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Clinical profile and demography of patients with chronic folliculitis of leg

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Abstract

Background: Chronic folliculitis (CF) is a superficial bacterial infection of hair follicles, is caused by gram positive and gram-negative organisms and consistently shown to be due to *Staphylococcus aureus*. Chronic folliculitis of legs (CFL) is a chronic and recurrent clinical problem. Overcrowding, malnutrition, unhygienic conditions and occupation like farming are predisposing factors, thus explaining that they are more prone for minor injuries and abrasions of the skin, paving the way to the entry of the microorganisms.

Material and Methods: This is a prospective and observational study on clinically diagnosed cases of Chronic folliculitis affecting lower limbs was conducted by the outpatient Department of Dermatology at Subbaiah Institute of Medical Sciences, Shimoga between June 2020 to September 2020. Prevalence of chronic bacterial folliculitis, various clinical types and their seasonal variation, identification of the causative organism by culture and sensitivity pattern were study.

Result: In our study, the most of the chronic folliculitis cases were between the age group of 21-40 years and maximum number of patients were male. Majority of the cases were observed during summer season. The main presenting complaints were pustules (47.6%) and pruritis (29.2%), complained of pain (21.5%) and hyperpigmentation were 1.5%. *Staphylococcus aureus* organism were common and least organism was proteus.

Conclusion: Diagnosis of Chronic Folliculitis of leg can be done easily in most of the cases on clinical examination. Culture and sensitivity of pus samples from such cases helps to treat patients appropriately and also aids in reduction of complications. Making a policy by dermatologists to follow antibiotic therapy according to sensitivity report helps in decreasing the incidence of antibiotic resistance.

Keywords: Chronic folliculitis of legs, *Staphylococcus aureus*, dermatitis cruris pustulosa et atrophicans

Introduction

Chronic folliculitis (CF) is a superficial bacterial infection of hair follicles, is caused by gram positive and gram-negative organisms and consistently shown to be due to *Staphylococcus aureus* [1]. It is considered as the disease of tropical countries and exact prevalence rates are unavailable for this extremely common condition; the prevalence is reported to be 0.4-4.8% in Nigeria, 2.9% in Sri Lanka and Jayck reported a higher incidence (4.8%) [2].

Chronic folliculitis of legs (CFL) is a chronic and recurrent clinical problem. Overcrowding, malnutrition, unhygienic conditions and occupation like farming are predisposing factors, thus explaining that they are more prone for minor injuries and abrasions of the skin, paving the way to the entry of the microorganisms. Dermatitis cruris pustulosa et atrophicans (DCPA), a common condition of tropics, has unique distinguishing features (chronicity, seasonal variation, male preference, extremities, recurrence in crops, difficult to treat, resulting in atrophy and hair loss) [3]. Treating DCPA is a challenge due to treatment resistance and need of long follow-up.

It still remains a common dermatological entity in India, despite measures to improve hygiene. There is a paucity of Nation-wide data from India; a recent study (2009) reported the prevalence of CF from south Indian city Chennai as high as 3-4% [4]. This condition was ignored for being a common clinical entity as indicated by the limited available data.

With newer antibiotics, the prevalence and disease complications are expected to reduce, but the emergence of treatment resistant strain of bacteria has proved otherwise.

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It primarily affects lower legs, preferentially young men of age group between 15-30 years of developing and underdeveloped countries especially in young Asian men. It has chronic course due to difficulty in achieving a long-lasting cure, which is frustrating for both physician and the patient [5].

Data on the bacteriology of pyodermas from several other regions are available but limited, and none is available from our region. Our study attempted to find out the existence of any differences in the causative agent for pyodermas and their susceptibility to anti-microbials.

Material and Methods

This is a prospective and observational study on clinically diagnosed cases of Chronic folliculitis affecting lower limbs was conducted by the outpatient Department of Dermatology at Subbaiah Institute of Medical Sciences, Shimoga between June 2020 to September 2020. Prevalence of chronic bacterial folliculitis, various clinical types and their seasonal variation, identification of the causative organism by culture and sensitivity pattern were study.

Inclusion criteria

Patients with chronic folliculitis of ≥6 months, pus smear with pus cells and neutrophils, willing to take part and follow study procedures including pus culture and sensitivity.

Exclusion criteria

Patients who have acute folliculitis ≤6 months, on >20 mg/day of oral prednisolone and whose smear showed fungal elements and giant cells were excluded. Body sites affected and types of skin lesions observed were carefully noted. Patients were clinically graded by the modified grading system of Sugathan *et al.* proposed by Kaimal *et al* [6].

- Grade 1: Predominant lesions are follicular pustules with or without surrounding erythema. Erythematous papules may be seen. No alopecia or atrophy
- Grade 2: Predominant lesions are follicular pustules. Papules may be seen in lesser numbers. Alopecia and wiry roughness detected to some degree, atrophy may be present
- Grade 3: Predominant lesions are papules, with a few scattered pustules at periphery — marked alopecia and atrophy
- Grade 4: No pustules with a few papules at the periphery and with complete alopecia and marked atrophy.

After collection of Pus samples from chronic folliculitis at Department of Microbiology, two swabs from each patient were processed immediately for culture and sensitivity. One swab used for gram stain and another swab streaked on Nutrient agar, Blood agar, MacConkey agar, incubated at 37 °C for 24 hours. Identification of bacteria was based on colony characteristics on media and standard biochemical reactions performed with colonies.

Statistical analysis

The collected data was compiled in MS Excel sheet for analysis. Data analysed in Statistical Package for the Social Sciences (SPSS) version 25th was applied. The results expressed as mean, range percentages and using figures and

tables as appropriate.

Result

In our study, the most of the chronic folliculitis cases were between the age group of 21-40 years i.e., 33 out of 65 (50.7%), followed by 41-60 years, i.e., 21 out of 65 (32.3%). Youngest person observed with CBF was 5 years child diagnosed as bacterial folliculitis. 2 (3.0%) cases out of 65 CBF were presented with sycosis barbae (Table 1).

Table 1: Incidence of chronic bacterial folliculitis in different age groups

Age in years	No. of patients	Percentage
1-20	9	13.8
21-40	33	50.7
41-60	21	32.3
>61	2	3.0
Total	65	100

Table 2: Incidence of chronic bacterial folliculitis in different gender groups

Gender	No. of patients	Percentage
Male	57	87.6
Female	8	12.3
Total	65	100

In table 2, maximum number of patients were male than female.

Table 3: Presenting complaints of chronic bacterial folliculitis patients

Seasons	No. of patients	Percentage
Summer	31	47.6
Winter	13	20.0
Exposure to dust	17	26.1
Exposure to cement	4	6.1
Total	65	100

In table 3, majority of the cases were observed during summer season exacerbation i.e., 31 (47.6%) out of 65.

Table 4: Presenting complaints of chronic bacterial folliculitis patients

Presenting complaints	No. of patients	Percentage
Pustules	31	47.6
Pruritus	19	29.2
Pain	14	21.5
Hyperpigmentation	1	1.5
Total	65	100

In table 4, main presenting complaints were pustules (47.6%) and pruritus (29.2%), complained of pain (21.5%) and hyperpigmentation were 1.5% only in table 4.

Table 5: Relationship between duration of illness and grade of lesion

Duration in years	Grade 1	Grade 2	Grade 3	Grade 4	Total
<1	0	9	0	0	9 (13.8)
1-2	0	28	6	2	36 (55.3)
3-4	0	3	11	0	14 (21.5)
>5	0	1	2	3	6 (9.2)
Total	0	41 (63.0)	19 (29.2)	5 (7.6)	65 (100)

In table 5, majority of patients manifested Grade 2 disease (41 [63%]) followed by Grade 3 (19 [29.2%]) and Grade 4 (5 [7.6%]) types. None of them manifested Grade 1 clinical type.

Table 6: Representing various bacterial isolates of chronic bacterial folliculitis

Organism	No. of patients	Percentage
<i>Staphylococcus aureus</i>	41	63.0
<i>Pseudomonas aeruginosa</i>	11	16.9
Coagulase negative staphylococci	9	13.8
Proteus	4	6.1
Total	65	100

In table 6, *Staphylococcus aureus* organism was more and least were proteus.

Table 7: Representing various bacterial isolates of chronic bacterial folliculitis

Drugs	Sensitive	Resistance
Penicillin	9	2
Ampicillin	9	3
Erythromycin	11	1
Cotrimoxazole	19	2
Amikacin	17	1
Total	65	9

Discussion

Skin acts as a mechanical barrier to eliminate invasion of pathogenic microorganisms; by several mechanisms such as periodic desquamation, desiccation, drying, presence of fatty acids, negative electric charge of the skin etc.,

In our study, most of the chronic folliculitis cases were between the 21-40 years i.e., 33 out of 65 (50.7%), followed by 41-60 years, i.e., 21 out of 65 (32.3%). Out of 65 chronic bacterial folliculitis cases, 57 (87.6%) were males, and remaining 8 (12.3%) were females as per this study. Lee AH *et al.*, did a study on chronic folliculitis of legs, observed most commonly in the age group of 16-25 years, predominantly in males [7]. Alves EV *et al.*, reported folliculitis was commonest in the age group of 21 to 30 years [8]. There is evidence that males carry higher numbers of aerobic bacteria than females [9].

Majority of the cases were observed during summer season exacerbation i.e., 31 (47.6%) out of 65 in the present study. In similar to this study Hinds GA *et al.*, noticed more than 50% of folliculitis cases showed summer exacerbation [10]. McMichael A *et al.*, documented 49% of cases were commonly seen in monsoon season [11]. Pruritus identified as the universal symptom in this study was discordant to certain other studies that documented variable pruritus in patients [12]. Some patients complaining of pain over lesions during exacerbations of illness were as reported earlier [13]. As per this study, 47.6% patients presented with pustule predominantly and other lesions were 29.2% Pruritus and pain was 21.5% and least were Hyperpigmentation. Ota M *et al.*, reported 86% of cases presented with a mixture of papules and pustules; and 86% cases had pruritus [14].

Seasonal exacerbation, especially during summer as observed by us, was previously documented [15]. Exposure to cement as exacerbating factor as observed by us was not documented in the previous studies, whether aggravation following exposure to cement is only an exaggerated response of diseased skin to potential allergen needs further

analysis [16].

Our observation of leg being the initial site of involvement in all patients was in agreement with the previous studies [17]. Average duration of involvement of other leg varying from 2 months to 2 years as noted by us was as reported earlier [18]. Our finding of disease duration ranging from 6 months to >5 years was concordant to certain previous studies [19]. However, Aroni K *et al.* documented shorter disease duration ranging from 8 weeks to 2 years in a study of 15 patients [20].

A family history of chronic folliculitis was not noted in any of the affected while the previous studies give conflicting reports on this [21]. Our observation of the anterior and lateral aspect of the leg being the most common site of folliculitis was comparable to literature [22]. Two (4%) patients manifesting lesions limited to posterior aspect of leg as noted by us, was contradictory to the finding of Pasha SK *et al.* who reported sparing of upper and posterior aspect of leg in chronic folliculitis [23].

In the present study, out of 66 isolates from chronic folliculitis cases, 41 (63%) *Staphylococcus aureus* were isolated. Other bacteria isolated were *Pseudomonas aeruginosa* 11 (16.9%), Coagulase Negative Staphylococci 9 (13.8%), Proteus species 4 (6.1%). Jappa *et al.*, revealed 89% of folliculitis patients had Staph. aureus (including mixed growth of S. aureus and beta haemolytic streptococci) and 9% had Staph. epidermidis (including mixed growth of Staph. epidermidis and Beta haemolytic streptococci), Beta haemolytic streptococci was seen as mixed isolate in 7% cases [24]. High incidence of coagulase positive Staphylococci in pyoderma was reported by several other workers [25].

Although resistant to penicillin, 50% of those manifesting pustular lesions in the study had an infection with a common pathogen that was sensitive to commonly prescribed antibiotics. This indicates the need to evaluate the immunological aspects that result in chronicity and recalcitrance associated with chronic folliculitis.

Mild folliculitis can be managed by warm compresses by placing a warm compress/cloth on the affected area for up to 20 minutes; by maintaining good hygiene by cleaning twice daily with soap solution, using clean cloth; soothing bath and skin protection. Moderate and severe folliculitis needs a combination therapy with long term systemic antibiotics, topical antibiotics, corticosteroids and avoidance of risk factors. Number of therapies have been tried by different studies including psoralen with UV-A therapy (PUVA) therapy, ciprofloxacin, rifampicin, dapsone, minocycline [26].

Limitations of the study

1. The current study has a smaller sample size, the large sample size is required for answering the question related to in deep Chronic folliculitis of legs.
2. As our study is a single centre study, large multicentre studies will help in the assessment of improved outcome which will be beneficial for our society.
3. Duration of study on long term basis will help in more additional therapeutic benefit along with our primary outcome.

Conclusion

Most of the Chronic Folliculitis of leg patients were adult males; presented predominantly with papules and pustules. *Staphylococcus aureus* is most common pathogen in our

study. Diagnosis of Chronic Bacterial Folliculitis can be done easily in most of the cases on clinical examination. Culture and sensitivity of pus samples from such cases helps to treat patients appropriately and also aids in reduction of complications. Making a policy by dermatologists to follow antibiotic therapy according to sensitivity report helps in decreasing the incidence of antibiotic resistance.

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