalizacija dermatofitne infekcije retka, o ovom oboljenju bi trebalo razmišljati, dijagnostikovati ga i rano lečiti, da ne bi postalo fokus za rekurentne gljivične infekcije.

Konflikt interesa

Autori su izjavili da nema konflikta interesa.

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a study conducted in Bosnia and Herzegovina, the incidence of dermatophyte infection of male genitalia was 5.4% (9). In contrast to these data, more frequent penile skin involvement was observed in tropical regions, especially in patients with symptomatic dermatophyte infection of the crural region and it amounted to 20% (10,11).

Dermatophyte infection of the penis is often preceded by fungal infections of the inguinal-crural region, feet or toenails, which represent a reservoir of infection (2,3,9,10), although lesions on the penis can also occur without the involvement of other parts of the skin (9), as it was described in our patient, as well. In addition to the already existing fungal infections of the skin, which had been previously mentioned, increased local humidity, skin maceration, tight, often synthetic underwear, atopic dermatitis, diabetes mellitus and immunosuppression are risk factors for the occurrence of dermatophyte infection of the penis (1).

The most common causes of dermatophytosis of male genitalia are *Trichophyton rubrum, Trichophyton mentagrophytes* (isolated in our patient, as well) *Epidermophyton floccosum* (2,3,12,13). A study that was conducted in Bosnia and Herzegovina (9) showed that *Microsporum canis* was the most common cause of the infection of the penis, which is explained by high prevalence of this pathogen in the mentioned geographic region (14). Due to the lack of molecular typing, we were not able to determine in our patient whether it was an antropophilic or zoophilic strain of *Trichophyton mentagrophytes*, because morphological differentiation by classical microscopic and biochemical methods is often problematic even in the hands of experienced mycologists.

Tinea penis is clinically most frequently manifested as clearly defined annular scaly patches, as it was reported in our patient, while pustules can sometimes appear on the penis. Changes are usually localized at the base or on the shaft of the penis, somewhat less on the scrotum and extremely rarely on the foreskin (7). Psoriasis, atopic dermatitis and annular changes in the secondary stage of syphilis are considered in the differential diagnosis of dermatophyte infections of the penis. Healthcare workers should always think about syphilis when genital lesions are present in young, sexually active persons because this disease has been on the rise in our environment in the last decade (15). Clinical diagnosis is confirmed by laboratory detection of spores and hyphae in a direct microscopic preparation and by culturing the material on selective media, while local antimycotic preparations are usually used for the treatment, and they lead to the rapid withdrawal of skin changes.

Conclusion

Although genital localization of dermatophyte infection is rare, this disease should be considered, diagnosed and treated early in order not to become a focus for recurrent fungal infections.

Competing interests

The authors declared no competing interests.

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