

**Table II.** Summary of survey responses

Survey question	Response rate (%)
	Total N = 45
How long was your complaint present before being seen?	
0-7 days	0 (0)
1-4 weeks	14 (31.1)
1-3 months	10 (22.2)
3-6 months	6 (13.3)
6 months-1 year	8 (17.7)
1+ year	7 (15.5)
Have you seen a prior provider regarding this complaint?	
Yes	15 (33.3)
No	30 (66.7)
Was that prior treatment effective?	
Yes	3 (20)
Partially	4 (26.7)
No	8 (53.3)
Was the treatment you received in the free clinic effective at resolving your chief complaint?	
Yes	37 (82.2)
Partially	6 (13.3)
No	2 (4.4)
Have you ever visited a dermatologist before coming to clinic?	
Yes	8 (17.7)
No	37 (82.3)
How likely are you to visit a dermatologist in future?	
Highly unlikely	0 (0)
Unlikely	3 (6.7)
Neutral	4 (9.5)
Likely	6 (13.3)
Highly likely	32 (71.1)

medical students to gain hands-on exposure to a breadth of dermatology conditions at the bedside, while having an direct role in delivering impactful care to underserved populations. Experience of undergraduate students, medical students, and residents to working with underserved populations has been shown to promote future practice in underserved communities<sup>2</sup> and may serve as a valuable long-term approach to fostering interest of trainees in clinical dermatology, and engagement in caring for the underserved.

These survey data should be interpreted with limitations. First, as a single-institution study, results may vary from other clinics and locations. Additionally, we acknowledge potential response and social desirability bias for patients. Finally, although the survey instrument included questions commonly utilized in quality assurance/improvement studies, it had not been previously validated. Nonetheless, we feel that the information gained from the CFC experience supports the value of

partnerships between dermatologists and free clinics to provide hands-on experience and mentorship to future generations of dermatologists, while providing a useful service to a population that struggles to access dermatology care.

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### Clusters of CD123+ plasmacytoid dendritic cells help distinguish lupus alopecia from lichen planopilaris



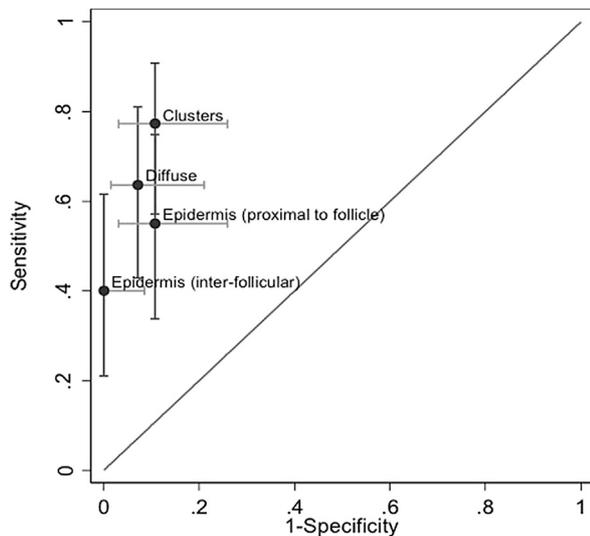
*To the Editor:* The distinction of cicatricial (primary scarring) alopecia secondary to lichen planopilaris (LPP) from lupus erythematosus (LE) can be challenging because of significant clinical and histopathologic overlap, and there is a need for additional tools to help make a diagnostic distinction between LPP and LE in everyday practice. We report the differences between the CD123+ plasmacytoid dendritic cells (PDCs) expression in LPP and LE alopecia.

PDCs produce type I interferons in response to pathogenic agents and play a crucial role in the initiation of inflammation in autoimmune and immuno-allergic dermatoses, cutaneous neoplasms, and skin infections. PDCs are found in skin biopsies from patients with systemic LE, discoid LE, Jessner's lymphocytic infiltrate (lupus tumidus), and subcutaneous LE.<sup>1</sup> Type I interferon system activation has also been reported in dermatomyositis, Sjogren syndrome, morphea, systemic sclerosis, and alopecia areata. The presence of PDCs has already been used

**Table I.** Results of CD123 immunostaining sensitivity (probability of positive test if the diagnosis is lupus) and specificity (probability of negative test if the diagnosis is not lupus)

CD123	Sensitivity	95% Confidence intervals	Specificity	95% Confidence intervals	P
Clusters	0.773	(0.571-0.908)	0.893	(0.741-0.969)	<.001
Diffuse	0.636	(0.429-0.811)	0.929	(0.790-0.985)	<.001
Epidermis (proximal to follicle)	0.550	(0.338-0.749)	0.893	(0.741-0.969)	.001
Epidermis (inter-follicular)	0.400	(0.211-0.616)	1.000	(0.915-1.000)	<.001

The presence of CD123 clusters in lupus demonstrated the highest sensitivity and specificity. Diffuse expression of CD123 was less sensitive than the presence of clusters but demonstrated similar specificity. The presence of CD123 cells underneath the perifollicular epidermis and underneath the interfollicular epidermis showed low sensitivity but similar specificity to the previous findings. Confidence intervals were calculated using the Jeffreys method (Statistical Science 2001;16:101-133). Missing or unreadable results were included and counted as negative for lupus.



**Fig 1.** Sensitivity and specificity of CD123 immunostaining in favor of alopecia lupus. The vertical axis indicates increased sensitivity, and the horizontal axis indicates decreased specificity. The sensitivity and specificity confidence intervals are also indicated with a vertical and horizontal line around the central point, respectively.

to help distinguish lupus from dermatomyositis<sup>2</sup> and from rosacea<sup>3</sup> and distinguish lupus panniculitis from subcutaneous panniculitis-like T-cell lymphoma.<sup>4</sup> To our knowledge, the pattern of PDC infiltration in LPP has never been reported.

This is a retrospective study in which a total of 35 LPP cases and 20 LE cases were selected for comparison of CD123 immunoreactivity. All LPP cases had to meet all of the following 4 criteria: (1) A typical clinical presentation; (2) Perifollicular scarring at the level of the infundibulum or superficial isthmus with a perifollicular lymphocytic infiltrate at the same level; (3) An absence of inter-follicular epidermal interface dermatitis; (4) An absence of any infiltrate in the deep dermis or subcutis. All cases of discoid LE had to meet all of the following 3 criteria: (1) A typical clinical

presentation; (2) The presence of inter-follicular epidermal interface dermatitis; (3) The presence of a lymphocytic infiltrate in both the superficial of deep dermis and the subcutis. All cases had at least one 4-mm punch biopsy. The specimens were processed through the HoVert (Horizontal & Vertical) technique.<sup>5</sup>

Both isolated CD123+ PDCs and CD123+ clusters (defined as at least 5 clustered PDCs) were examined within the dermis (papillary dermis in the vertical sections, superficial reticular and deep reticular dermis in the horizontal sections), underneath the epidermis proximal to the hair follicle opening (in vertical sections), and underneath the interfollicular epidermis (in vertical sections). Table I summarizes the statistical results. A comparison of the sensitivity and specificity findings is presented in Fig 1. The presence of PDCs clusters is a highly predictive finding in the diagnosis of LE. The presence of individual cells within dermis, underneath perifollicular epidermis, and underneath interfollicular epidermis shares a similar specificity but less sensitivity, still favoring LE. The differences in sensitivity could be explained by the presence of follicular interface dermatitis in both LE and LPP, whereas the interfollicular epidermis is involved only in LE.

This study adds to published evidence that CD123 immunostaining is helpful in the diagnosis of cutaneous LE. Clusters of CD123+ PDCs are a reliable histopathological clue to help to distinguish alopecia LE from LPP.

All statistical analysis was performed by the Biostatistics and Design Program of the Oregon Clinical and Translational Research Institute (OCTRI) with Stata 13.1. The Biostatistics and Design Program of OCTRI is supported by a grant (UL1TR000128) from the National Center for Advancing Translational Sciences at the National Institutes of Health. The content of this study is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

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#### Qualitative study shows disease damage matters to patients with hidradenitis suppurativa



To the Editor: Hidradenitis suppurativa (HS), a chronic, inflammatory skin disease, causes intensely sore nodules and abscesses that result in scars and dyspigmentation.<sup>1</sup> New validated scoring tools for skin diseases incorporate separate “damage” and “activity” scores.<sup>2-4</sup> This is important since both “active,” or inflammatory, lesions and disease “damage,” namely scars or dyspigmentation, can negatively impact patients' quality of life and self-esteem.<sup>5</sup> In addition, non-visible scars cause greater psychosocial distress than visible scars.<sup>5</sup> This is especially apropos for HS patients. Thus, the objective of this

study was to explore HS patients' experiences with disease symptoms, relating to damage versus ‘active’ or inflammatory HS lesions.

We performed an exploratory, qualitative study with patients evaluated for HS in the Penn State Department of Dermatology. Patients were recruited in June 2015 and after giving verbal consent and confirming English fluency, semi-structured interviews were performed in-person by one interviewer (J.S.K.) using an interview guide (Table I). Interviews were performed in July and August 2015. Interviews were tape-recorded and transcribed verbatim. Transcripts were reviewed line-by-line after each interview and words, phrases, and passages were coded using NVivo 10 (QSR International, Burlington MA). These codes were used to inform subsequent interviews. Codes were reviewed after each interview, and the final codes were applied to all interviews, then grouped into themes. Thematic saturation, the point when no further new themes were identified, was reached by the sixteenth interview. This study was approved by the institutional review board of the Penn State College of Medicine.

Twenty-one patients participated (16 females [76.2%], 5 males [23.8%]); mean age was 46.8 years (standard deviation [SD] 13.7 years); with various ethnicities (13 non-Hispanic White [61.9%], 3 Hispanic [14.3%], 2 Black [9.5%], 1 Asian [4.8%], and 2 with mixed ethnicity [9.5%]); mean disease duration was 20.5 years (SD, 12.7 years); Hurley stage II (12 [57.1%]) or Stage III (9 [42.9%]) disease. HS damage, scars, or dyspigmentation, caused psychological symptoms or limitations in 17 participants (80.9%) and physical symptoms or limitations in 8 participants (38.1%). These persisted after active lesions resolved. Table II demonstrates participants' symptoms and restrictions due to HS damage.

This study shows that patients with HS experience physical and psychological symptoms, with resultant limitations, due to HS damage and not only from active HS lesions. While this was an exploratory study of limited size, it may impact practice in multiple ways. First, it is important to monitor the development of scarring separate from inflammatory disease activity. Existing HS outcome measures either do not score disease damage or it is included within a composite score. This needs to be changed since a composite score may not accurately reflect the flux of inflammatory lesions or accumulation of damage. Second, this study suggests that damage has an important impact on patients' quality of life; thus, separate scores improve tool validity. Lastly, patients may continue to report symptoms or restrictions due to damage rather than inflammation. As a result, patients need active management of