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Clinico-pathological Consistency in Diagnoses of Skin Diseases: A Retrospective Multi – Center Study in Western Afghanistan

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ABSTRACT

Background: The pathological reports of two centers in Herat City- Afghanistan, the dermatology department of Herat Regional Public Hospital and Barakzaie Dermatology and aesthetic center, under the technical support of MBC center, Turin University- Italy and organization of Jami Medical Faculty, Herat- Afghanistan, is analyzed to find out the consistency between clinical and laboratory diagnoses. The reports are generated by Pzhohish Histopathology Laboratory located in Mashhad Iran where the specimens from the two mentioned centers are sent for the diagnosis. Materials and Method: This study includes the total of 177 reports, 70 from the hospital and 107 from Barakzaie Dermatology and aesthetic Center which were obtained for a period of 1.5 years. The specimens were either from skin or from the mucosal site or from the blood serum. Each report includes 3 clinical impressions and one or rarely more than one pathological diagnoses. EPI Info 7 was used as a mean for data analyses. Level of significance was set as at p<0.05. Results: 86(49%) patients were male and 91 (51%) were female with almost equal ratio of male to female Patients aged ranged from 1 to 100 years with a mean age of 43.7 year (sd=23). Age category 40 -60 was in the top 30.9% (n=55) while age over 100 was the lowest 2.2% (n=4). The overall consistency rate was 70% (n=125), and 30% inconsistent with clinical impression (n=52). 66 female and 59 male reports were consistent with clinical impression while 25 female and 27 male cases were inconsistent with the clinical impressions, this finding was not significant statically (p=0.6). 110 confirmed and 15 descriptive reports were consistent with the pathology report (70%), while 29 confirmed and 23 descriptive reports were inconsistent with the clinical impression (30%) confirmed laboratory reports were more consistent with the clinical impressions and this was significant statically (p=0.0000. Conclusion: Even though, skin biopsy is a gold standard and only confirmatory test for some of the skin disorders, inaccessibility to specialized laboratory services in our country is a big challenge against dermatologist, minimizing the chance of performing enough and necessary lab investigation

Keywords: Clinical, Laboratory, Consistency, Histopathology, Confirmed, Descriptive.

INTRODUCTION

Skin conditions are a major cause of morbidity worldwide, representing the fourth most common source of nonfatal diseases burden. [i]

In Afghanistan, particularly in our public hospital, the skin disorders account a significant number of visit in the, the visiting resident per OPD consultation ratio is more than 1000 per month with a ratio of dermatological procedure around 10 per resident.

Although the skin diseases are quite prevalent in our and other developing countries, unfortunately, they are presently not given much attention in the drafting of health policies and in the planning of public health strategies in these countries, as the public health system due to the resource limitation focusing only on emergency and fatal health condition rather than silence, non-fatal, conditions.

Dermatologists tend to rely on clinical diagnosis more than other medical specialties, reserving investigations for confirmation in a small number of cases.

Approximately 1.3% of patients attending the dermatology clinic need a skin biopsy. [ii] Skin biopsy is one of the most important diagnostic procedures performed in dermatology practice. [iii]

In addition to the skin biopsy, other histopathological investigations such as; blood serum analysis for detection of anti - Desmoglin antibodies, may be performed for rare dermatological conditions (Immune -bolus disorders). There are several factors affecting the histopathological reports; proper patient's information recording, good knowledge and skills on performing biopsies, availability and access to dermopathologists experts. In particular, in our country Afghanistan, poor economy, unavailability of insurance scheme, low awareness of the community about the importance of skin disorders, unavailability of dermopathology lab services inside Afghanistan, etc are the contributing factors, that decreasing the ratio of the histopathology laboratory confirmatory investigations.

Herat province, where the data is reported in this paper, is one of the port of economy for our country, has two international borders, with two neighboring countries; Iran and Turkmenistan. There is an informal contract between dermatology department of Herat public hospital, Barakzaie Dermatology and Aesthetic Center, and Pzhohish dermopathalogy laboraty which is located in Mashad Iran. The specimens are collected and sent by a local transport for laboratory test from Herat to Mashhad and the result is sent via Telegram mean, approximately in 10 days from the date obtained. Based on the research fellowship program awarded on Jan 09th, 2023 till October 8th, 2023 which later on extended to 12 -10 -2024, a final project report, was obligated by the fellow, hence, this article is prepared to accomplish the project requirements. Moreover, the report has been prepared in such way that can be used as a research paper in a medical journal.

Skin biopsies are performed most often either to arrive at a conclusive diagnosis or to evaluate the response to therapy. [iv] Additionally, the biopsies may be performed for medico-legal reasons to confirm clinical suspicion. The biopsies may also be performed to affirm the clinical diagnosis, especially in cases that might not respond to the chosen therapy. [v]

Many previous studies on clinicopathological consistency have observed that dermatologists have a significantly higher rate of clinical diagnostic accuracy compared to other specialties. [vi,vii]

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METHODS AND MATERIALS

A retrospective study was lunched in two dermatological centers, located in Herat City – Islamic Emirate of Afghanistan; Herat Dermatology Department, Herat Regional Multispecialty – Public Hospital and Barakzaie Dermatology and Aesthetic Center – a private clinic.

Based on a local contract, the dermatology specimens from these two centers are sent for pathological diagnosis to a specialized dermo -pathology lab in Mashhad – Islamic Republic of Iran. The samples are taken by dermatologist and shipped by a local transport. The transportation length is approximately 450 km, around 5-hour drive from the referral facilities to the referred laboratory. The specimens are kept in formalin 37% in order to ensure high quality till they reach the lab for investigation as it may take longer than usual sometimes due to borders and customs problems.

Two independent team each includes 3 dermatologist or residents were assigned to collect the data from the two mentioned above centers. A senior consultant dermatologist was leading and directing the team in the data collection, entry, analyzing and interpretation.

A total of 177 of reports from the two facilities for a period of one and half year, beginning of 2023 till mid 2024 were analyzed. The patients' demographics, site of biopsies, and three provisional diagnoses for each sample, were considered as important variables for the study.

Clinical Parameters

Age and gender of every patient were recorded. The type of biopsy was classified as incisional, excisional, punch, and blood serum. The site of biopsy was recorded. The clinical impressions were provided by the dermatologist was categorized as sufficient, insufficient, or absent based on the clinical information and differential diagnoses provided. Sufficient 3 impressions, insufficient less than 3 impressions, and absent when no impression was made by the dermatologist.

Pathological Parameters

The pathological diagnosis provided was classified as a definite report or descriptive report. Due to poor economy and unavailability of public resources for the laboratory investigation, no or very few further histochemical laboratory investigation or repeated investigation was made; therefore, we did not further classify our reports accordingly.

Reports were classified into two main categories:

- **Consistent:** When the pathology report confirmed any of the 3 provisional diagnoses
- **Inconsistent:** when the pathology report does not confirm any of the 3 provisional diagnoses.

Data were analyzed using EPI info 7 and the result was compared with similar studies around the world.

RESULTS

A total of 177 skin biopsies' reports from the two facilities were analyzed. Out of 177, 70 (40%) were belongs to Herat Dermatology Department, Herat Public Hospital and 107 (60%) belongs

to Barakzaie Dermatology and Aesthetic Center. According to the sex, 86(49%) patients were male and 91 (51%) were female with almost equal ratio of male to female Patients aged ranged from 1 to 100 years with a mean age of 43.7 year (sd=23). Age category 40 -60 was in the top 30.9% (n=55) while age over 100 was the lowest 2.2% (n=4).

The type of biopsy was categorized as; punch 49 (27%), incisional 99 (55.6%), excisional 29 (16%), blood serum 1 (0.5%).

The site of biopsy, was classified into 7 categories: in 3 cases (2%) the site was not specified. The common sites of biopsy were Head and Neck 79 (45%), followed by Lower extremities 36 (20%), upper extremities 20 (11%), lips and oral cavity 20(11%), trunk 16(9%), Genital 2(1%), and Blood 1(0.5%).

Figure 1: Sebaceous Carcinoma in 70 years Old Female Patient. By patients' consent

Figure 2: Malignant Melanoma in 70 years old Male Patient. By patients' consent

Figure 3: SCC on 85 years Old Male Patient. By patients' consent

In one case (0.5%) no clinical impression was made, in 16 case (9%) less than 3 clinical impressions were made by dermatologist which was classified as insufficient, and in 160 case (90.5%), 3 impressions were made and were classified under sufficient clinical impressions. In 139 cases (78.5%) the pathology reports were confirmative and in rest 38 cases (21.5%) the reports were descriptive.

The most common clinical impressions were; SCC 77(44%) and BCC 74(42 %) similarly the most common pathological diagnoses were SCC 40(23%) and BCC 29(16 %) with slightly different in numbers.

The overall consistency rate was 70% (n=125), and 30% inconsistent with clinical impression (n=52). 66 female and 59 male reports were consistent with clinical impression while 25 female and 27 male cases were inconsistent with the clinical impressions, this finding was not significant statically (p=0.6). 110 confirmed and 15 descriptive reports were consistent with the pathology report (70%), while 29 confirmed and 23 descriptive reports were inconsistent

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with the clinical impression (30%) confirmed laboratory reports were more consistent with the clinical impressions and this was significant statically (p=0.0000).

DISCUSSION

We found an overall 70, 62% clinico-pathological consistency in a wide range of skin diseases diagnosed by dermatologists and residents in a private and a public hospital during a period of 1.5-year time. Similar study has not been done in Afghanistan; but, these findings are similar or close with international researches.

The consistency found in similar studies in international level ranged between 67% and 87%. [8,9,10,11]. An evaluation of 3949 skin biopsies over 10 years in a hospital in Turkey showed that pathological diagnoses were consistent with clinical diagnoses in 76.8% of the cases. [10]

In a 3 years' study of 6700 cases in a hospital in Greece the clinical diagnoses were consistent with the pathological report of 68% [9]

Table 1: Sociodemographic and Clinical Characteristic of Cases

Age Categories	**Frequency**	**Percent**	**Cum. Percent**	**Exact 95% LCL**	**Exact 95% UCL**
0 - <20	32	18.08%	18.08%	12.71%	24.55%
20 - <40	41	23.16%	41.24%	17.16%	30.08%
40 - <60	55	31.07%	72.32%	24.34%	38.45%
60 - <80	37	20.90%	93.22%	15.17%	27.64%
80 - <100	8	4.52%	97.74%	1.97%	8.71%
100 +	4	2.26%	100.00%	0.62%	5.68%
TOTAL	**177**	**100.00%**	**100.00%**		
Clinical Information Sufficiency	**Frequency**	**Percent**	**Cum. Percent**	**Exact 95% LCL**	**Exact 95% UCL**
Absent	1	0.56%	0.56%	0.01%	3.11%
Insufficient	16	9.04%	9.60%	5.26%	14.26%
Sufficient	160	90.40%	100.00%	85.07%	94.30%
TOTAL	**177**	**100.00%**	**100.00%**		
Consistency	**Frequency**	**Percent**	**Cum. Percent**	**Exact 95% LCL**	**Exact 95% UCL**
Consistent	125	70.62%	70.62%	63.32%	77.22%
Inconsistent	52	29.38%	100.00%	22.78%	36.68%
TOTAL	**177**	**100.00%**	**100.00%**		
TOTAL	**177**	**100.00%**	**100.00%**		
Site of Biopsy	**Frequency**	**Percent**	**Cum. Percent**	**Exact 95% LCL**	**Exact 95% UCL**
Blood	1	0.56%	0.56%	0.01%	3.11%
Genital	2	1.13%	1.69%	0.14%	4.02%
Head and Neck	79	44.63%	46.33%	37.17%	52.28%
Lips and Oral Cavity	20	11.30%	57.63%	7.04%	16.91%
Lower Extremities	36	20.34%	77.97%	14.67%	27.03%
Missing	3	1.69%	79.66%	0.35%	4.87%
Trunk	16	9.04%	88.70%	5.26%	14.26%
Upper Extremities	20	11.30%	100.00%	7.04%	16.91%

TOTAL	**177**	**100.00%**	**100.00%**		
Sex	**Frequency**	**Percent**	**Cum. Percent**	**Exact 95% LCL**	**Exact 95% UCL**
F	91	51.41%	51.41%	43.80%	58.98%
M	86	48.59%	100.00%	41.02%	56.20%
TOTAL	**177**	**100.00%**	**100.00%**		
Type of Biopsy	**Frequency**	**Percent**	**Cum. Percent**	**Exact 95% LCL**	**Exact 95% UCL**
Excisional	29	16.38%	16.38%	11.26%	22.68%
Incisional	98	55.37%	71.75%	47.72%	62.83%
Punch	49	27.68%	99.44%	21.24%	34.90%
Serum	1	0.56%	100.00%	0.01%	3.11%
TOTAL	**177**	**100.00%**	**100.00%**		
Type of Pathology Report	**Frequency**	**Percent**	**Cum. Percent**	**Exact 95% LCL**	**Exact 95% UCL**
Confirmed	139	78.53%	78.53%	71.74%	84.34%
Descriptive	38	21.47%	100.00%	15.66%	28.26%
TOTAL	**177**	**100.00%**	**100.00%**		

In 15 years' retrospective study in a tertiary hospital in Saudi Arabia that included 5000 report, the consistency rate found 70%. [12]

Additionally, a review of 371 skin biopsies over a year in a hospital in India showed that the pathological diagnosis had a consistency rate of 67.4% with the provisional diagnoses…

We used the same definition in our report as was used by Aslan et al, definite or descriptive. [10] Korfitis et al recognized four groups of clinicopathological concordance based on similarity of histological diagnoses with specific clinical diagnosis, disease category, and being a subset of or partially overlapping with the proposed clinical diagnoses. [9]

Due to lack of insurance scheme and poor economy condition of the country, clinicians usually get biopsies only in cases where the diagnosis was a dilemma, and we usually do not require biopsy in presentations that are typical of certain diseases and only reserve biopsy to investigate diseases that have several differential diagnoses, particularly in those cases where malignancy could be suspected.

The sex, age, type and site of biopsies, had no relation with the significance; however, type of report had a significant difference, confirmative cases with higher consistency comparing to descriptive (P=<0.05)

Although there are many types of skin biopsies, dermatologists usually prefer punch biopsy due to easy technique and minimal bleeding, but due to unavailability of this simple device in the local market, the punch biopsy in our study is just 27.6%, whereas, in some international studies it usually encompasses a significant proportion of biopsy types, some times more than 80% of the biopsies were punch biopsy. [10]

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In order to ensure sufficient amount of tissue, we performed wider and deeper incisional biopsies and bigger and deeper punch biopsies and in excisional biopsies there was no concerns of tissue insufficiencies.

Inadequate specimens can have negative effect on the pathology result and create a big challenge for the pathologist to investigate the samples carefully. [13]

Normally, several factors can contribute to the quality of the biopsies, including, indications, sites and location, types of biopsies, etc.; however, in our special circumstances, where the dermopahtalogy laboratory is inaccessible, transportation, preservation of spacemen in formalin, time length from the collection till the laboratory exam, can potentially change the quality of the tests. Type of biopsies showed no significant consistency rate for any type of biopsies performed (p*=>o.05).*

In order to simplify the analyzes process, we divided the reports into two categories, malignant and non-malignant. we observed that the malignant reports had more consistency comparing to non-malignant reports (P=<0.05).

CONCLUSION

Even though, skin biopsy is a gold standard and only confirmatory test for some of the skin disorders, inaccessibility to specialized laboratory services in our country is a big challenge against dermatologist who can not work closely with dermathopathologist. Moreover, poor economy condition of the community, out of pocket payment, and no health insurance system within the public system, minimizing the chance of performing enough and necessary lab investigation, reserve the tests performed exclusively for sever diseases or malignant conditions.

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