(e) ISSN Online: 2321-9599

(p) ISSN Print: 2348-6805

ORIGINAL ARTICLE

Subcutaneous mycoses in adult population- A clinical study

Akshat Mittal

Assistant Professor, Department of Dermatology, Venereology and Leprosy, Mulayam Singh Yadav Medical College, Meerut, U.P., India

ABSTRACT:

Background: Subcutaneous mycoses are the infections caused by the fungi present in the natural environment that are directly inoculated into the dermis or subcutaneous tissue through a penetrating injury from vegetative materials. The present study was conducted to assess subcutaneous mycoses in adults. **Materials & Methods:** 78 adult patients of Subcutaneous mycoses of both genders were determined for histopathological characteristics and prior treatments. Sabouraud dextrose agar was used as culture medium. **Results:** Out of 78 patients, males were 48 and females were 30. Disease duration was 4.5 months, history of trauma was present in 53, location was head and neck in 12, lower limb in 38, upper limb in 20 and Multifocal lesions in 8 cases. Histopathological findings was suppurative granulomas in 72%, tuberculoid granulomas in 35%, eosinophilic abscesses in 24%, copper penny bodies in 65%, foreign body giant cells in 52% and epidermal verrucous hyperplasia in 86%. The difference was significant (P< 0.05). **Conclusion:** Maximum cases was seen in males as compared to females. Most common histological finding was suppurative granulomas and copper penny bodies.

Key words: Subcutaneous mycoses, Suppurative granulomas, foreign body giant

Corresponding Author: Dr. Akshat Mittal, Assistant Professor, Department of Dermatology, Venereology and Leprosy, Mulayam Singh Yadav Medical College, Meerut, U.P., India

This article may be cited as: Mittal A. Subcutaneous mycoses in adult population- A clinical study. J Adv Med Dent Scie Res 2017;5(6):111-113.

INTRODUCTION

Subcutaneous mycoses are the infections caused by the fungi present in the natural environment that are directly inoculated into the dermis or subcutaneous tissue through a penetrating injury from vegetative materials.[1] They affect population in rural communities, often in humid, tropical, or subtropical regions of developing countries. The various types of subcutaneous mycoses are sporotrichosis, mycetoma, chromoblastomycosis, phaeohyphomycosis, lobomycosis, rhinosporidiosis, and subcutaneous zygomycosis. Subcutaneous mycoses are associated with significant morbidity.[2]

These infections are more common in the adult males from the rural areas who are predisposed to trauma and contact with soil and decaying vegetation. As it is presented with localized swelling without signs of inflammation it was clinically mistaken for other benign lesions like lipoma, hemangioma, abscess etc.[3] Although culture is considered as gold standard for etiological diagnosis fungal infections, it may not be useful in such cases as clinically fungal infection is not suspected and not sent for culture.[4] Disadvantage of Culture is it is a slow method compared to other methods and some of these fungi may not grow in culture. Histopathology examination is the main investigation required for diagnosis of subcutaneous fungal infections.[5]

Histopathological examination is the principal investigation required to diagnose subcutaneous mycoses. It is reliable and less time-consuming as compared to cultures. However, discrepancies between histopathology and culture results are sometimes seen, with resultant treatment delays and increased morbidity.[6]The present study was conducted to assess subcutaneous mycoses in adults.

MATERIALS & METHODS

The present study comprised of 78 adult population of both genders. All were taken into the study after obtaining their written consent.

Demographic data was recorded. A thorough clinical examination was performed. Origin, location of lesions, number of lesions, histopathological characteristics, prior treatments, etc was recorded. Mycological culture, histopathology, and periodic acid–Schiff (PAS) staining of biopsies from the cutaneous lesions was recorded. Sabouraud dextrose agar was used as culture medium. Data was clubbed for correct inference with level of significance set below 0.05.

RESULTS

Table I Patient distribution

Total- 78		
Gender	**Males**	**Females**
Number	48	30

Table I shows that out of 78 patients, males were 48 and females were 30.

(e) ISSN Online: 2321-9599

(p) ISSN Print: 2348-6805

Table II Assessment of parameters

Parameters	Number	P value
Disease duration (months)	4.5	-
History of trauma	52	-
Head and neck	12	0.01
Lower limb	38	
Upper limb	20	
Multifocal lesions	8	

Table II shows that disease duration was 4.5 months, history of trauma was present in 53, location was head and neck in 12, lower limb in 38, upper limb in 20 and Multifocal lesions in 8 cases. The difference was significant (P< 0.05).

Graph I Assessment of parameters

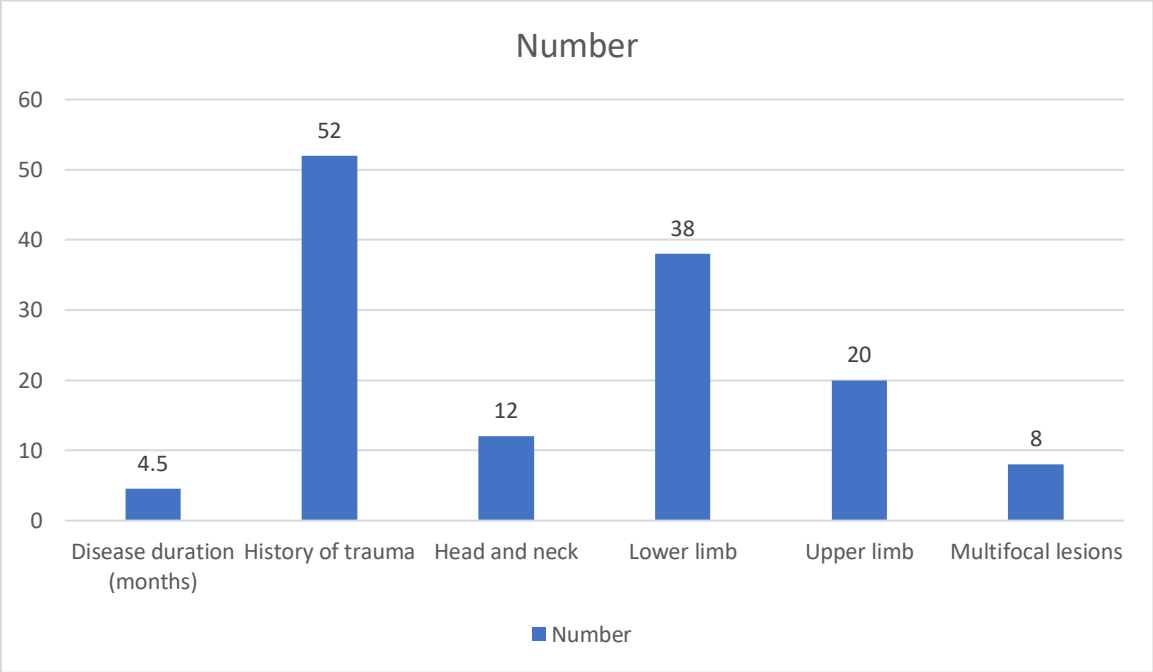

Table III Histopathological findings

Histopathological findings	Number	P value
Suppurative granulomas	72%	0.05
Tuberculoid granulomas	35%	
Eosinophilic abscesses	24%	
Copper penny bodies	65%	
Foreign body giant cells	52%	
Epidermal verrucous hyperplasia	86%	

Table III shows that histopathological findings was suppurative granulomas in 72%, tuberculoid granulomas in 35%, eosinophilic abscesses in 24%, copper penny bodies in 65%, foreign body giant cells in 52% and epidermal verrucous hyperplasia in 86%. The difference was significant (P< 0.05).

DISCUSSION

Subcutaneous fungal infection is commonly seen in tropical and subtropical countries particularly in India.[7]The lesions are usually presented as swelling, in the localized form. These infections are more common in the adult males from the rural areas who are predisposed to trauma and contact with soil and decaying vegetation.[8]As it is presented with localized swellingwithout signs of inflammation it was clinically mistaken for other benign lesions like lipoma, hemangioma, abscess etc. Histopathologic examination can also provide insight into the diagnostic significance of some culture isolates.[9] Histopathological evaluation of granulomatous inflammation, giant cell reaction, necrotizing inflammation etc must include careful search for fungal elements. The presence of fungus in the tissue sections provides an indisputable evidence of invasive infection.[10]The present study was conducted to assess subcutaneous mycoses in adults.

In present study, out of 78 patients, males were 48 and females were 30. Subhashini et al[11] in their study twenty-two patients with biopsy proven subcutaneous fungal infections were included in the study. In the

(e) ISSN Online: 2321-9599

(p) ISSN Print: 2348-6805

present study, the varied histopathological features like type of inflammatory response, presence of granulomas, necrosis, eosinophils and abscess formation were seen in the tissue sections. The most common histopathology feature was giant cell reaction seen in 21 (95.5%) cases, followed by epithelioid cell granuloma in 13(59%) cases and areas of necrosis in 13 (59%) cases. Eight (36%) cases showed numerous eosinophilic infiltration 10(46%) cases of scant eosinophils and 4 (18%) cases showed absent eosinophils. These fungal structures were identified in H&E stain itself in 13 (59%) cases

We observed that disease duration was 4.5 months, history of trauma was present in 53, location was head and neck in 12, lower limb in 38, upper limb in 20 and Multifocal lesions in 8 cases. Verma et al[12] in their study a total of 70 patients (44 males and 26 females) of subcutaneous mycoses were analyzed. Sixty-one percent of patients were 20–60 years old. Duration of the disease ranged from 3 months to 25 years. Most common site of involvement was the lower limb (32, 46%), followed by the upper limb (25, 36%). A history of trauma was obtained from 76% of patients. Eighty-seven percent of patients were from rural area. Ninety-two percent of patients were agricultural workers. There were 30 established cases of chromoblastomycosis and 16 cases of sporotrichosis. In 24 cases, subcutaneous mycosis was suspected clinically and showed some improvement to empirical itraconazole therapy. Multifocal lesions were seen in six patients. Complication of subcutaneous mycoses in the form of invasive squamous cell carcinoma was seen in one patient. On histopathological examination, verrucous hyperplasia was seen in 93% of cases. Granulomas with suppuration were seen in 77% of cases and granulomas without suppuration were seen in 14.3% of cases. Copper penny bodies were appreciated in 42.8% of cases. Fungal culture was positive only in 55.7% of cases. There was growth of Sporothrixschenckii in 16 patients, Fonsecaea sp. in 19, Cladosporium sp. in 3, and Curvularia sp. in 1. C

We found that histopathological findings was suppurative granulomas in 72%, tuberculoid granulomas in 35%, eosinophilic abscesses in 24%, copper penny bodies in 65%, foreign body giant cells in 52% and epidermal verrucous hyperplasia in 86%.Hematoxylin& Eosin is a versatile stain that enables the pathologist to evaluate the host response, including the chronic inflammation, granulomas, eosinophilic infiltration, abscess formation and Splendore-Hoeppli phenomenon, and to detect other micro-organisms.[13]It is the stain of choice to confirm the presence of naturally pigmented fungi, and to demonstrate the nuclei of yeast-like cells.The diagnosis of subcutaneous mycoses can be challenging in many cases. The clinical lesions as well as histopathological features may be very similar to other granulomatous diseases of the skin. Many of these cases can be misdiagnosed. Some lesions may show epithelioid granulomas, no fungal elements, and negative fungal cultures.[14]

CONCLUSION

Authors found that most common histological finding was suppurative granulomas and copper penny bodies. Maximum cases was seen in males as compared to females.

REFERENCES

1. Chandler FW, Watts JC. Fungal Diseases. In: Damjanov I, Linder J, editors. Anderson's Pathology. 10th ed. St. Louis: Mosby; 1996.pp 951-962.
2. Guarner J, Brandt ME. Histopathologic diagnosis of fungal infections in the 21st century. Clinic Microbiol Rev. 2011;24(2):247-80.
3. O'Donnell PJ, Hutt MS. Subcutaneous phaeohyphomycosis: a histopathological study of nine cases from Malawi. J Clin Path. 1985;38(3):288-292.
4. Mishra D, Singal M, Rodha MS, Subramanian A. Subcutaneous phaeohyphomycosis of foot in an immunocompetent host. J Lab Physicians. 2011;3(2): 122-124.
5. Madke B, Khopkar U. Pheohyphomycotic cyst. Indian Dermatol Online J. 2015;6(3):223-225.
6. Revankar SG. Phaeohypomycosis. Infect DIS Clin North Am. 2006; 20(3):609-20.
7. Sharma NL, Mahajan V, Sharma RC, Sharma A. Subcutaneous pheohyphomycosis in India - a case report and review. Int J Dermatol. 2002;41(1):16-20.
8. Bhat RM, Mo nteiro RC, Bala N, Dandakeri S, Martis J, Kamath GH et al. Subcutaneous mycoses in coastal Karnataka in south India. Int J Dermatol. 2016; 55(1):70-78.
9. Abraham LK, Joseph E, Thomas S, Matthai A. Subcutaneous phaeohyphomycosis: a clinicopathological study. IntSurg J. 2014; 1(3):140-143.
10. Sivayogana R, Madhu R, Ramesh A, Dhanalakshmi UR. A Prospective Clinico mycological study of deep mycoses in a tertiary centre in Tamil Nadu. Int J Res Dermatol. 2016; 4(2):126-135.
11. Subhashini R, Bhat RV. Histopathological features of subcutaneous mycosis: a retrospective study. Tropical Journal of Pathology & Microbiology 2016; 801- 806.
12. Verma S, Thakur BK, Raphael V, Thappa DM. Epidemiology of subcutaneous mycoses in northeast India: A retrospective study. Indian J Dermatol 2016;63:496-501.
13. Pang KR, Jashin WJ, Huang DB, Tyring SK. Subcutaneous fungal infections. DermatTher. 2004; 17(6): 523-31.
14. Gonzalez Santiago TM, Pritt B, Gibson LE, Comfere NI. Diagnosis of deep cutaneous fungal infections: Correlation between skin tissue culture and histopathology. J Am AcadDermatol 2014;71:293-301.