

Dermoscopy to investigate clinically diagnosed plantar warts, corns, and calluses: Interplay in skin cancer diagnosis and treatment

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ABSTRACT

Introduction: Dermoscopy is a widely used non-invasive technique to differentiate and diagnose skin lesions between benign and malignant alterations for detecting skin cancers. Apart from malignancy differentiation, it's often hard to tell the difference between a corn and callus-derived plantar wart with an unaided gaze. Dermoscopy is a non-invasive diagnostic process that allows for a review of morphological characteristics and things that are difficult for unprepared pupils to understand. This investigation looked at the microscopic outcomes of calluses, corns, and warts on the palms and soles in paired and unpaired situations.

Objective: To investigate the findings of dermoscopy's in corns, calluses, and plantar warts as well as to determine the use of dermoscopy's without compromising diagnostic precision.

Methods: This study comprised 90 people with calluses, corns, and warts on the palmar surface. The dermoscopy's findings have been documented utilizing a predesigned arranged format.

Results: Warts were the least prevalent disorder across patients (58.4%), followed by callous (34.6%) and corns (35%). All wart cases, either unpaired or paired, showed consistent black/red dots on dermoscopy's examination. 95% of the unpaired lesions of corns and 100% of the paired lesions have translucent centre cores. In both paired and unpaired examples of callus, homogenous opacity was noted in 100% of the cases. No correlation among paired and unpaired lesions ($p>0.05$).

Conclusions: Dermoscopy's without pairing may improve the precision of understanding several clinically significant corns, calluses, and warts varieties.

Keywords: malignancy, skin cancers, pairing, callus, corn, wart, palmoplantar

INTRODUCTION

The palmar and plantar surfaces of the hands and feet can develop papules and plaques, which are common in dermatology practice and make it difficult to perform everyday activities. Calluses, corns, and palmoplantar warts are the most frequent lesions [1]. Compared to supplementary skin, issues include corns and calluses; sometimes, it can be difficult to distinguish between warts. Dermoscopy's is not meant to replace other diagnostic methods; rather, it aims to help differentiate between conditions of the skin which are similar, such as callouses, maize, and palmoplantar lesions [2]. This approach also makes it easy to tell calluses from corns, each with a translucent middle or equal opacity.

Dermoscopy's has increased considerably in popularity throughout the past few decades, and multiple lesions have been examined. The device employs magnification and polarized light to illuminate the minutest characteristics of a lesion [3]. Additionally, polarized radiation can permeate the epidermis with little reflection when utilized in a non-contact manner that enables the depiction of more profound systems. It explains the connection among conventional therapeutic dermatitis and nano-scale dermato-pathology about morphological features that human vision cannot see [4]. Because there is a limited amount of research, concentrated on looking at the dermoscopy's level of this issue in the literature outcomes for palm plantar warts, corns, and calluses in both parsed and unpaired circumstances.

RELATED WORK

A simple diagnostics method called dermoscopy's, which makes it possible to examine shapes that can be invisible by the unaided eye [5]. To examine the dermoscopy's features of calluses, which corn kernels and palmoplantar warts across peeled and unpaired instances. To evaluate the dermoscopy's characteristics of different viral wart types and the effectiveness of its methods for tracking treatment outcomes after radiofrequency ablations [6]. A prospective study was undertaken on 60 patients with Warts, such as plantar, palmar, plane, and common warts that had been clinically diagnosed but had not yet been treated. A representative lesion's dermoscopy's characteristics, including its definition, colour of the background, vascularity, the presence of a halo around it, dermatoglyphic, and any bleeding or crust, were assessed. It was carried out at the baseline and immediately following radiofrequency ablation to check for full

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wart elimination. When examining warts, dermoscopy's reveals recurring characteristics. Separating it from tight differentials can be a quick clinical aid. Additionally, after any ablative surgery, it helps examine the lesion in real time.

To provide sufficient information on the distinctive features of cutaneous warts, which may help distinguish cutaneous warts from similar skin lesions aims to evaluate dermoscopy's effectiveness in identifying the predominant characteristics of cutaneous warts [7]. Each instance had either palmer, flat, or plantar warts, one of the 4 forms of warts and common warts. 4 types of warts were present in each case: flat, common, and palmer. The accuracy of identifying many clinically significant non-classical cutaneous lesions can be increased with dermoscopy's. Wart types and helps distinguish them from other skin lesions identical to them.

To sought start by analysing the dermoscopy's patterns of the foot to distinguish between painful papules and plaques before looking at the histological association of these dermoscopy's patterns [8]. A quick, non-invasive diagnostic tool used by dermatologists frequently is dermoscopy's. Identifying painful plantar plaques and papules that were clinically related is helpful. These dermoscopy's patterns had good histological correlation as well.

To treat palmoplantar and periungual warts, analysed the effectiveness and safety of Measles, Mumps, and Rubella (MMR) and Purified Protein Derivative (PPD) intralesional injections [9]. It further explored any connections between dermoscopy's results and successful treatment. In a double-blind, controlled exploration, a random assignment was made to provide either MMR or PPD to 40 individuals with palmoplantar/periungual warts. The intraregional injection was performed up to 5 treatments or every 2 weeks till clearance. The study demonstrates that intraregional immunotherapy for palmoplantar/periungual warts is effective when using MMR or PPD, with MMR showing a tendency towards better support and fewer adverse reactions.

A reliable method to enhance Nigerian dermatologist' making choices on the classification and certain skin diseases to promote quick diagnosis and treatment of various skin problems utilizing a deep learning mode. Critically evaluating all relevant and available literature was crucial to support and validate the applications of scientific effort in medical image processing. In light of the pertinent contributions presented and realized in medical image processing concerning dermatology, examines the associated research efforts was created in [10].

The highlight the critical clinical situations for viral infections where dermoscopy's can be beneficial, including evaluating molluscum contagiosum, viral warts, and even more recent cases like the COVID-19 pandemic [11]. Dermoscopy's been a valuable tool for identifying fungi-related illnesses crucial for evaluating the skin's surface and its annexes, including the hairs and nails.

A newly developed diagnostic technique for full monitoring and description of causal Human Papillomavirus (HPV) fresh-frozen tissue samples of Common Warts contained many types, involving some among the most difficult Warts and many kinds of HPV.

9 models in which our first diagnostic technique failed to find HPV Deoxyribonucleic Acid (DNA); the first approach about Common warts' etiological characteristics could not recognize the causing HPV types in 25 otherwise HPV-positive samples. Consequently, the assessment specific to cellular viral loads for each HPV type outlines an enhanced diagnostic method for thoroughly identifying and categorizing causal HPV types in immune competent patients with histological proven common warts. It significantly advances our understanding of the variety and Pathophysiology of the harmful HPV kinds [12].

The effectiveness, tolerance, and safety of intraregional zinc oxide 2% vs. intraregional 100% Warts in children treated with PPD [13]. There were 2 equal groups of 120 children with multiple warts in this randomized clinical trial. Group I received 10 I.U. (0.1 ml) of PPD intra-lesional. 6 months following the final therapy session was when the follow-up period began. Paediatric warts can be effectively treated with intraregional PPD and zinc sulphate 2%, with PPD having an enhanced safety profile.

MATERIALS AND METHODS

90 people whose palm plantar warts, corns, or calluses were present with clinical evaluations of Outpatient Department (OPD) in a tertiary healthcare setting were enrolled after receiving written informed consent for the study. Women who were pregnant or nursing, kids under the age of 12, and people who had diabetes and high levels of blood pressure were all excluded from the study. The formula for calculating the sample size 90 was $x^2 qp/x^2$ where $x=1.97$ with a trust interval of 96%.

Patients had dermoscopy's examinations both before and after paring. Digital dermoscopy's with 10x magnification, Dino-Lite, took dermoscopy's images. A consequence of differences among data regular allocation was assessed applying in evaluation of chi-square. The definition of numerical consequence is a p-value of 0.05 or less. If needed, unpaired or paired t-tests were used to analyze the data, which were reported as percentages (%) and mean.

RESULTS

A total of 90 patients were included. The average age of corns, calluses, and warts patients was 44 years \pm 12.75 years, 38.27 years, and 37.48 years old. In general, patients were significantly more likely to be male (52.9%) and between the ages of 20 years and 31 years (52.9%). Males comprised the majority of callus and corn cases, but females comprised the majority of wart cases (59.6%). Warts were present in (57.4%) of patients, while the remainder had calluses (30.6%) and corns (25%). Even though they were present in all warts cases, whether pared or unpaired, consistent black/red particles were absent in all callus and corn patients' lesions. All patients with corns and calluses that lack both papilliform surfaces were seen in 67.68% of pared cases and 57.51% of unpaired instances of warts were shown in the figure 1 and table 1.

Variables	Wart, n=30	
	Unpaired	Paired
Consistent black/red dots	30 (100%)	30 (100%)
Papilliform surface	17.2 (57.51%)	20.3(67.68%)
Interrupted skin lines	30 (100%)	30 (100%)
Red linear vessels	5.7 (19.67%)	10.6 (35.56%)
Translucent central core	0	0
Homogenous opacity	0	0

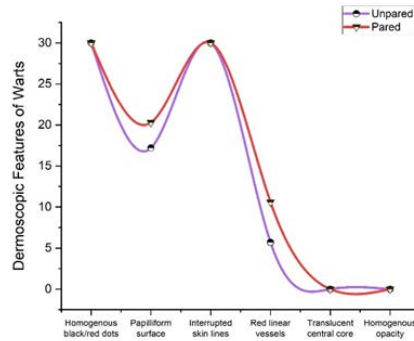


Fig. 1. Wart lesions with unpaired and paired dermoscopy's characteristics

Every callus patient had intact epidermal lines across neither paired nor unpaired lesions. Body wrinkles suffered disruption in 17.29% of maize scenarios, unpaired and reduced, and all wart lesions. Almost every patient in both callus and corn cases that had been unpaired and corn had absented red linear vessels, while presence was

found in 19.67% of both paired and unpaired wart cases (35.56%) is as shown in figure 2 and table 2. Everyone with calli and warts lacked it. Between unpaired and paired lesions, there is a translucent centre core. They believed it in 100% paired and 95.75% unpaired tests.

Variables	Corn, n=30	
	Unpaired	Paired
Homogenous black/red dots	0	0
Papilliform surface	0	0
Interrupted skin lines	5.1(17.29%)	5.1(17.29%)
Red linear vessels	0	0
Translucent central core	2.4(8.15%)	30 (100%)
Homogenous opacity	0	0

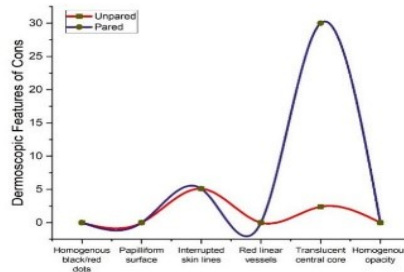


Fig. 2. Dermoscopy's characteristics of corn lesions with and without pruning

In 80% although identical opacity in all corn and wart lesions, both paired and unpaired, it was found 100% of callus cases, both paired and unpaired as represented in the figure 3 and table 3.

Paired and unpaired lesions have no relationship to one another ($p>0.05$).

Variables	Callus, n=30	
	Unpaired	Paired
Homogenous black/red dots	0	0
Papilliform surface	0	0
Interrupted skin lines	0	0
Red linear vessels	0	0
Translucent central core	0	0
Homogenous opacity	24(80%)	30 (100%)

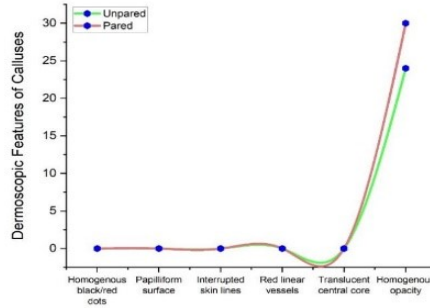


Fig. 3. Callus lesions with unpaired and paired dermoscopy's traits

DISCUSSION

A diagnostics method called Dermoscopy's as can reduce refraction and reflection at the skin's surface. By doing so, it makes it easier to see colours and patterns in underlying skin structures [14]. Although they are typically identifiable clinically, there can be ambiguity in some situations. Sometimes it could be impossible to differentiate a callus from a plantar wart or corn with the naked eye. The task of determining them is also difficult. Dermoscopy's has been more often used over the last ten years to assist in diagnosing various dermatological disorders. It has become increasingly utilized to aid in diagnosing different infectious dermatomes. Dermoscopy's provides for the observation of the epidermis and dermal papilla structures. In the current study, the age range of 19 years to 30 years had the highest percentage of cases (45.9%). Most responders (55.9%) were men, and the remaining participants (49.1%) were women, indicating a minor preference for men. Age and sex can be considered stand for indefinable root causes, such differences in the way men and women wear shoes and the expanding progressive prevalence of common concurrent medical conditions [15]. It identified the dermoscopy's characteristics of common warts with close papillae in clusters with an inside white halo around a red dot or loop. According to published user accounts, dermoscopy's of palmoplantar warts typically shows a few apparent bleedings inside a distinct, papilliform, and yellowish surface where skin lines are interrupted [16]. This can be recognized from the callus to the unique pattern, which is devoid of it has a less pigmented, reddish to blue core structure in place of blood spots. Additionally, a study including a sizable number of people revealed four distinctive dermoscopy's patterns that can appear in a single wart: unspecific, finger like, mosaic, and knoblike.

Dermoscopy's maize carried a yellow region, a translucent interior band, and a whitish oval ring centre. Dermatoglyphic have been found frequently in preserved form. When using dermoscopy's, a

yellow spot represents the stratum corneum thickening [17]. The centre, a clear centre that acts as the corn's core, was triggered by localized fibrosis. Similar to other research findings, the white ring and the collagen's thickening are connected. Dermoscopy's examination of the callus demonstrated a sizeable opaque yellowish zone with dermatoglyphic retention. It seemed that there were white focal areas. The findings correspond with the earlier account which was given.

A key dermoscopic feature of the erythematous homogeneous area is distinctive to the foot and has not been observed in non-acral amelanotic melanoma [18].

CONCLUSION

Dermoscopy's without paring can boost the uniqueness of many clinically relevant cutaneous wart types and assist the distinction between them and skin problems like calluses and corns. It can be employed as a successful clinical diagnostic method for immediately distinguishing it from similar differentials. Dermoscopy's can thus remove the fear connected with invasive treatments like skin biopsies as a discreet diagnostic tool. The studies are required to confirm and substantiate the advantages of dermoscopy's. Notwithstanding this fact, the present investigation is experimental and introductory. Requiring or subscribing for a consultation, dermoscopy's as can increase the certainty of diagnosing different types of medically significant corns, callus formation, and plantar sores. A dermoscopy's examination can be used to diagnose warts and corns by looking for the presence of black/red spots and translucent centre cores, respectively. Both paired, and unpaired callus lesions have the potential to exhibit homogenous opacity. The potential of dermoscopy's as a non-invasive method for the diagnosis of these prevalent dermatological disorders is highlighted by this study. More investigation and confirmation are required to make dermoscopy's a standard procedure in clinical practice.

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