The scourge of chronic pruritus—pruritus lasting 6 or more weeks1—should not be underestimated. Recent studies have documented the extent of the problem, finding point prevalences ranging from 13% to 17%2-4 and lifetime prevalences of 22% to 26%.2,4 Prior research on chronic pruritus has also found a substantial effect on quality of life (QoL). In several studies, Yosipovitch and colleagues5-7 found pruritus to significantly influence QoL proxies including mood, concentration, eating habits, sexual function, and sleep. Wolkenstein et al8 found that chronic pruritus impaired QoL more than other skin problems. Kini et al9 found no significant difference between the impact of chronic pain and chronic itch on QoL.

Whereas the impact of chronic pruritus on QoL has been established, a second-order question—what factors mediate this impact—remains lightly studied. A negative correlation between pruritus severity and QoL has been documented,2,10-12 and the importance of several other factors has been addressed with small studies. Desai et al13 found that pruritus etiology and sex influenced the impact of pruritus on QoL: urticaria engendered greater impact on functional aspects of QoL, and women were more negatively affected by chronic pruritus than men. Stander et al14 also found a greater impact of chronic pruritus on women. Kini et al9 found that unmarried persons were more adversely affected by chronic pruritus than their married counterparts. A study of patients with psoriasis...
found no relationship between age, sex, disease duration, sleep quality, and the impact of pruritus on QoL. Although these studies explored the relevance of some variables, the role of many patient and pruritus characteristics in determining the impact of pruritus on QoL remains a mystery. To address this knowledge void, we undertook a cross-sectional study of a large sample of US military veterans. We hypothesized that a multitude of factors would significantly affect how chronic pruritus influences QoL.

Methods

The Emory University institutional review board approved this cross-sectional study. This study consisted of 2 phases: (1) creating a panel of comprehensive surveys to capture information on patients and their pruritus and (2) administering the survey to a sample of patients from the Veterans Hospital Patient Database.

Survey Design

We designed a panel of surveys to capture patient demographic, medical history, therapeutic, and personality data. Questions from published surveys were assimilated, as follows:

1. ItchyQoL – ItchyQoL is a validated, pruritus-specific instrument that measures the degree to which pruritus affects QoL. This impact is quantified into 3 subscores (symptom, function, emotion) and an overall score. A higher score corresponds to a more adverse impact on QoL. We used the frequency version of this instrument.

2. Questionnaire for the Assessment of Pruritus – This questionnaire characterizes a patient’s pruritus.6

3. NEO 5-factor inventory – Developed by psychologists at the National Institutes of Health, this survey is predicated on the 5-factor personality model, which divides personality into 5 domains: openness, conscientiousness, extraversion, agreeableness, and neuroticism. Survey answers are used to score patients on these 5 domains; a higher score corresponds to a higher degree of that personality trait.15

4. 12-Item Short Form Health Survey – This validated questionnaire measures generic health-related QoL. We do not report results from this questionnaire here.

Questions regarding risk factors for pruritus were developed through a literature review. Economic and family impact questionnaires were developed by the adaptation of existing validated measures. Phase 1 of the study involved testing the panel of surveys with veterans for content and face validity, clarity, reliability, and feasibility. Cognitive interviewing and psychometric analyses were performed. The results of this testing have been reported elsewhere.16 The final comprehensive survey consisted of more than 300 questions.

Study Population and Sample

Patients for phase 2 of this study were drawn from the Veterans Hospital Patient Database. The database was stratified using the US Census Bureau’s 6 geographic areas to ensure diverse geographic representation. From this stratified database, 6000 veterans were sampled at random. Interviewers at the University Center for Social and Urban Research at the University of Pittsburgh attempted to call these 6000 veterans at least 3 times each. Exclusionary criteria were inability to speak English or inability to answer questions due to disability. Ultimately, 1075 veterans agreed to participate; all participants provided verbal informed consent. At the time of the telephone call, 405 of the veterans had chronic pruritus. The entire survey was administered to these 405 veterans; the remaining 670 veterans answered fewer questions because the itch-related questions were not applicable. Because our focus is the impact of chronic pruritus on QoL, our analysis uses only the replies from the 405 veterans with chronic pruritus.

Statistical Analysis

Survey responses were translated into both categorical and continuous variables.

Categorical Variables

Many survey questions featured multiple discrete answer choices (more than 12 choices in some cases); we transformed these questions into categorical variables. To reduce the number of categories, answers were combined in a logical fashion. For example, hand, forearm, and upper arm were separate answer choices for a question asking the anatomic location of pruritus. For analysis, these 3 answers were combined to form a single upper extremity category. Answers to some survey questions that were initially continuous (eg, income, body mass index [BMI, calculated as weight in kilograms divided by height in meters squared], frequency of itch, duration of pruritic condition) were translated into categorical variables when the responses did not show a normal distribution. The categorical variables used in our analysis are listed in Table 1.

To derive the “possible etiology” variable, patients were asked a series of questions regarding whether they had any of a number of cutaneous and systemic diseases that can cause pruritus. On the basis of their answers to these questions, patients were then grouped into the cutaneous only, systemic only, cutaneous and systemic, and idiopathic categories. However, we cannot say for certain that a particular disease affirmed by a patient is definitively causing the patient’s pruritus, hence the modifier “possible” prepended to “etiology.”

Continuous Variables

Continuous variables are pruritus severity, personality domain scores, and age. Patients scored pruritus severity on a scale of 1 to 10. The NEO 5-factor inventory consists of 60 items. The interviewer read each item to a patient (eg, “I really enjoy talking to people”), who then responded on a scale of 1 (strongly disagree) to 5 (strongly agree). Personality scores were calculated using the NEO inventory’s prescribed addition and subtraction of various responses. These personality scores are interval variables. The means and standard deviations of the 5 personality domains depend on the population to which the inventory is applied, so no inferences can be gleaned from the absolute level of these statistics.
ItchyQoL Scores
The frequency version of the ItchyQoL instrument consists of 22 items. These items are divided into 3 constructs: symptomatic impact (6 items), functional limitations (7 items), and emotional impact (9 items). The interviewer read each item to a patient (eg, "my itchy skin often makes it difficult to concentrate"), who then responded on a scale of 1 (never) to 5 (always). Subscores for each construct are summations of the numerical responses. The ItchyQoL total score for a patient is the sum of the symptom, function, and emotion subscores. Some veterans responded to ItchyQoL items with "I don’t know." For a given subscore, if a patient responded "I don’t know" to 1 or 2 items, these responses were replaced with the mean numerical response of that subscore’s other items. In total, 42 items were answered "I don’t know," necessitating adjustment to 40 subscores (3% of the total subscores). One of the 405 patients answered 3 emotion items with "I don’t know;" his data point was removed entirely for the analyses involving the ItchyQoL total score and emotion subscore.

Analysis
As a first step, we undertook univariate analysis to screen for relationships between the total ItchyQoL score and other variables. Relationships between continuous variables and the total ItchyQoL score were determined using analysis of variance and \( t \) testing. Relationships between categorical variables and ItchyQoL scores were determined using \( \chi^2 \) testing. A priori, we had decided to use all variables from the univariate analysis with \( P \) values \( \leq .20 \) as predictor variables in multivariate analysis. All of the aforementioned variables met this threshold.

As the second step, we undertook multivariate analysis using a generalized linear model with ItchyQoL scores (total and subscores) as the response variables for a total of 4 different models. By convention, we deemed \( P \leq .05 \) to be significant.

While undertaking the survey, occasionally a veteran replied "I don’t know" or declined to answer a survey question.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient characteristics</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>374 (93)</td>
</tr>
<tr>
<td>Female</td>
<td>30 (7)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>298 (74)</td>
</tr>
<tr>
<td>African American</td>
<td>76 (19)</td>
</tr>
<tr>
<td>Other</td>
<td>30 (7)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>230 (57)</td>
</tr>
<tr>
<td>Not married</td>
<td>174 (43)</td>
</tr>
<tr>
<td>Region of residence</td>
<td></td>
</tr>
<tr>
<td>South</td>
<td>129 (32)</td>
</tr>
<tr>
<td>West</td>
<td>113 (28)</td>
</tr>
<tr>
<td>Midwest</td>
<td>98 (24)</td>
</tr>
<tr>
<td>Northeast</td>
<td>63 (16)</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>1 (0)</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
</tr>
<tr>
<td>College degree or more</td>
<td>174 (43)</td>
</tr>
<tr>
<td>Some college</td>
<td>109 (27)</td>
</tr>
<tr>
<td>High school or less</td>
<td>121 (30)</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>185 (46)</td>
</tr>
<tr>
<td>Employed</td>
<td>116 (29)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>68 (17)</td>
</tr>
<tr>
<td>Disabled</td>
<td>35 (9)</td>
</tr>
<tr>
<td>Income, $</td>
<td></td>
</tr>
<tr>
<td>( \leq 25,000 )</td>
<td>142 (37)</td>
</tr>
<tr>
<td>( &gt;25,000 ) and ( &lt;50,000 )</td>
<td>139 (36)</td>
</tr>
<tr>
<td>( \geq 50,000 )</td>
<td>105 (27)</td>
</tr>
<tr>
<td>BMI</td>
<td></td>
</tr>
<tr>
<td>&lt;25</td>
<td>74 (18)</td>
</tr>
<tr>
<td>( \geq 25 ) and ( &lt;30 )</td>
<td>166 (41)</td>
</tr>
<tr>
<td>( \geq 30 ) and ( &lt;35 )</td>
<td>92 (23)</td>
</tr>
<tr>
<td>( \geq 35 )</td>
<td>72 (18)</td>
</tr>
<tr>
<td>Possible etiology</td>
<td></td>
</tr>
<tr>
<td>Cutaneous and systemic</td>
<td>300 (74)</td>
</tr>
<tr>
<td>Systemic only</td>
<td>61 (15)</td>
</tr>
<tr>
<td>Cutaneous only</td>
<td>32 (8)</td>
</tr>
<tr>
<td>Idiopathic</td>
<td>11 (3)</td>
</tr>
<tr>
<td>Pruritus characteristics</td>
<td></td>
</tr>
<tr>
<td>Itch location</td>
<td></td>
</tr>
<tr>
<td>Multiple locations</td>
<td>262 (65)</td>
</tr>
<tr>
<td>Lower extremities</td>
<td>40 (10)</td>
</tr>
<tr>
<td>Upper extremities</td>
<td>31 (8)</td>
</tr>
<tr>
<td>Torso</td>
<td>29 (7)</td>
</tr>
<tr>
<td>Groin and buttocks</td>
<td>23 (6)</td>
</tr>
<tr>
<td>Head and neck</td>
<td>19 (5)</td>
</tr>
<tr>
<td>Itch duration, y</td>
<td></td>
</tr>
<tr>
<td>( \leq 2 )</td>
<td>106 (26)</td>
</tr>
<tr>
<td>( &gt;2 ) and ( \leq 8 )</td>
<td>103 (26)</td>
</tr>
<tr>
<td>( &gt;8 ) and ( \leq 20 )</td>
<td>108 (27)</td>
</tr>
<tr>
<td>( &gt;20 )</td>
<td>86 (21)</td>
</tr>
</tbody>
</table>

(continued)
We have outlined how we treated such responses to ItchyQoL items. When veterans responded “I don’t know” or declined to answer other questions, predictor variables derived from those questions could not be calculated and/or categorized. Ergo, such a patient was excluded from univariate and multivariate analyses involving that variable. Fortunately, the “I don’t know” and declined responses were infrequent, with most involving the question on income. The sample size for multivariate analysis only decreased from 404 to 384 individuals. All analyses were performed with SAS software, version 9.3 (SAS Institute).

Results

Table 1 and Table 2 summarize the frequencies of the categorical variables and the means and standard deviations of the continuous variables, respectively. Because the means of the personality scores are not informative (as explained in the Methods section), these variables are omitted from Table 2. Our pruritic veteran population consisted primarily of white men; the mean age was 60.7 years. The majority were married, had at least some college education, and had both cutaneous and systemic conditions that could engender pruritus. Most veterans reported pruritus affecting multiple locations and lasting more than 2 years. Region of residence, income, and employment status were fairly evenly distributed.

The multivariate model exhibited statistical significance ($P < .001$) and good explanatory power ($R^2 = 52\%$). Table 3 summarizes the results of the multivariate analysis, with the continuous and categorical variables at the top and bottom of the table, respectively.

Pruritus Characteristics

Itch severity significantly ($P < .001$) directly correlates with the total ItchyQoL score and its 3 constitutive constructs. Itch fre-
quency, duration, and anatomic location are all significantly related to the impact of pruritus on QoL. Pairwise comparison generally supports that a higher itch frequency significantly \((P < .01)\) correlates with a greater impact on QoL. Likewise, pairwise comparison shows that pruritus of longer duration exerts a greater impact on QoL. Time of day when itch is worst is not significantly related to ItchyQoL scores.

**Patient Characteristics**

Marital status, age, race, and possible etiology are all significantly related to the impact of pruritus on QoL. Marriage is associated with a lower ItchyQoL total score and symptom subscore. Age exhibits significant, negative correlation with the total ItchyQoL score and all 3 subscores. With respect to possible etiology, the ordinal ranking of the categories from greatest to least impact on QoL is as follows: (1) cutaneous and systemic reason to itch, (2) systemic reason, (3) cutaneous reason, (4) neither. However, pairwise comparisons of these categories revealed no significant differences. Race is significant, with nonwhites experiencing a significantly greater impact on QoL than whites. Pairwise comparisons failed to find a significant difference between the race categories.

Multivariate analysis revealed a significant negative coefficient for patients’ extroversion score with respect to ItchyQoL total and function scores. Conversely, analysis found a significant positive coefficient for patients’ neuroticism score with respect to ItchyQoL total, symptom, and emotion scores. Three personality domains failed to show significance: openness, conscientiousness, and agreeableness.

Sex, region of residence, education level, employment status, income, and BMI did not exhibit significant association with ItchyQoL scores.

**Discussion**

Medical research has established that chronic disease substantially affects QoL.\(^\text{37}\) Similarly, dermatologic investigation has found a deleterious effect of chronic pruritus on QoL.\(^\text{5,9,9}\) For some chronic diseases (eg, diabetes mellitus, congestive heart failure, end-stage renal disease), investigation has revealed the factors that mediate the impact of the disease on patients’ QoL. For chronic pruritus, the identity of these factors is largely unknown. To remedy this knowledge void, we collected extensive demographic, medical, and QoL data from a large, diverse sample of pruritic patients. Multivariate analysis revealed that an array of variables influences the impact of chronic pruritus on QoL. Important insights can be gleaned from the results.

**Pruritus Characteristics**

Not surprisingly, itch severity was found to significantly influence the ItchyQoL total score and all 3 subscores. The correlation is positive, with greater pruritus severity yielding a greater impact on QoL. At the same time, itch frequency significantly correlates with total ItchyQoL. Taken in isolation, the significance of itch frequency is not surprising. However, it is interesting that the impact of itch frequency on QoL is not fully captured by the itch severity measure. One could reasonably expect that itch frequency is a prominent determinant of itch severity and as such would not be independently significant. However, our results suggest otherwise.

Several patterns for the influence of chronic disease duration on QoL have been hypothesized: no effect, adaptation, and chronic exasperation.\(^\text{18}\) Studies of congestive heart failure, chronic prostatitis, and diabetes mellitus have shown that disease duration has no effect on QoL.\(^\text{19-21}\) Chronic pruritus does not behave in the same fashion, as our analysis provides evidence for chronic exasperation: increasing duration significantly correlates with greater negative QoL impact. The significance of all 3 ItchyQoL subscores indicates that symptoms, functional status, and emotional health deteriorate as chronic pruritus persists.

The impact of chronic pain on QoL depends in part on its anatomic location.\(^\text{22}\) We included itch location in our analyses to investigate for a similar relationship, and location did prove significant. Interestingly, pruritus afflicting the upper extremities has the most adverse impact on QoL, although pairwise comparison revealed no significant differences vs other anatomic locations. In the multivariate analyses that used the 3 ItchyQoL subscores as dependent variables, anatomic location has the lowest \(P\) value \((P < .001)\) when modeled with the function subscore. This finding suggests that the higher degree of impact experienced by patients with upper extremity pruritus may be due to functional impairment.

**Patient Characteristics**

Studies of the impact of age on QoL in chronic disease have produced dissimilar results. Some researchers found increasing age to diminish the negative impact on QoL;\(^\text{20}\) some found no relationship between age and QoL;\(^\text{19-21}\) others found that increasing age correlates with declining QoL.\(^\text{21}\) In our analysis, age has a significant, negative coefficient when modeled against the total ItchyQoL score and the 3 subscores. The negative coefficient indicates that older age correlates with less adverse impact on the QoL, and the perversity of age pervades the spectrum of morbidity. The statistical significance of age lies in contrast to the findings of a study of QoL in pruritic patients with psoriasis.\(^\text{12}\)

Research on the relationship between race and QoL in chronic disease has yielded heterogeneous results. Some research has found no correlation between race and QoL measures.\(^\text{20-24}\) End-stage renal disease has been shown to more negatively affect the QoL of whites\(^\text{25}\) and nonwhites.\(^\text{26}\) Kingston et al\(^\text{26}\) found that greater functional impairment of nonwhites with chronic disease was attributable to socioeconomic status and not race. Our analysis has found a significant association of race with the impact of chronic pruritus on QoL, even after we controlled for socioeconomic variables. The total ItchyQoL scores for both the African American and other race categories are approximately equal and 9% higher than the score for whites, although no comparisonwise error rate was significant. With respect to ItchyQoL subscores, race was significant \((P = .02)\) only when modeled with the function sub-
score, suggesting that race’s influence on QoL is mediated through functional impairment.

Marital status significantly influences the impact of pruritus on QoL, with chronic pruritus having less effect on married persons. The mean ItchyQoL score for an unmarried person is 7% worse. Interestingly, the ItchyQoL symptom subscore was the only significant construct, intimating that marriage ameliorates the impact of pruritus more through symptom relief than through the function and emotion constructs. The beneficial impact of marriage on QoL is consistent with prior QoL research. As such, although the data support a relationship between possible etiology and QoL, the evidence is not as conclusive as for other variables.

**Personality**

To capture the influence of personality on QoL, we incorporated personality domains into our analysis. Extroversion and neuroticism proved statistically significant. This finding is consistent with the psychology literature, which has shown that extroversion and neuroticism are important factors in determining well-being. Psychologists define neuroticism with the modifiers anxious, self-pitying, tense, touchy, unstable, and worrying. An association of neuroticism with lower QoL has been shown in patients with inflammatory bowel disease, Parkinson disease, chronic headache, cancer, breast cancer specifically, and chronic disease in older patients. In our analysis, neuroticism featured a positive coefficient with respect to total ItchyQoL; both the symptom and emotion constructs were significant. Ergo, we conclude that chronic pruritus has a more detrimental QoL impact in more neurotic patients, manifesting as an exacerbation of symptoms and decline in emotional well-being.

To define extroversion, psychologists use the adjectives active, assertive, energetic, enthusiastic, outgoing, and talkative. Unlike neuroticism, evidence for the influence of extroversion on QoL in chronic disease is scant. Among patients with Parkinson disease, Dubayova et al found extroversion to predict less impact on QoL in men only. Similarly, our analysis found a significant negative association of extroversion with total ItchyQoL and the function construct. These findings indicate that a greater degree of extroversion reduces the impact of pruritus on QoL, specifically on functional capacity. Note that this stands in contrast to neuroticism, in which a greater degree of neuroticism increases the symptomatic and emotional impact.

**Variables Not Significant**

A number of variables did not exhibit significance: sex, region of residence, education level, employment status, income, BMI, and time of day when itch is worst. Several interesting observations can be made. First, socioeconomic status—as represented by education level, employment status, and income—does not mediate the impact of chronic pruritus on QoL. Second, pruritus that is worst after 8 PM (ie, pruritus that affects sleep) does not produce a more negative impact on QoL. Not only is the worst-itch-time variable not significant, but the after–8 PM category exhibited the second lowest impact on QoL of the 7 time groups (although pairwise comparisons revealed no significant differences). This finding challenges the widely held belief that pruritus (at least generalized pruritus) is worst at night. Third, sex was not found significant. This discovery lies in contrast to previous studies that found chronic pruritus to more severely affect the QoL of female patients. Women constitute only 7% of our sample, but the difference between the estimates for men and women was minuscule ($P = .98$). There is no evidence to suggest that sex would become significant with a multiplicative increase in the sample size.

**Limitations**

Our sample features racial, socioeconomic, and regional diversity but is constituted entirely of US military veterans. As such, generalization of results to nonveteran populations merits caution. Furthermore, caution must also be exercised when extrapolating our findings to younger populations because only 8% of our sample was 40 years or younger. Conclusions drawn from our sample may not be applicable to other populations.

Theoretically, one could argue that the problem of causality complicates the interpretation of the personality results. Our analysis presumes that personality affects a patient’s response to chronic pruritus, but the possibility exists that chronic pruritus may influence personality. This chicken-and-egg issue (ie, how personality and events influence each other) has been studied extensively in the psychology literature, where it is generally accepted that adult personality is stable. As such, the presence of chronic pruritus would not be expected to alter a person’s neuroticism and extroversion quotients, and the use of personality factors as independent variables would not be complicated by bidirectional causality.

**Conclusions**

This study represents the next epidemiologic step in chronic pruritus research: understanding the factors that mediate the impact of chronic pruritus on QoL. Using data collected from a large, geographically diverse sample of the US veteran population, we found that multiple patient and pruritus characteristics significantly influence this relationship: demographic characteristics (age, race, marital status), personality (extroversion, neuroticism), pruritus parameters (severity, duration, frequency, anatomic location),
and etiology (cutaneous, systemic). The significance of some of these variables (marital status, neuroticism, anatomical location) mirrors what has been found in other chronic diseases. Notable factors not found significant include sex and socioeconomic variables (education level, employment status, income). The multitude of significant factors demonstrates the complex relationship between chronic pruritus and QoL. We hope that better appreciation of these factors will improve the clinical evaluation and treatment of chronic pruritus. Future directions of research include investigating why race influences the impact of chronic pruritus on QoL and exploring whether support groups or personality-specific interventions may help mitigate the QoL impact of chronic pruritus.

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NOTABLE NOTES

Dermatologic Food for Thought: A Word Search Challenge

Walter H. C. Burgdorf, MD; Leonard J. Hoenig, MD

Word search puzzles are fun to solve and have been around since 1968. We thought readers might enjoy the challenge of a dermatology-related word search, and so we have prepared one based on the theme of food eponyms.

To solve the puzzle, you must first identify, from the list below, 12 food or beverage terms used in dermatology. To do this, you need to fill in the blanks with the appropriate food words. Each blank has only 1 word for an answer except for number 1 (3 words) and number 7 (2 words). Please note that the answer to number 3 is a homonym of a food name.

Once you have figured out the missing food or drink words, you must then find them in the word search grid below in which they are hidden.

These words may be listed horizontally, vertically, or diagonally in a total of 8 different possible directions. Some words may intersect. Answers are provided below.

There is no time limit to do the puzzle. However, if you can solve this word search challenge in less than 10 minutes, then you are truly a dermatology word search champion! Good luck!

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Corresponding Author: Leonard J. Hoenig, MD, 601 N Flamingo Rd, No. 201, Pembroke Pines, FL 33028 (gooddocsjh@gmail.com).

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FOOD WORDS

1. ___ SPOTS
2. ___ ANGIOMA
3. ___ DIGIT
4. ___ EAR
5. ___ MOLAR
6. ___ STAIN
7. ___ PEAU D’___
8. ___ MARK
9. ___ MEATBALLS
10. ___ COLORED CRUSTS
11. ___ PLUCKED ___ SKIN

CLUES

1. A finding in neurofibromatosis type 1 (3 words)
2. Also called Campbell De Morgan spots
3. A heloma or clavus
4. Dactylitis
5. Common among wrestlers
6. Stigma of congenital syphilis
7. Nevus flammeus (2 words)
8. Seen in inflammatory breast cancer
9. A type of hemangioma
10. Microscopic appearance of Malassezia
11. Seen in impetigo
12. Seen in pseudoanthoma elasticum