Dermoscopy versus skin biopsy in diagnosis of suspicious skin lesions

Hassan M. Ibrahim[1], Moustafa A El Taieb[2], Ahmed RH Ahmed[3], Radia Hamada[4], Essam Nada[5]

[1]Department of Dermatology, South Valley University, Egypt, [2]Department of Dermatology, Aswan University, Egypt, [3]Department of Pathology, Sohag University, Egypt, [4]Department of Dermatology, Qena General Hospital, Egypt, [5]Department of Dermatology, Sohag University, Egypt.

INTRODUCTION

Malignant epidermal tumors represent a group of skin cancers arising from surface epidermal cells. They include basal cell carcinoma and squamous cell carcinoma which together represent the main bulk of non-melanoma skin cancers[1]. For many years, skin biopsy was considered the only sure diagnostic tool that confirms or excludes the clinical diagnosis. There are many types of skin biopsy including punch biopsy, incisional biopsy and excisional biopsy[2]. All these maneuvers are invasive and have many side effects and precautions, so finding other non invasive diagnostic tool is mandatory. Dermoscopy is a simple and inexpensive diagnostic technique that permits the visualization of morphologic features that are not visible to the naked eye, forming thus the link between macroscopic clinical dermatology and microscopic dermatopathology[3].

OBJECTIVES

Assessment of the accuracy of Dermoscopy in diagnosis of epidermal skin tumors & Correlation of dermoscopic diagnosis with clinical and pathological findings.

PATIENTS AND METHODS

Thirty three patients who attended Dermatology Clinic at Qena University Hospital, from January to December 2013 were recruited for this study. A full history taking, Dermatologic, Dermoscopic, and Histopathological examination of skin lesion have been performed for each patients.

RESULTS

Regarding dermoscopic versus clinical diagnosis, there was a correct diagnosis in 24 cases (72.73 %) and incorrect diagnosis in 9 cases (27.27%) (Table 1) & regarding Pathological versus dermoscopic diagnosis, there was a correct diagnosis in 25 cases (75.76 %) and incorrect diagnosis in 8 cases (24.24%) (Table 2). There was an excellent diagnostic reliability of dermoscopy compared to skin biopsy with interrater Kappa value of 0.859 (CI, 0.734-0.984, p<0.001) (tables 3,4) (Figures 1-4).

Table (1): Comparison between dermoscopic diagnosis and clinical diagnosis in patients (n=33) with epidermal skin tumors.

Dermoscopic diagnosis	Number	Clinical diagnosis				
		Correct 1st diagnosis Number (%)	Incorrect 1st diagnosis Number (%)	1st diagnosis if different	2nd diagnosis if different	3rd diagnosis different
BCC	6	5 (83.33%)	1 (16.67)	S.K	BCC	pigmented sk lesion
S.K	8	7 (87.50%)	1 (12.50)	lentigomalig na	S.K	No diagnosi
compound nevus	5	3 (60.00%)	2 (40.00)	S.K junctional nevus	compound nevus	No diagnosi
dermal nevus	3	1 (33.33%)	2 (66.67)	compound nevus	cong.melanocytic nevus No diagnosis	No diagnosi
becker.s nevus	2	2 (100%)				
cong.melanocytic nevus	1	1 (100%)				
spitz nevus	1	1 (100%)				
blue nevus	1	1 (100%)				
trichoepithelioma	1	1 (100%)				
DLE	1	0	1 (100%)	eccrinehidrecytoma	Syringocystadenomapapilleform	No diagnosi
epidermoid cyst	1	0	1 (100%)	sebaceous cyst	epidermoid cystk2	Inflammed acquired melanocytic ne
Trichofolliculoma	1	1 (100%)				
Bowen's disease	1	0	1 (100%)	DLE	BCC	Bowen's dise
SCC	1	1 (100%)				
Total	33	24 (72.73%)	9 (27.27)		5 correct	1 correct

Table (2):Comparison between pathological diagnosis and dermoscopic diagnosis in patients (n=33) with epidermal skin tumors.

Pathological diagnosis	Number	dermoscopic diagnosis				
		Correct 1st diagnosis Number (%)	Incorrect 1st diagnosis Number (%)	1st diagnosis if different	2nd diagnosis if different	3rd diagnosis if different
BCC	4	4 (100.00%)				
S.K	8	8 (100.00%)				
compound nevus	3	3 (100.00%)				
dermal nevus	5	3 (60.00%)	2 (40.00%)	compound nevus	No diagnosis	No diagnosis
Becker's nevus	2	2 (100.00%)				
spitz nevus	1	1 (100.00%)				
epidermoid cyst	1	1 (100.00%)				
Eccrinehidrecytoma	1		1 (100.00%)	Trichoepithelioma	Eccrinehidrecytoma	No diagnosis
Trichofolliculoma	1	1 (100.00%)				
Amyloidosis	1		1 (100.00%)	cong.melanocytic nevus	Amyloidosis	No diagnosis
Bowen's disease	1	1 (100.00%)				
Dermatofibroma	1		1 (100.00%)	DLE	Dermatofibroma	No diagnosis
Granulomatous lesion possibly(granuloma faeil)	1		1 (100.00%)	BCC	No diagnosis	No diagnosis
SCC	1	1 (100.00%)				
Crushed material (unsatisfactory biopsy)	2		2 (100.00%)	BCC blue nevus	No diagnosis	No diagnosis
Total	33	25 (75.76%)	8 (24.245%)		3 correct	0 correct

Table (4): Agreement between pathological diagnosis and dermoscopic diagnosis in patients (n=33) with epidermal skin tumors.

Agreement between pathological diagnosis and	Agreement	Expected agreement	Kappa	P value
1st possibility of dermoscopic diagnosis	75.76%	11.66%	0.73	<0.0001
1st or 2nd possibility of dermoscopic diagnosis	84.85%	11.94%	0.83	<0.0001
1st , 2nd or 3rd possibility of dermoscopic diagnosis	84.85%	11.94%	0.83	<0.0001

Table (3): Agreement between dermoscopic diagnosis and clinical diagnosis in patients (n=33) with epidermal skin tumors

Agreement between dermoscopic diagnosis and	Agreement	Expected agreement	Kappa	P value
1st possibility of clinical diagnosis	72.73%	12.95%	0.69	<0.0001
1st or 2nd possibility of clinical diagnosis	87.88%	13.77%	0.86	<0.0001
1st , 2nd , or 3rd possibility of clinical diagnosis	90.91%	13.77%	0.89	<0.0001

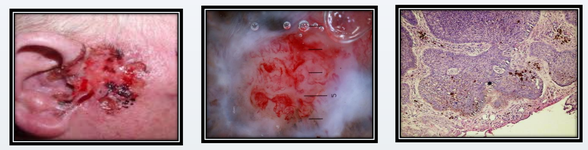


Figure (1): Clinical, dermoscopic and histopathological pictures of Basal cell carcinoma. Dermoscopy shows slate gray areas, arborizing blood vessels and map leaf like structure. Histopathologically, Dermis is infiltrated with sheets of malignant epithelial cells with basaloid features with peripheral palisading, focal pigmentation within and around the tumor sheets.

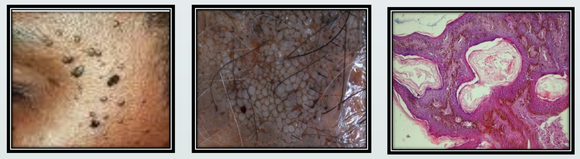
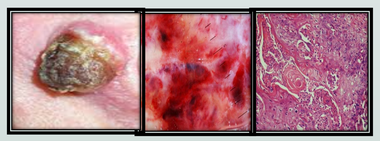


Figure (2): Seborrheic keratosis: clinical, dermoscopic and histopathological pictures. Dermoscopy shows cobble stone appearance and milia like Cysts & Histopathology shows: acanthosis, hyperkeratosis, increase pigmentation at basal layer and numerous keratin horn within the epidermis.



Figure(3): Clinical, dermoscopic and histopathological picture of Squamous cell carcinoma. Dermoscopy shows Structurless white zone around central scale, ulceration, blood spots, irregular rounded blood vessels, blue whitish veil and black dots at periphery of lesion. Histopathology shows Verrucous growth of malignant epithelial cells of squamous origin, mild to moderate atypia, cell nests with central keratinization and tumor tissue infiltrates upper dermis.

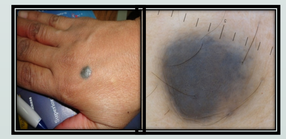


Figure (4): Blue Navus clinical and dermoscopic pictures. Dermoscopy shows homogenous steel blue pigmentation, Biopsy was crushed.

CONCLUSION

There was a good agreement between the dermoscopy and clinical diagnosis and also a good agreement between the dermoscopy and pathological diagnosis. So Dermoscopy can be introduced as a routine diagnostic tool in dermatological examination & will be of a great aid and accurate diagnosis of suspicious skin lesions before invasive skin biopsy.

REFERENCES

1. ***Kirkham N.*** *Tumors and cysts of the epidermis. In: DE Elder, R Elenitsas, GF Murphy, BJ Johnson, X Xu (eds). Lever's Histopathology of the Skin. 10th Edition. Lippincott Williams & Wilkins, Philadelphia. 2009; 791-850.*
2. ***John K****. Malignant Melanoma of the Foot and Ankle. Clinics in Podiatric Medicine and Surgery 2000; Volume 17(2): 347- 361*
3. ***Zivkovic DT, Jovanovic D and Lazarevic V .*** *Dermoscopy of melanoma. Acta fac Med Naiss 2006; 23(1): 53-56.*

CONTACT

Moustafa A. El Taieb
Email: moustafa.eltaib@aswu.edu.eg musmus22@yahoo.co.uk
Mail: Department of Dermatology, Venereology and Andrology, Aswan University, Aswan, Egypt.
Phone: 00201143929476