Original Research Article

An epidemiological study of 198 cases of primary cicatricial alopecia in Iran

Abstract

Background: Cicatricial alopecia or scarring alopecia, is a group of trichologic emergency disorders characterized by hair follicle destruction and permanent loss of hair. The aim of this cross-sectional study is to evaluate epidemiological and clinicopathological characteristics of cicatricial alopecia in Isfahan community.

Material and Method: 198 patients with proven diagnosis of cicatricial alopecia by biopsy from 2008 to 2015 included. Data were obtained through filled questionnaires by patients. Descriptive statistical methods were used for analyzing the results.

Result: 198 patients including 126 female (63.6%) and 72 male (36.4%) participated in this study. 69.6% of patients suffered from lichen planopilaris (LPP) (85 female and 53 male), 22.2% discoid lupus erythematosus (DLE) (31 female and 13 male), 6% Folliculitis decalvans (6 female and 6 male), 1%pseudopelade of brocq (2 female and no male) and 1% Follicular mucinosis (2 female and no male).

Conclusion: Cicatricial alopecia in women is more common than men and the most common type of cicatricial alopecia is LPP. Early diagnosis and treatment can reduce the burden of psychosocial problems.

Keyword: Cicatricial alopecia, Lichen planopilaris, Discoid lupus erythematosus, Folliculitis decalvans, pseudopelade of brocq, Follicularmucinosis

Introduction

Cicatricial alopecia, known as scarring alopecia too, is a group of trichologic emergency disorders characterized by hair follicle destruction and permanent loss of hair(1, 2).Pain,

burning, severe itching and rapid progression are symptoms of some patients whereas others have symptom free gradual hair loss that would be neglected for long time(3, 4). This worldwide disease can affect children and adults(5).

Destruction of hair follicle and/or its associated adventitial dermis with relative sparing of the interfollicular reticular dermis is defined as primary cicatricial alopecia. Causes of primary cicatricial alopecia include discoid lupuserythematosus, lichen planopilaris, pseudoplade of brocq, and folliculitis decalvans and are listed in Table 1. Whereas hair loss as a result of non-follicular processis called secondary cicatricial alopecia.The scaring may be secondary to trauma(burns, radiation, traction), infiltrative processes (carcinoma, sarcoidosis) and infection (dermatophyte)(2, 6, 7).

The categories of primary cicatricial alopecia are lymphocytic group (eg, classic pseudopelade of Brocq, chronic cutaneous lupus erythematosus, central centrifugal cicatricial alopecia, lichen planopilaris), neutrophilic (eg, dissecting cellulitis, folliculitis decalvans) and mixed group (eg, folliculitiskeloidalis)(8, 9).The hallmark for diagnosis is biopsy particularly of new lesions as reported previously(10). The aim of this study is to evaluate epidemiological and clinicopathological characteristics of primarycicatricial alopecia in Isfahan population.

Table 1. primarycicatricial alopecia

Initially lymphocytic	**Initially neutrophilic**
discoid lupus erythematosus	Folliculitis decalvanse
Lichen planopilaris(LPP)	Acne keloid
Classical LPP	Tineacapitis
LPP with lichen planus(LP)	Dissecting folliculitis
LPP and LP and spinous lesions	Acne necrotica
(Graham Little syndrome)	Tufted folliculits

LPP with frontal sclerosing alopecia	
Pseudoplade Classical pseudoplade of brocq Pseudopelade-nonspecific cicatricial alopecia follicular degeneration syndrome	
Alopecia mucinosa	

Methods and Materials

This study was conducted on the records of 198 patients with cicatricial alopecia, referred to dermatology clinic of Isfahan Alzahra Hospital from 2008 to 2015. Consent form was filled by all patients and Isfahan University Ethic Committee approved the study.

Inclusion criteria included: 1) the punch biopsy specimen with a diagnosis of cicatricial alopecia based on pathology report from a certified dermatopathologist; and 2) diagnosis obtained by a certified dermatologist. Exclusion criteria included: 1) patients without histologic confirmation of neutrophilic or lymphocytic cicatricial alopecia; and 2) secondary causes of cicatricial alopecia that may mimic these disorders.

Allthe patients underwent lesion biopsy. The obtained data including type of lesions, gender, occupation (indoor or outdoor) and type of lesion based on pathological finding, age and patient's age of onset were analyzed by using SPSSTM version 20 software. The results are expressed in Mean ± Standard deviation. For statistical analysis, the Chi-Square test was used. P-value < 0.05 was considered statistically significant.

Results

198 patients with diagnosis of cicatricial alopecia including 126 female (63.6%) and 72 male (36.4%) participated in this study.Therange of age was 15 to 75 years old. Most of the cases were from 30-39 years old.

184 patients with lymphocytic lesions and 14 patients with neutrophilic exudation were detected. There are 118 female and 66 male with lymphocytic exudation and 8 female and 6 male with neutrophilic exudation but no relation between type of lesion and gender was detected (P-value> 0.05).

The mean age of onset and mean age of patients for lymphocytic type was 38.3 and 40.2 years old whereas for neutrophilic was 35 and 38 years old respectively but there were no significant association among mentioned data (P-value > 0.05).

The demographic characteristics of patients is summarized in Table 2. Inflammatory neutrophilic exudation was seen in 14 (7.1%) patients. Other information is demonstrated in Table 2.

No relationship was found between type of lesions and patient's job as most of our patients had indoor jobs.

Table 2. Demographics of patients with cicatricial alopecia.

Diagnosis	Exudation type	Male	Female	Mean age ± St deviation	Age of onset	Range
LPP	Lymphocytic	53 (38.4%)	85 (61.6%)	38.9 ± 12.8	37.98 ± 13.01	15-75
DLE	Lymphocytic	13 (29.5%)	31 (70.5%)	43.86 ± 12.15	39.40 ± 12.78	30-73
Pseudoplade of brocq	Lymphocytic	0 (0%)	2 (100%)	43.00 ± 15.55	43.00 ± 15.55	32-54

Folliculitis decalvans	Neutrophilic	6 (50%)	6 (50%)	38.16 ± 11.97	34.66 ± 12.42	25-55
Follicular mucinosis	Neutrophilic	0 (0%)	2 (100%)	37.00 ± 0.00	37.00 ± 0.00	37

LPP = lichen planopilaris, DLE = discoid lupus erythematous

Table 3. Type of different lesions based on different range of ages.

Age	LPP n(%)	DLE n(%)	Pseudoplade ofbrocq n(%)	Folliculitis decalvansn(%)	Follicular mucinosisn(%)	Total n(%)
	lymphocytic	lymphocytic	lymphocytic	neutrophilic	neutrophilic	
10-19	7 (3.5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	7 (3.5%)
20-29	25 (12.6%)	1 (0.5%)	0 (0%)	4 (2.02%)	0 (0%)	30 (15.1%)
30-39	50 (25.2%)	20 (10.1%)	1 (0.5%)	2 (1.01%)	2 (1.01%)	75 (37.8%)
40-49	21 (10.6%)	9 (4.5%)	0 (0%)	4 (2.02%)	0 (0%)	34 (17.1%)
50-59	24 (12.1%)	8 (4.04%)	1 (0.5%)	2 (1.01%)	0 (0%)	35 (17.6%)
60-69	9 (4.5%)	2 (1.01%)	0 (0%)	0 (0%)	0 (0%)	11 (5.5%)
70-79	2 (1.01%)	4 (2.02%)	0 (0%)	0 (0%)	0 (0%)	6 (3.03)

total	138 (69.6%)	44 (22.2%)	2 (1.01%)	12 (6.06%)	2 (1.01%)	198 (100%)

LPP = lichen planopilaris, DLE = discoid lupus erythematous

Discussion

Cicatricial alopecia causes destruction of follicular ostia and may lead to permanent hair loss(11). As mentioned above, these diverse disorders can occur primarily such as lupus erythematosus or secondarily due to burn, radiation and infections(8, 12).There is not enough information about these lesions worldwide, while early diagnosis and treatment can control this situation appropriately. In this study we evaluated 198 patients, including 126 female (63.6%) and 72 male (36.4%). Similar to the previous studies (2, 8), Females were affected more than males in our cohort (female to male ratio 1.75). This might explained by the fact that women more likely to seek medical help for skin lesions.But in the study performed in Tabriz, 52% patients were males that maybe due to higher number of neutrophiliccicatricial alopecia that mostly affects male(4). The range of the patients age was 15-75 years but similar to other studies, cicatricial alopecia was found mostly among middle-age patients(13, 14). The most affected patients were 30-39 years old while, the study of Beheshtiroy et al. presented 40-49 years as the most prevalent range of age and this presentation was not significant in both studies(15).

The biopsies were taken in order to identify 1) inflammatory exudation type and 2) lesion type. Lymphocytic cicatricial hair loss occurred approximately 13 times more than neutrophilic one but this higher rate was not significant (P-value > 0.05). This ratio is noticeably greater in comparison with previous studies that may have happened due to racial differences or method of our data collection(16, 17). Predominance of middle-aged females who were resenting from lymphocytic types of cicatricial alopecia was similar to previous studies, but results of this study about neutrophilic lesions did not match previous ones which

had presented these lesions more common among middle-aged males(18). Also, it may have happened due to low number of our neutrophilic affected patients.

Higher rate of patients with lymphocytic lesions is in concordance with other reports(18). Lymphocytic types of the lesions diagnosed through biopsy were LPP, DLE and Pseudoplade ofbrocq.The most common type of lymphocytic lesions was LPP(69.7% of all patients). This higher percentage of LPP is in correspondence with Amatto et al. study while BabaeiNejad et al. reported DLE lesions as the most common ones. DLE lesions have been found in 22.3% of our patients and mostly had affected middle-age females. (4, 18, 19).

LPP age of onset was lower than DLE whereas the results of Tan et al. study were contrary to ours. The age of onset for DLE and LPP in this presentation is 39.40 and 37.98 year-old whereas Tan et al reported 35.6 and 47.7 respectively(8).

Neutrophilic exudation lesions included Folliculitis decalvans and Follicular mucinosis. Among neutrophiliclesions, Folliculitis decalvans had affected 6.06% of patients. However, the percentage of affected patients is much less than other studies but as the most common neutrophilic lesion, this study is in accordance with previous ones(20).

Other studies mentioned the higher prevalence of neutrophilic lesions among middle-aged males but in our study we have not diagnosed any male patient with Follicular mucinosis and 50% of patients with Folliculitis decalvans(6 patients out of 12) included males(21, 22). As mentioned above, this may be as the reason of low number of patients with neutrophilic exudation.

Similar to the study of Beheshtiroy et al. our patients jobs did not have significant association with the disease while in a study of MM Al-Hilo et al. this relation was significant. Although most of our patients had indoor jobs but in the study of Iraq most of the patients had outdoor jobs. Also this significance may be the result of sun exposure(14, 15).

In the retrospective study that was conducted in 2004, Tan et al. reported 112 cases of primary cicatricial alopecia. In this study patients were compared in term of sex, ethnic group, age of onset, clinical pattern and treatment. This study showed a higher prevalence rate of primary cicatricial alopeciain Caucasian patients (Table 4). Chronic cutaneous lupus erythematous (CCLE) represents 33.9% of the total number of cicatrizing cases, pseudoplade 24.1%, LPP 22.3%, folliculitis decalvans (FD) 10.7%, dissecting folliculitis (DC) 4.5% and folliculitis keloidalis1.8% (8). Our data showed LPP is the most common cause of primary cicatricial alopecia. These results are consistent with finding from Caucasian patients. The reported prevalence of DLE in our population is similar to the oriental population. The lower rate of pseudoplade of brocqin comparison to other ethnic that may be due to the difficulty in data collection.

Table 4. Comparison of primary cicatricial alopecia in different ethnicities

Race	CCLE (%)	Pseudoplade of brocq (%)	LPP (%)	FD (%)	DC (%)
Caucasian	63.2	55.5	76.0	23.0	50.0
Oriental	26.3	18.5	4.00	0.00	0.00
Middle Eastern/Indian	10.5	14.8	20.0	62.0	16.0
African American	0.00	11.2	0.00	15.0	34.0

A limitation of this study is retrospective design and data were collected through medical records review over a seven-year-long period, which may present some incomplete or distorted information.

Conclusion

This study investigated several cases that histologically was consistent with cicatricial alopecia over a period of seven years. The results of this study showed thatcicatricial alopecia is more common in women. The most common type is LPP. Histologically the rate of lymphocytic cicatricial alopecia is higher than neutrophilic type.Cicatricial alopecia was shown to be more common among middle-aged individuals, and early diagnosis and treatment is very important in these patients.We suggest that a scalp biopsy is obligatory in all cases and sometimes multiple biopsy is required for definitive diagnosis.No relationship was detected between clinical symptoms, type of job and histopathologic findings. Further studies are needed to clarify the pathogenesis of primary cicatricial alopecia.

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Competing interest

Authors have declared that no competing interests exist.

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