Case Report

Identification and diagnosis of laboratory Methods superficial and cutaneous fungal infections and their prevalence

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ABSTRACT

Introduction: Fungal infections are a kind skin infection that causes it. This type of infection can be on the skin, scalp, groin and nails occur. Superficial and cutaneous of fungal infections are common infections of the skin and its annexes are included and in terms of public health in each region are of the special importance. Fungal disease common in all parts of the world there are accurate statistics that epidemiology is important in terms of geographic distribution varies from region to region and as well as during many years also at situation has been changing. The purpose of this study, method Identification and laboratory diagnosis of superficial and cutaneous fungal infections identify different species of fungi; determine the agent and the prevalence of infection in the region have been.

Materials and Methods: In this study descriptive, 176 patients observed superficial and cutaneous fungal diseases were clinically examined by a the dermatologist and if you see any suspected lesions to fungal disease were sampled. Skin samples from patients referred to clinical laboratories a scraping during 2012-2013 were investigated. To identify and frequency of using 10-20% KOH microscopic examination and culture Saberodexstroze agar medium and without antibiotics and culturemedium specific brain for identify was performed fungal species.

Results: In this study, A total of 59 items of (33.5%) of patients were superficial and cutaneous fungal infections that patients were studied in different age groups and in this between of Dermatophytosis 26 case (44%), saprophyte fungi infection in 18 case (30.5%), cutaneous candidiasis 9 case (15.3%) and Tinea versicolor 8 cases (13.5%) were the main cause of infection frequency statistical tests, Fisher and calculate the odds ratio with 95% confidence intervals were used in the analysis. Information obtained by using spss software (version 16) was analyzed.

Discussion and conclusion: Contamination of superficial and cutaneous fungal diseases in the region is relatively high and the proportion of cutaneous fungal diseases is more than superficial fungal diseases, so that 19.8% of individuals with cutaneous fungal diseases and 14.7% of individuals with superficial fungal diseases. Usually patients with superficial and cutaneous fungal infections, frequently recurrent fungal infections are susceptible to antifungal therapy are not appropriate responses. So actually the biggest problem on the country's health care network and the problem of increased costs of therapy causes are considered high.

Key words: fungal infections, superficial and cutaneous fungal, disease agent, therapeutic resistance

INTRODUCTION:
Fungal are part of the old plants that eukaryotic and heterotrophic. The importance of fungi in nature including decomposition of organic compounds, use industrial and food, uses chemical
Identification and diagnosis of laboratory Methods superficial and cutaneous fungal infections and their prevalence

and pharmaceutical, supplying antibiotics and fungal infections of humans, animals and plants. Infections that affect growth and development Microscopic fungi in humans and animals created and to keratin lesions by fungi in tissues of the skin, hair and nails caused by fungal skin disease called (Zinni F. et al, 2014). Fungal diseases are classified in five categories; most notably the superficial and cutaneous fungal infections, cutaneous fungal diseases are caused by fungi such as dermatophytes, some opportunistic fungi such as occur Malassezia, Candida, Trichosporon, or Aspergillus. Dermatological diseases are the most common and most diverse are diseases which man is involved in any weather there specific skin diseases (Rippon et al, 1989).

So far, about 150,000 different species Fungal Recognition given that only a limited number can be pathogenic. This category of diseases worldwide distribution and almost all areas had been reported (Asgari M. et al, 1977). Today, both in developing countries and in the developed countries are is of special importance enjoyed. Disease in the countries temperate regions of the world and in communities with low hygiene level very fast (shokohi T. et al, 1992). According to concerns the prevalence of superficial and cutaneous fungal infections Iranian society raised, this topic suggests that the incidence of fungal diseases is increasing in areas Iran and it extends losses that may on the one hand is related to identify and report, on the other hand due to fungal infections in patients who are consumption prolonged steroid drugs and antibiotics (Asgari M. et al, 1977).

This group of fungal infections, including most prevalent infections of the skin and its annexes hair and nails often have limited to skin keratin layer. (Rippon et al, 1989). Skin diseases the most common diseases that are most common and most diverse humans affected the in every climate there are specific skin diseases (Campbell et al, 2012). Fungal skin disease is a common disease that can affect any part of the body. It starts silently and no clinical symptoms such as itching (Brangi F. et al, 2000). Lesion on the skin no hair. Scurvy and may be from the center, start slowly recovery. Also if are stricken inflammatory exudate, can in parts the hair grows, causing loss hair (Aghamirian MR et al, 2004). If is lesion between the toes, cracking or gathering materials for Keratinization seen, and patients may complain of foot pain in some cases patients are justified it as sweating foot (Emami M et al, 2004). Therefore of these diseases infections such as thrush and creating simple skin and mucous membranes, such as dermatophytes in cutaneous lesions, hair loss, mostly "chronic come up continue to subcutaneous and visceral (Mahmoud Abadi Z et al, 2003). Depending on the type of disease and etiology of various reservoirs of infection are very different animals. Soil and humans can be considered a reservoir of infection and source disease transmission (Emami M. et al, 2004). Superficial and detection methods fungal cutaneous, including sampling, direct examination, paint and Preparation and Smear for culture and in some cases testing or testing biological and serological or biopsy is susceptible animal inoculation (Rippon et al, 1989). Many fungal infections of the skin if they are to be properly diagnosed, treated easily and fast and otherwise the diagnosis is not possible, patients undergoing treatment for a long time wrongly to be exposed (Taheri P et al, 1960).

Since fungal skin lesions, rarely "by creating numerous pus and sores are highly" purulent usually "suspected bacterial secondary infections in the background are (Saboktakin J et al, 1956), in this case, finding fungi on waste hardly done (Rippon et al, 1989). Though not report about the prevalence of these infections and diagnostic methods in this province is not at hand. The purpose of this study was to determine a superficial and cutaneous fungal infections, laboratory diagnostics to detect and identify different species of fungi, determine their causes and the propagation of infection.

MATERIALS AND METHODS: Study Present Cross-sectional was conducted that from March
Identification and diagnosis of laboratory Methods superficial and cutaneous fungal infections and their prevalence

Reza Jabbari Amiri, et al.

2012 to May 2013. The number of samples determined in accordance with purposive sampling study on 176 men, women and children were taken. After patients to clinics and specialty clinics for skin function Mazandaran University of Medical Sciences in about a year to complete, was examined first by the province and city and dermatologist if you suspect a cutaneous infection is completed relevant questionnaire. Then patients suspected of having fungal infections and fungal-like annexes to the entire epidermis directly responsible for testing and sampling of the lesion in the laboratory of mycology is done by specialized personnel. Timely admission of patients had at least three of the last day of the last bath is also at least ten days prior to the acceptance of oral and topical antifungal medications are not used. Sampling was done in two ways, first using skin samples through Scraping in sterile disposable dishes and clean slide and other methods using Ascag adhesive tape, glue stuck to the sticky surface of the lesion and then separate from a position we do. After the collected samples to the testing (laboratory of mycology) are sent. Of samples depending on the type of infection with soluble potash 10 or 20% (lesion surface potash (10%) and skin lesions potash 20%) or Lactofenol wet or methods Gram stain, Giemsa or methylene blue of dried fixed with methanol has been prepared and under the microscopic optical lens dry and oil were investigated and the results were collected. Depending on whether a kidney infection samples that test positive or negative results were place on agar Sabero (S), Sabero containing chloramphenicol (SC), SaberoDextroze containing chloramphenicol and Cyclohexamide (SCC), Sabero containing olive oil and blood agar cultures given at two different temperatures (25 and 35 degrees C) were incubated appropriate. After the end of the incubation period depends on the type of infection, the growth of colonies specific tests such as slide culture, Personal procurement, testing piercing Hair, urease test, corn meal agar and rice Culture medium and other necessary tests in accordance reference books (Rippon etal, 1985).

To come, genera and species were identified the cause and result in our questionnaire. Data from the test results were analyzed by descriptive statistics data and finally were discussed.

RESULTS:

Results of this research is to determine the frequency of the data obtained Cutaneous and superficial skin infections in 176 patients (88 male (50%), 73 females (41.5%) and 15 children (8.5%)) referred to the dermatology department investigated respectively. Their age ranged from 5 years to 90 years.

Of these 176 cases, 59 (52.33%) were diagnosed with a fungal infection. 59 (52.33%) patients in clinical diagnosis by direct examination were reported positive. 14 cases (7.95%) tested negative culture, or no fungal infection and 45 cases (25.2%) had a positive culture results. According to the questionnaire showed that patients aged 32-58 years with 85 patients (48.3%) highest age group and group 5 to 12 years with 15 patients (8.5%) had the lowest age group superficial and cutaneous fungal infections among patients referred, respectively. A total of 24 cases (13.6%) were male, 32 cases (18.2%) women and 3 patients (1.7%) children, patients with superficial and cutaneous fungal infections were the highest fungal infection in women and children had the lowest. Fungal contamination including fungal superficial isolated direct Positive cases the test, saprophyte mold 16 samples (27.1%), Tinea versicolor (saprophytic yeast) 18 (30.5%) constitute.

Group fungi Cutaneous 26 samples (35.6%) dermatophytes and 9 samples (15.3%) positive candidiasis has been reported. Most superficial fungal infection tinea versicolor and in the groups cutaneous fungi are dermatophytes (Table 1).
The most common organisms isolated in culture samples, 21 samples (46.6%) dermatophytes, and mold fungi species Aspergillus of saprophytic 11 cases (24.4%), respectively. 8 cases (13.5%), Candida albicans and frequency others organisms isolated from 5 samples (8.5%), tinea versicolor (saprophytic yeast) was cultured (Table 2). The most common fungal contamination in patient’s isolated Aspergillus species is superficial and cutaneous fungal dermatophytes are in the group.

**DISCUSSION:**
In multiple studies conducted in this regard, although superficial fungal infections such as tinea Versicolor in our hot and humid regions, such as northern cities, Caspian Sea and the southern regions of the Lake Uremia in Iran was relatively high, but in the central plateau, Tehran, Isfahan and Mashhad can be seen as well as cutaneous infections in the northern areas than the rest of the regions of higher prevalence automatically, because the more because can be climatic condition(Zinni F. et al, 2014).

In the study of Bahdhi et al. 1989, to title fungal superficial cutaneous diseases of the skin referring to clinic in Shiraz concluded that the most common cutaneous and superficial fungal agents include dermatophytes (45%), Saprophytic (32%), tinea versicolor (19%) and candidiasis (1.6%) in the next rank superficial and cutaneous fungal infections and fungi were detected in the surface of with cutaneous have been different (Bahdhi P. et al, 1989). The study Asgari et al,1977 with title the Study Epidemiological cutaneous mycosis in Bandar Abbas concluded that the most common cause of tinea capitis, Trichophyton Violaceum (80 percent of cases) has been (Asgari M. et al, 1977). In the study Lilo et al in 1950 titled the most common cause of tinea capitis in the areas Kazerun, Borazjan and Bosher concluded that cause tinea capitis primarily has been Trichophyton Violaceum and then Trichophyton schoenleinii (Bahdei P. et al, 1989). A similar examination of five years by Brangi et al. 2005 with study on the prevalence infections as superficial and cutaneous dermatophyte referred to laboratory of mycology of Imam Reza in Mashhad Concluded that the most frequent type of tinea body Dermatophytosis formed and after tineas of the nails, groin, head, hand, legs and beard were located and also is laboratory diagnosis by direct examination with 20% KOH and culture in medium both the SCC and SC (Brangi F. et al, 2000). In the study carried out by Nasrollahi et al, 2010 with title study epidemiological fungal infections Superficial and cutaneous fungal infections in 5500 patients with
Identification and diagnosis of laboratory Methods superficial and cutaneous fungal infections and their prevalence

suspected superficial and cutaneous fungal infections in Tehran should be method examined direct. Concluded that diagnosis by direct microscopic examination and culture in accordance with routine laboratory tests to was proved mycology (Nasrollahi et al, 2010). Between total of study fungal infections above the highest incidence of dermatophytes, saprophytes fungi such species of Aspergillus and saprophytic yeast infection Tinea factors are aligned and the same with research done. Therefore in recent years, infections Dermatophyte in the is still common in developing countries with respect to different areas. As a result of the improvement of living standards, observe personal hygiene and immediate treatment can reduce the spread of infection. Various methods for identifying contaminated persons there are superficial and cutaneous fungal infections. Non-invasive methods include direct sampling method scrapping along with obtaining a detailed history of the patient and observation at under a microscope our fungal elements in the diagnosis and treatment of accompany.

CONCLUSION:
Because of the high prevalence of fungal diseases, fungal infections in patients to investigate the factors underlying problem and interference tests between they are very important. Therefore among the variety of invasive methods for diagnosing fungal infections cannot be said then mycology experienced specialist and experts and Study of immunological and hematological indices can be a suitable replacement. So far similar research has not been done in Iran and the current study is considered the first step in this direction. In terms of methodology in this research has tried utilizes a non-invasive method to accelerate the identification and detection of pathogens in people with underlying disease for a low cost supply of use medical laboratory.

ACKNOWLEDGMENTS
The current study was a part of a research project conducted in Mazandaran University of Medical Sciences, carrying out of which was undoubtedly impossible without friendly cooperation of the staff of Pathobiology Laboratory in Sari.

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Identification and diagnosis of laboratory Methods superficial and cutaneous fungal infections and their prevalence

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