

## Clinicopathological Consistency in the Diagnosis of Skin Disorders in Patients Attending Dermatology Centre\ Medical City Teaching Hospital

Hayder R. Al-Hamammy\*, Adel R. Al-alsadawi\*\*, Raad I. Al-Samarraee\*\*

### ABSTRACT:

#### BACKGROUND:

Skin biopsy is often considered as confirmatory in case of diagnostic dilemma and is the most common investigation sought by a dermatologist. Hence, a high diagnostic accuracy of this investigation is pursued.

#### OBJECTIVE:

The study was planned to determine the consistency between the provisional clinical diagnosis of skin diseases and the final diagnosis after clinicopathological correlation.

#### MATERIALS AND METHODS:

The study was carried out from the 1<sup>st</sup> of April 2017 to the 1<sup>st</sup> of April 2018 at dermatology center Medical City Teaching Hospital. During this period, a total of 440 biopsies were performed, and 110 biopsies were reviewed at the clinicopathological meeting every Sunday. Interesting and difficult cases were presented at the meeting and discussed to reach a final diagnosis. A comparison was made between the provisional clinical diagnosis and the final diagnosis, and between the histopathological report and the final diagnosis.

#### RESULTS:

This study included 110 patients; of them, 65 patients were males (60%) and 45 patients (40%) were females with the mean of age was  $41.6 \pm 18.6$  yrs. The most frequent conditions were tumors in 51 cases (46.36%), pupulosquamous diseases 20 cases (18.18%), infections 11 cases (10%), connective tissue diseases 7 cases (6.36%), vesicobullous 7 cases (6.36%), & miscellaneous diseases 14 cases (12.72%). Concerning tumors, 35 cases (68.63%) were malignant, and 16 cases (31.37%) were benign. Of these tumours the most frequent tumour was mycosis fungoides; 9 cases (17.6%), followed by squamous cell carcinoma; 5 cases (9.8%). Regarding the consistency between provisional clinical diagnosis and the final diagnosis, the current study showed that 21 cases (19%) were consistent, 60 cases (55%) were corroborative, and 29 (26%) of the cases were inconsistent. This study showed that there was a consistency between provisional clinical diagnoses and histopathological report in 19 biopsies (17%), 75 biopsies (68%) were corroborative, and 16 biopsies (15%) were inconsistent. Concerning the consistency between histopathological report and final diagnosis, 68 biopsies (62%) were consistent, while 42 biopsies (38%) were inconsistent.

#### CONCLUSION:

Clinicopathological correlation is better than either the clinical diagnosis or the histopathological diagnosis alone.

**KEYWORDS:** Clinicopathological, Consistency, Skin, biopsy, Diagnosis

### INTRODUCTION:

Histopathology is an important tool for the dermatologist. It solves diagnostic dilemma, may confirm or exclude life-threatening conditions. Clinical manifestations may vary with disease duration and may be ameliorated with treatment.<sup>(1)</sup> On the other hand, histological material constitutes important evidence, which

can be preserved and will continue to be available for future review, if necessary.

However, histopathological report may not solve the problem if sufficient data is not presented to the histopathologist.<sup>(2)</sup>

### PATIENTS AND METHODS

This descriptive study was conducted at the Dermatology centre\ Medical City Teaching Hospital during the period from the 1<sup>st</sup> of April 2017 to the 1<sup>st</sup> of April 2018.

\*Iraqi Board For Medical Specializations

\*\*Medical City Teaching Hospital

### 1-Patients:

Patients who consulted the center at the specified; period and to whom a skin biopsies were performed and the results were discussed at the clinico-pathological meeting were included in the study. Biopsies without a definite histopathological diagnosis were excluded. The patients gave their informed consent before the performance of skin biopsy procedure

### 2- Approach consideration:

Skin biopsies were performed using various methods including tangential shave, punch, incisional, or excisional techniques. Some patients, they were in need for more than one biopsy. The specimens then saved in formalin and sent to the laboratory, where routine Haematoxyline & Eosin staining was performed. The specimen was examined by a histopathologist and a report was issued. Difficult, interesting, and strange cases were presented and discussed at the dermatology center on Sundays in the presence of all dermatologists of the center & a consultant pathologist, and clinicopathological correlation was done & a final diagnosis was recorded. In certain circumstances an additional stain was ordered and the result was interpreted .

A comparison was made between the provisional clinical diagnosis and the final diagnosis. Another comparison was made between the provisional clinical diagnosis and histopathological report, and also between the histopathological report and the final diagnosis.

The result was considered to be "*consistent*" when the final diagnosis or the histopathological diagnosis was the same as the provisional clinical diagnosis, and "*corroborative*" when the final diagnosis or histopathological diagnosis was one of a number of diagnoses suggested by the provisional clinical diagnoses.

The result was "*inconsistent*" when the final diagnosis or histopathological diagnosis was not any of the diagnoses suggested by the provisional clinical diagnosis list, and also when there is mismatch between the histopathological diagnosis and final diagnosis.

### RESULTS:

In the period from 1<sup>st</sup> of April 2017 to the 1<sup>st</sup> of April 2018, about 19,000 patients attended the dermatology center, among them 440 ( 2.2 %) patients underwent skin biopsy. One hundred forty two (142) patients were presented at the clinicopathological meeting during the specified period. A 32 patients were excluded from the study because their histopathological reports have no specific diagnosis, so 110 patients were included in this study. A 65 patients were males (60%) and 45 patients (40%) were females. The mean age and standard deviation was 41.6 yrs  $\pm$ 18.6 years. Table (1) shows the site of biopsies.

The most frequent conditions presented in the joined meeting were tumors in 51 cases (46.36 %), pupulosquamous diseases 20 cases (18.18 %), infections 11 cases (10 %), connective tissue diseases 7 cases (6.36 %), vescicobullous 7 cases (6.36 %), & miscellaneous diseases 14 cases (12.72 %) , as shown in table (2)

Of the tumors, 35 cases (68.63%) were malignant, and 16 cases (31.37%) were benign. The most frequent tumour was mycosis fungoides; 9 cases (17.6%), followed by squamous cell carcinoma; 5 cases (9.8%). (figure 1).

Regarding the consistency between the provisional clinical diagnosis and histopathological diagnosis, 19 cases (17%) were consistent, 75cases (68%) were corroborative, and 16 cases (15%) were inconsistent, as shown in table (3).

Concerning the consistency between provisional clinical diagnosis and the final diagnosis, the current study showed that 21 cases (19%) were consistent, 60 cases (55%) were corroborative, and 29 (26%) of the cases were inconsistent, as shown in table(4). Table (5) showing namely the 29 inconsistent cases.

Concerning the consistency between histopathological report and final diagnosis, 68 biopsies (62%) were consistent, while 42 biopsies (38 %) were inconsistent, as shown in table (6).

Table (7), showed these 42 inconsistent cases with inconsistency between the histopathological report and final diagnosis.

## CLINICOPATHOLOGICAL CONSISTENCY DERMATOLOGY

Regarding the classification of these inconsistent cases, table (7) showed that 3 benign or inflammatory diseases were diagnosed finally as malignant diseases, while the reverse was also shown when 3 histopathologically diagnosed malignant diseases, diagnosed finally as benign or inflammatory diseases.

The same table above also showed that 3 of the histopathologically diagnosed as malignant diseases were finally diagnosed with another malignant disease when the clinicopathological correlation was done.

Regarding infection, 4 cases were diagnosed finally as non-infective diseases, whereas they were diagnosed initially as infective diseases by the histopathologist.

Also this study showed that 6 cases that were diagnosed by the histopathologist as non-infective diseases, the clinicopathological correlation showed that they were infective ones.

Concerning inflammation, comparison in the same table showed that 13 histopathologically diagnosed inflammatory diseases were finally diagnosed as another inflammatory diseases.

Another 7 cases also showed the discrepancy between the histopathological report diagnosis and the final diagnosis in the same table. Some of the examples of discrepancy between the initial clinical diagnosis and final diagnosis are shown in figures(2) and(3).

Table (1): Site of biopsy distribution

SITE	FREQUENCY	%
Head & Neck	34	29.31
Trunk & Genitalia	34	29.31
Lower limbs	29	25
Upper limbs	19	16.38
<b>Total</b>	<b>116</b>	<b>100</b>

Table(2): Frequency of different skin diseases

SKIN DISEASE	No.	%
<b>Tumors</b>	51	46.36
<b>Papulosquamous</b>	20	18.18
<b>Infections</b>	11	10
<b>Connective Tissue diseases</b>	7	6.36
<b>Vesicobullous diseases</b>	7	6.36
<b>Miscellaneous</b>	14	12.72
<b>Total</b>	<b>110</b>	<b>100</b>

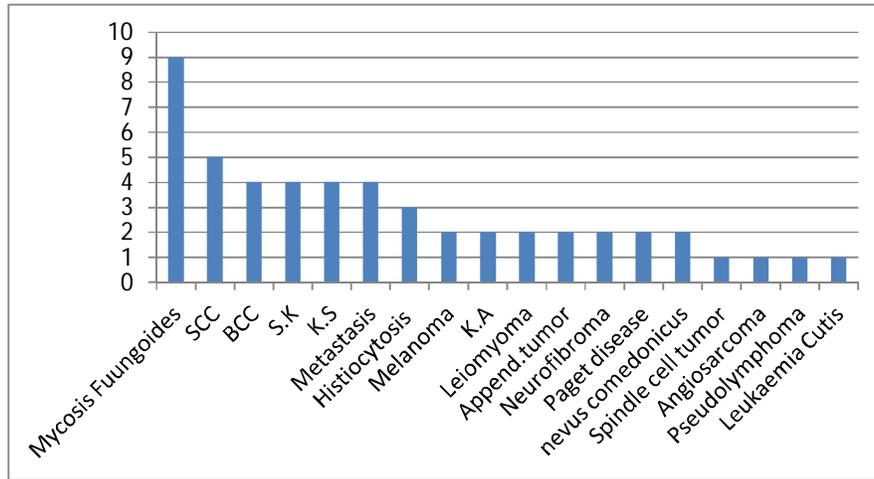


Figure (1) : Frequency of skin tumors.

SCC:Squamous cell carcinoma, BCC:Basal Cell Carcinoma, S.K.:Seborrheic Keratosis, K.S.: Kaposi Sarcoma, K.A.:Keratoacanthoma

Table (3): Consistency between provisional clinical diagnosis and histopathology diagnosis

STATUS	NUMBER OF CASES	%
CONSISTENT	19	17
CORROBORATIVE	75	68
INCONSISTENT	16	15
TOTAL	110	100

Table (4): Consistency between provisional clinical diagnosis and final diagnosis

STATUS	NUMBER OF CASES	%
CONSISTENT	21	19
CORROBORATIVE	60	55
INCONSISTENT	29	26
TOTAL	110	100



Figure (2): A 50 yrs old woman ,the provisional diagnosis was Haily-Haily disease,Darier disease,or Grover disease , while the final diagnosis was generalized eruptive histiocytosis.

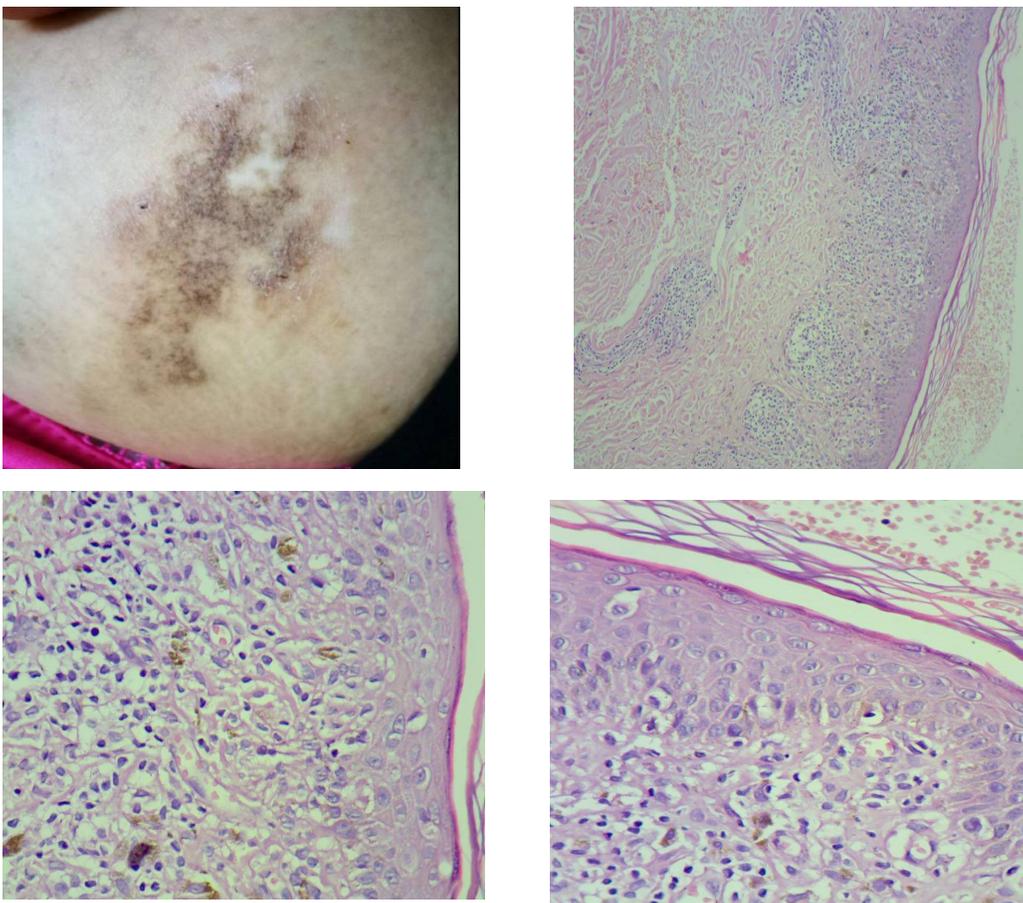


Figure (3): A 41 yrs old woman, the initial diagnosis was lichen sclerosus et atrophicus or morphea, while the final diagnosis was mycosis fungoides.

## CLINICOPATHOLOGICAL CONSISTENCY DERMATOLOGY

**Table (5): Cases with inconsistency between the provisional clinical diagnosis and final diagnosis**

	PROVISIONAL CLINICAL DIAGNOSIS	FINAL DIAGNOSIS
1	Malignant melanoma	S.K
2	G. F,Xanthogranuloma, Lymphoma, Pseudolymphoma	Pilomatricoma
3	D.F, Glomus tumour	Neurofibroma
4	SCLE, PLE, Psoriasis	Hair dye dermatitis
5	Psoriasis, M.F, P.R, Dermatitis	Generalised tenia infection
6	M.F, A.D, T.V	Morphea
7	Darier disease ,Haily-Haily disease,Grover disease	Generalised erupt. histiocytosis
8	Interstitial G.A , Lymphoma, Leukaemia cutis	Xanthomatous histiocytosis
9	Verrucous carcinoma, Eccrine poroma , SCC	Nodular malignant melanoma
10	B-cell lymphoma	T-cell lymphoma
11	ALHE, Neurofibroma	Disseminated leiomyoma
12	Cylindroma, Syringocys. papilleferum, Pseudolymph., ALHE	Angiosarcoma
13	Pemphigus Vulgaris	Pemphigus Foliaceous
14	Squamous Cell Carcinoma	Basal Cell Carcinoma
15	Porokeratosis, FDE,NLD,Pyoderma gangrenosum	Infective dermatitis
16	Cicatricial pemphigoid, Disoid Lupus Erythematosus, Kerion, Pustular psoriasis	Folliculitis decalvans
17	Prurigo simplex, PLEVA, Acquired perf.dermatosis, Dermatitis Herpetiformis	Prurigo nodularis
18	Morphea, Lichen Sclerosus Et Atrophicus	Early M.F
19	Leishmaniasis, Der. artefacta, Atypical mycob. Infect.	Pyoderma gangrenosum
20	Treated psoriasis, Necrobiosis lipoidica	Contact dermatitis
21	Glomus tumor	Foreign Body granuloma
22	Eruptive syringoma, Mucinosis, Closed comedones	Follicular psoriasis
23	PLEVA,Derm.Herpetiformis,Lymphamatoid papulosis	Prurigo nodularis
24	SCLE, Psoriasis, Subcorneal pustular dermatosis	Subacute discoid eczema
25	Sarcoidosis, Pseudopyogenic granuloma	Leishmaniasis
26	Urticarial vasculitis , Sarcoidosis	Discoid Lupus Erythematosus
27	Erythema Elev. Diutinum,Multicentric histiocytosis	Keratoacanthoma
28	G.A, Pseudolymphoma, Sarcoidosis, E.N	Morphea profunda
29	Trichoepithelioma,Syringoma,Lupus miliaris dissem.F	Pseudolymphoma

**S.K:** Seborrheic Keratosis, **G.F:** Granuloma Faciale, **D.F:** Dermatofibroma, **SCLE:**Subacute Cutaneous Lupus Erythematosus, **PLE:**Polymorphous Light Eruption, **M.F:** Mycosis Fungoides, **P.R:** Pityriasis Rosea, **A.D:** Atopic Dermatitis, **T.V:** Tinea Versicolour, **FDE:** Fixed Drug Eruption, **NLD:**Necrobiosis Lipoidica Diabeticorum, **G.A:** Granuloma Annulare, **ALHE:** Angiolymphocytic Hyperplasia with Eosinophilia, **E.N:** Erythema Nodosum

**Table (6) : Consistency between histopathology report and final diagnosis**

STATUS	NUMBER OF CASES	%
CONSISTENT	68	62
INCONSISTENT	42	38
TOTAL	110	100

## CLINICOPATHOLOGICAL CONSISTENCY DERMATOLOGY

Table (7): Classification of cases with inconsistency between histopathological report and final diagnosis

	HISTOPATH. REPORT	FINAL DIAGNOSIS
I.	<b>BENIGN OR INFLAMMATORY DIS.</b>	<b>MALIGNANT DISEASE</b>
	ALHE	Angiosarcoma
	Morphea	Early MF
	Actinic Keratosis	Basosquamous cell ca
	Dermatitis	M.F
	Discoid Lupus Erythematosos	Basal Cell Carcinoma
II.	<b>MALIGNANT DISEASE</b>	<b>BENIGN OR INFLAMMATORY DISEASE</b>
	Pigmented Basal Cell Ca	S.K
	Squamous Cell Carcinoma	Leishmaniasis
	Non Hodgkin Lymphoma	Leishmaniasis
III.	<b>MALIGNANT DISEASE</b>	<b>ANOTHER MALIGNANT DISEASE</b>
	Granulocytic sarcoma	Leukaemia cutis
	MF	Generalized eruptive histiocytosis
	Verrucous Ca	Nodular Malignant Melanoma
IV.	<b>INFECTIVE</b>	<b>NON-INFECTIVE</b>
	T.B	Crohn's disease
	T.B	Xanthomatous histiocytosis
	Leishmaniasis	Pyoderma gangrenosum
	Molluscum contagiosum	Prurigo nodularis
V.	<b>NON-INFECTIVE</b>	<b>INFECTIVE</b>
	Dermatitis	Generalized taenia
	Psoriasis	Infective dermatitis
	Discoid Lupus Erythematosus	Folliculitis decalvans
	Squamous Cell Carcinoma	Leishmaniasis
	Non Hodgkin Lymphoma	Leishmaniasis
	Pyogenic granuloma	T.B
VI.	<b>INFLAMMATORY DISEASE</b>	<b>ANOTHER INFLAMMATORY DIS.</b>
	SCLE	Hair dye dermatitis
	EN	Prurigo Nodularis
	Majocchi granuloma	Contact dermatitis
	Bullous disease	Atopic dermatitis
	Pemphigus vegetans	Bullous pemphigoid
	Acquired perf. dermatosis	Prurigo Nodularis
	Treated psoriasis	Contact dermatitis
	Urticaria	Lichenoid drug eruption
	Psoriasis	Discoid eczema
	Pseudolymphoma	Morphea Profunda
	Discoid Lupus Erythematosus	Lichen Planopilaris
	Dermatitis Herpetiformis	Prurigo Nodularis
	E.M	Contact dermatitis
	Erosive Lichen Planus	Pemphigus vulgaris

## CLINICOPATHOLOGICAL CONSISTENCY DERMATOLOGY

VII	OTHERS:	
	G.F	Pilomatricoma
	D.F	Neurofibroma
	Darier disease	H-H disease
	Neurofibroma	Keloid
	Pilar cyst	Pilomatricoma
	D.F	FB granuloma
	Syringoma	Follicular psoriasis

**S.K:** Seborrheic Keratosis, **G.F:** Granuloma Faciale, **D.F:** Dermatofibroma, **PLE:** Polymorphous Light Eruption, **M.F:** Mycosis Fungoides, **P.R:** Pityriasis Rosea, **T.V:** Tinea Versicolour, **FDE:** Fixed Drug Eruption, **G.A:** Granuloma Annulare, **ALHE:** Angiolymphocytic Hyperplasia with Eosinophilia, **E.N:** Erythema Nodosum, **TB:** Tuberculosis

### DISCUSSION:

Many inflammatory diseases show similar histopathological picture and even some neoplastic diseases look alike on routine H & E staining. Therefore; special stains, immunofluorescence, and immunohistochemical techniques were used to increase the diagnostic accuracy, but more importantly, joint discussions of the clinical and histopathological findings in the presence of dermatologists and pathologists are essential. This study was performed on biopsies of (110) patients which were discussed over a one year period at the dermatology centre.

It is interesting to note that 29 cases (26%) the final diagnoses were totally different from the provisional clinical diagnosis, while 60 cases (55%) the final diagnosis was one of the differential diagnosis, and 21 cases (19%) the final diagnosis was the same as the provisional clinical diagnosis suggested by the examining physician.

If the results are compared with similar studies, it is found that Michael, et al (1994) studied 119 cases in U.S.A. compared the clinical diagnosis with the histological diagnosis and found that 89% were consistent and 11% were inconsistent, of these 2 melanoma were diagnosed as benign, and another case of melanoma was diagnosed as SCC.<sup>(3)</sup>

In another report from USA; Klaus and Wilma (2005) examined 4451 biopsies and found a consistency of (75%) between the provisional diagnosis and final

diagnosis (i.e. inconsistency of 25%).<sup>(4)</sup>

While Koh, Wang, Lee, et al (2003) examined (4765) biopsies in Singapore and found a clinicopathological consistency of (90%).<sup>(5)</sup>

A study was done in Al-Yarmouk Teaching Hospital by Al-Rawi and Ahmed (2010) found that there was a consistency between the initial clinical diagnosis and final diagnosis in (77.58%), while the consistency between the histopathological report and final diagnosis at (73.3%).<sup>(6)</sup>

In another study on 3949 pathology reports of skin biopsy specimens, Aslan and colleagues (2012) reported a concordance rate of (76.8%).<sup>(7)</sup>

A report from Iran, Shamsi, Mohammadzadeh, Badakhsh, et al, (2013) examined (100) biopsies, and reported a consistency of (90%).<sup>(8)</sup>

[Chrysovalantis](#), [Stamatis](#), [Christina](#), et al. (2014) found that the consistency between the histopathological diagnoses and final diagnoses was (68%) of the cases.<sup>(9)</sup>

A recent study in (2016) by Dilip and Piyush examined 371 cases and found a consistency of 67.4%.<sup>(10)</sup>

The most recent report was from India (2018), the clinicopathological concordance was (90.5%).<sup>(11)</sup>

In the present study, not only a comparison between the original clinical diagnosis and the final diagnosis was made, but also a comparison between the histopathology report and final diagnosis after discussion was studied.

## CLINICOPATHOLOGICAL CONSISTENCY DERMATOLOGY

---

The histopathological diagnoses were changed in 42 cases (38%) after discussion.

This may be related to the fact that only difficult and strange cases were presented in the meetings (only 142 such biopsies compared to 440 biopsies performed during the same period).

The study outlines the importance of supplying the pathologist with important clinical data, also the importance of joined discussion between the dermatologist and the pathologist.

### REFERENCES

1. Mehta S, Singal A, Singh N, *et al.* A study of clinicohistopathological correlation in patients of psoriasis and psoriasiform dermatitis. *Ind J Dermatol Venereol Leprol.* 2009;75:100
2. Seia Z, Musso L, Stefania P, *et al.* Skin biopsy procedures: how to perform proper biopsy. In : skin biopsy perspectives.1<sup>st</sup> ed, Uday khapkar.2011.pp 35.
3. Michael W. P, Patricia E. B. Reliability Of Skin Biopsy Pathology. *J Am Board Fam Pract* ,1994; 7:371-4.
4. Klaus S, Wilma F. A retrospective biopsy study of the clinical diagnostic accuracy of common skin diseases by different specialties compared with dermatology. *J Amer Acad Dermatol*, 2005, 52: 823-30
5. Koh D, Wang H, Lee J, *et al.* Basal cell carcinoma, squamous cell carcinoma and melanoma of the skin: analysis of the Singapore Cancer Registry Data 1968-1997. *Br J Dermatol*, 2003;148:1161-6.
6. Ahmed M. J. Evaluation of Skin Biopsies in Al-Yarmouk Teaching Hospital(2008-2010). A thesis submitted to the scientific council of Arab Board of Dermatology, 2010.
7. Aslan C., Goktay F., Mansur A., *et al.* Clinicopathological consistency in skin disorders: a retrospective study of 3949 pathological reports. *J Am Acad Dermatol.*2012;66:393-400.
8. Shamsi S, Mohammadzadeh S, Hoda Badakhsh, *et al* Clinicopathologic evaluation of 100 skin biopsies in Afzalipour Hospital, Kerman, Iran. *Iran J Dermatol.* 2014; 17: 142-3
9. Kortifis C, Gregoriou S, Antoniou C,*et al.* Skin biopsy in the context of dermatological diagnosis: a retrospective cohort study. *Dermatol Res Pract.* 2014;73
10. Dilip K, Piyush K. Clinicopathological consistency in diagnosis of skin disorders: a retrospective study of 371 histopathology reports. *J Pakist Associ of Dermatol.* 2016;26 (2):96-8.
11. Umarji, S., Ravikumar G., Antony M., *etal.* Comparison of clinical diagnosis with histopathology in inflammatory skin diseases: a retrospective study of 455 cases. *Egypt J Dermatol and Venerol*, 2018; 38: 37.