Palmar Telangiectasias: A Cutaneous Sign for Smoking

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Keywords

Telangiectasias · Smoking · Skin sign

Abstract

Background: Telangiectasias are permanent dilations of blood capillaries which appear in a variety of medical conditions. Cutaneous palmar telangiectasias have been postulated to be associated with smoking. **Objective:** To determine whether a significant correlation exists between palmar telangiectasias and smoking habits. **Patients and Methods:** A total of 124 volunteers participated in this observational study by allowing physical evaluation of their palms and by completing a questionnaire. **Results:** Palmar telangiectasias were found to be associated with current or past smoking. Neither age nor gender was found to be a co-contributor. **Discussion:** Palmar telangiectasias were found to constitute highly specific and sensitive markers for prolonged smoking.

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Introduction

Telangiectasias are permanent dilations of blood capillaries [1]. They might appear in various body organs and tissues [2].

Telangiectasias are divided into primary and secondary ones. Primary telangiectasias include unilateral ne-

void telangiectasia, generalized essential telangiectasia, angioma serpiginosum, and others [3–5]. Secondary telangiectasias are associated with a whole range of medical conditions such as actinic damage [6], basal cell carcinoma [7], rosacea [8], poikiloderma [9], and drugs including oral contraceptives [10], corticosteroids [11], and epidermal growth factor receptors [12]. Other conditions such as collagen vascular diseases (dermatomyositis [13], systemic lupus erythematosus [14], rheumatoid arthritis [15], and scleroderma [16]), genetic-congenital conditions (Bloom syndrome [17], ataxia telangiectasia [18], and hereditary hemorrhagic telangiectasia [19]), metabolic disturbances (pregnancy [20], Graves disease [21], hepato-pulmonary-cutaneous syndrome [22], and liver insufficiency [23]), and hepatitis B infection [24] have all been linked with telangiectasias.

Telangiectasias associated with specific anatomical locations are rare and include palmar telangiectasias [25]. Although the latter may be confused with palmar erythema, they represent different entities. Interestingly, whereas smoking has been associated with palmar erythema [26, 27] and other skin conditions such as accelerated skin aging [28], delayed wound healing [29], and psoriasis [30], no such association with palmar telangiectasias has been demonstrated.

The aim of the current study is to determine whether smoking is associated with palmar telangiectasias and to further characterize this association.

Fig. 1. Flowchart of Patients and Methods.

Fig. 2. a, b Presence of discrete palmar (hypothenar) telangiectasias on both palms.

Patients and Methods

For further details, see the supplementary material (see www.karger.com/doi/10.1159/000481855 for all online suppl. material) (Fig. 1, 2; Appendix).

Results

A total of 124 consecutive patients were recruited to the study (Fig. 1). Three were excluded due to systemic use of corticosteroids, pregnancy, or prior liver transplantation.

The participants' main demographic characteristics are summarized in Table 1. Sixty-four participants were female and 57 were male. The average age was 40.9 years (range: 25–75). Thirty participants (24.9%) were current smokers and 16 (13.2%) were past smokers. Twenty-five

participants had palmar telangiectasias. Out of the 30 current smokers, 50% demonstrated palmar telangiectasias. Out of the 16 past smokers, 5 (31.2%) exhibited palmar telangiectasias. The average time passed since discontinuation of smoking was 3.6 years (range: 1–17 years). Out of the 75 nonsmoking participants, only 5 (6.7%) had palmar telangiectasias (Table 2; Fig. 1).

Statistical analysis revealed a statistically significant association between past ($p = 0.004$) and present ($p = 0.0002$) smoking and the presence of palmar telangiectasias ($p < 0.0001$ for the above 2 combined groups). Number of smoking years and average amount of smoked cigarettes per day were not found to correlate with the presence of palmar telangiectasias in current smokers ($p = 0.78$ and $p = 0.37$, respectively). In past smokers, no correlation was found between the presence of palmar telangiectasias and the average amount of smoked cigarettes

Table 1. Main demographic characteristics of patients ($n = 121$)

Characteristic	Mean (range)	<i>n</i>	%
Age, years	40.9 (25–75)		
<i>Gender</i>			
Male		57	47
Female		64	53
Presence of palmar telangiectasias		25	20.7
<i>Present smokers</i>		30	24.8
Presence of palmar telangiectasias		15	12.4
Duration of smoking, years	18.5 (5–40)		
Number of cigarettes a day	25.3 (10–80)		
<i>Past smokers</i>		16	13.2
Presence of palmar telangiectasias		5	4.1
Duration of smoking, years	20.6 (7–50)		
Number of cigarettes a day	33.75 (10–100)		

Table 2. Presence of palmar telangiectasias in relation to smoking status

Smoking status	Telangiectasias	
	yes	no
Current smoking	15	15
Past smoking		
Time since smoking cessation		
≤5 years	3	4
>5 years	2	7
No smoking (current or past)	5	70

per day ($p = 0.86$) or the time passed since cessation of smoking ($p = 0.71$). However, the number of smoking years did correlate with the presence of palmar telangiectasias, i.e., the higher the number of years, the greater the likelihood of the presence of palmar telangiectasias ($p = 0.04$). It should be noted that the presence of palmar telangiectasias was not statistically associated with either age ($p = 0.27$) or gender ($p = 0.92$).

Sensitivity of palmar telangiectasias as an indicator of smoking was only 43%, yet specificity was 93%. The positive predictive value of a person having palmar telangiectasias to be a past or present smoker was 80%, and the negative predictive value was 73%.

Discussion

The field of dermatology is abundant with various skin signs such as Nickolsky's sign in bullous dermatoses, Hutchinson's sign in congenital syphilis, Auspitz's sign in psoriasis, and many more. Only rarely have these cutaneous signs of systemic diseases been statistically validated, and Auspitz's sign, generally accepted as being associated with psoriasis, actually carries low sensitivity and specificity [31].

Smoking is a well-known independent contributor to skin wrinkling [32, 33]. Kennedy et al. [28] have evaluated the impact of smoking on skin aging in regard to the existence of elastosis and facial telangiectasias. They found the 2 items associated only in men, although past and current smoking incidence rates were much higher in men than in women (23% compared to 17% of current smokers, and 58% compared to 36% of past smokers).

In this report we demonstrated a statistically significant correlation between present and past smoking and a dermatological sign of palmar telangiectasias. Furthermore, the appearance of this dermatological sign is highly specific for smoking. These observations also suggest that once palmar telangiectasias appear they tend to remain permanent and do not fade away with cessation of smoking. This association was independent of age or gender. In past smokers it was, however, associated with the average number of smoking years, an association which was not found in regard to present smokers.

The exact mechanism by which smoking causes cutaneous telangiectasias is still not fully understood [28]. The postulated mechanism involves a vasoconstrictive effect induced by smoking [34]. The systemic increase of nicotine levels occurring after smoking causes an increment of vasoconstrictive agents such as vasopressin [35]. The vasoconstriction decreases blood flow in the dermis, which leads to chronic ischemia [36]. Chronic ischemia may lead to the compensatory development of small cutaneous blood vessels manifesting as telangiectasias.

Interestingly, Amichai and Grunwald [37] reported a 63-year-old patient referred to their dermatology clinic due to asymptomatic sudden appearance of palmar telangiectasias, which later was found to be the presenting symptom of a deadly small cell carcinoma of the lung. The smoking status of that patient was not reported. Although the question of whether both the reported lung cancer and the presence of palmar telangiectasias were associ-

ated with smoking remains unanswered, our findings regarding the high specificity and sensitivity of this cutaneous sign combined with the known association between smoking and lung cancer may lead to the assumption that smoking, lung cancer, and palmar telangiectasias in this patient are indeed related.

Conclusion

The presence of palmar telangiectasias should prompt the physician to ask the patient about his/her smoking habits.

Key Message

The presence of palmar telangiectasias is highly indicative of past or present smoking.

Statement of Ethics

The study was conducted in accordance with the Helsinki Declaration of 1964 and was approved by the institution's ethics board.

Disclosure Statement

The authors declare no conflicts of interest. There was no funding for this work.

Appendix 1

Study Questionnaire

1	Age:	
2	Gender:	M/F
3	Current smoking:	Y/N
4	If you answered Y to question 3 proceed to question 5 If you answered N to question 3, please state if you smoked in the past: If the answer is N proceed to question 7 If the answer is Y-how long has it been since you stopped smoking?	Y/N
5	Number of smoking years:	
6	Number of smoked cigarettes per day:	
7	Occupation:	
8	Do you use oral contraceptives?	Y/N
9	Do you use Estrogen containing products?	Y/N
10	Do you use local corticosteroids perpertrations?	Y/N
11	Do you use systemic corticosteroids?	Y/N
12	Do you use inhaled corticosteroids?	Y/N
13	Do you currently or have you ever suffered from a liver disease? If the answer is Y please elaborate	Y/N
14	Do you currently or have you ever suffered from any problems concerning your palms (pain, pruritus, hyperhidrosis, prior trauma, prior radiation)? If the answer is Y please elaborate	Y/N
15	Do you currently suffer from a respiratory problem (asthma, chronic lung disease, cough, shortness of breath)? If the answer is Y please elaborate	Y/N
16	Do you currently or did you suffered in the last three days from fever? If the answer is Y please elaborate	Y/N
17	Do you currently or have you ever suffered from systemic lupus erythematosus (SLE)? If the answer is Y please elaborate	Y/N
18	Do you currently or have you ever suffered from dermatomyositis? If the answer is Y please elaborate	Y/N

19	Do you currently or have you ever suffered from Rheumatoid arthritis? If the answer is Y please elaborate	Y/N
20	Do you currently or have you ever suffered from scleroderma (systemic sclerosis, morphea)? If the answer is Y please elaborate	Y/N
21	Do you currently or have you ever suffered from a Raynaud's disease/phenomenon? If the answer is Y please elaborate	Y/N
22	For female participants: are you or have you been pregnant in the last three months?	Y/N
23	Do you currently or have you ever suffered from an abdominal pain? Diarrhea? Peptic ulcer disease? If the answer is Y please elaborate	Y/N
24	Do you currently or have you ever suffered from a lympho-proliferative disorder? If the answer is Y please elaborate	Y/N
25	Do you currently or have you ever suffered from an Ischemic heart disease? If the answer is Y please elaborate	Y/N
26	Do you currently or have you ever suffered from a thyroid disease or are you being treated with thyroid replacement therapy? If the answer is Y please elaborate	Y/N
27	Do you currently or have you ever been exposed to Aluminum? If the answer is Y please elaborate	Y/N

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