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Original Article

Anatomical Sites of Superficial Basal Cell Cancers Demonstrate Higher Rates of Mixed Histology

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ABSTRACT

Historically, "aggressive" histologic subsets (HSs) of basal cell carcinoma (BCC) seem to be more likely to statistically exhibit Subclinical extension and require more phases during Mohs micrographic surgery (MMS) and consequently larger margins upon excision. The "Mohs Suitable Use Criteria (MAUC)" for the most appropriate therapy of superficial basal cell carcinoma. **Objective:** To evaluate if aggressive subtypes of superficial Basal Cell Carcinoma are common among healthy, immunocompromised patients and high-risk anatomical sites. **Methods:** The study was carried out in Khyber Teaching Hospital Peshawar, from November 2021-march to 2022, A total of 100 Mohs surgeries on superficial basal cell carcinoma were performed. Under light microscope slides were examined for any pattern of histology besides superficial basal cell carcinoma for statistical analysis MAU anatomical site healthy individuals and immuno compromised patients were grouped accordingly. **Results**: Among health and immuno compromised individuals' zone H and zone L were significantly increased in mixed histology. While in healthy individuals' the association between L Zone and M zone was incredibly significant but in immunocompromised was not significant. **Conclusions:** The mixed histology of SBCC was higher in the head and neck region. Researchers say that the MAUC scoring technique for SBCC is supported by a high incidence in SBCC of the head and neck.

INTRODUCTION

The "Mohs Appropriate Use Criteria" (MAUC) was developed by a joint effort in 2012 [1]. For the treatment of skin carcinoma, A guideline supported by evidence was to be provided to help in clinical management [2,3]. Mohs surgery relevance was determined using a scoring system based on cancer type, a feature of histology, medical diameter, anatomical site, and patient immunological response [4,5]. The MAUC recommendations were based on accurate evidence available, and circumstances that were not supported by scientific research were instructed by the review panel's expert opinion [6]. In the current edition of the MAUC, most superficial basal cell carcinomas

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are considered "appropriate" for Mohs surgery [7,8]. Mohs surgery should be avoided in cases of SBCC because it is "uncertain" or "inappropriate," according to the authors, because of the low skin invasion [9]. Due to the fact that many SBCCs may concurrently have more high growth patterns over non-surgical therapy methods. This is called mixed histology (MH) and the proportion of MH in all basal carcinoma specimens ranges from 32% to 40% [10,11]. Kamyab-Hesari et al., 2017 compared the histological Basal Carcinoma of punch biopsy with consecutive excisions, patterns of aggressive growth are missed by the initial biopsies in 38% of patients [12,14]. As a result, these researchers assume that Mohs surgery may be a good option for many SBCCs [14,15]. They had little choice but to rely heavily on their own personal history in making their judgments of these tumors because of SBCC's efforts and the success of Mohs surgery in curing this illness [16]. The MAUC, on the other hand, is meant to be a continuing process that evolves in response to the best available data [17-19]. The Mohs surgery-treated superficial basal carcinomas (SBCCs) are the topic of this study, which aims to evaluate the frequency with which SBCCs disclose MH as a concomitant nodular or high-risk subtype that was not found on the initial biopsy. Patients were divided into groups based on their immune systems' ability to operate and where they were located in the body. Lesions were categorized as the individual risk that uses the same criteria for a diagnosis that underpins the current MAUC grading system.

METHODS

The study was carried out in Khyber Teaching Hospital Peshawar, from November 2021-March to 2022, A total of 100 Mohs surgeries on superficial basal cell carcinoma were performed. Under light microscope slides were examined for any pattern of histology besides superficial basal cell carcinoma for statistical analysis MAU anatomical site healthy individuals and immuno-compromised patients were grouped accordingly. During the study period, the hospital pathology search was undertaken to find all biopsies identified as SBCC. Patients with SBCC who could benefit from Mohs surgery were identified by comparing their medical record numbers with those in the Mohs surgery case log. The Mohs and biopsy reports were used to investigate the anatomical location. A dermatologist examined all Moh slides for the presence of distinct histological subtypes. At the time of the slide inspection, we didn't know the patient's immunological state or anatomical location. "Superficial basal carcinoma the pattern of histology was assessed by Nodular Basal carcinoma, as the depth of invasion not extending beyond the superficial papillary plexus high-risk BCC (inclusive of morphea form, infiltrative, and micro- nodular patterns) Histologic patterns recorded included superficial BCC" The review of histology of slides was followed by the immune status of patients like pharmacologic immuno-suppression/ transplantation of organ/hematological disorders.

The anatomical zones were classified on MAUC criteria

"Zone H = central face, eyelids, eyebrows, nose, lips, chin, ear, periauricular sulci, temple, hands, feet, ankles, genitalia, nipples, and nail units"

"Zone M = cheeks, forehead, scalp, neck, jawline, and a pretibial leg"

"Zone L = trunk and extremities excluding areas included in Zone H"

The Chi-Square test, with a significance threshold of p0.05., was used to determine the relative frequency of MH in the study populations and subgroups.

RESULTS

The 2015 pathological reports were obtained from the pathology department, while in total 200 patients had undergone Moh surgery. There were 133 patients with characterized tumors on Mohs after the histopathologic examination. As shown in Table 1 the descriptive analysis of the study population, describes tumor characteristics such as the MAUC anatomical area, the immune state of patients, and the histology observed.

Cases	Sites involved	Anatomical Zone H	Anatomical Zone M	Anatomical Zone L
Total cases	100	46	56	34
MH mixed histology	78	32	35	7
SBCC	57	13	20	26
Immunocompromised cases	36	14	12	10
Mh Mixed Histology	34	11	10	5
SBCC	24	3	9	4
Healthy Cases	100	33	45	26
Mh Mixed Histology	53	21	27	5
SBCC	47	11	17	21

Table 1: Shows the descriptive study involved

Table 2 shows the frequency of Mixed Histology documented in several MAUC anatomical locations and then categorized by patient immunological condition. As a result, the facial/ head and neck tumor had an increased significance level of mixed histology, unlike tumor extremities and trunk. "When Zone H as compared to Zone L, all patients had a significantly higher risk of Mixed Histology" (p =.0001), Immunocompromised individuals (p =.48), as well as healthy patients (p =.001). Similarly, for all patients (p=.003) and healthy was (p=.003), Zone M had a considerably greater risk of Mixed Histology than Zone L,

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however immunocompromised patients do not have statistical significance (p =20)(Table 3). The prevalence of Mixed Histology within a certain MAUC anatomic zone is dependent on patients' immunological state as part of their investigation. Variations in the patient immunological state did not describe any significant increases in Mixed Histology within a single anatomic zone.

Anatomical site involved	Total cases %	healthy individuals %	Immunocompromised status%
All sites involved	59	55	71
Zone H MAUC	74	70	86
Zone M MAUC	66	65	74
Zone L MAUC	25	18	45

Table 2: Shows the mixed histology frequency

Groups Comparison	Rates Relatives of Mixed Histology	P-Value
All patients: Zone H vs Zone L	74% vs 25 %	.0001
Healthy: Zone H vs Zone L	70% vs 18%	.001
Immunocompromised: Zone H vs Zone L	86% vs 45%	.48
All patients: Zone M vs Zone L	66% vs 25%	.0003
Healthy: Zone M vs Zone L	65%vs 18%	.0003
Immunocompromised: Zone M vs Zone L	74%vs 44%	.20
H zone: healthy vs immunocompromised	70% vs 86%	.29
M zone: healthy vs immunocompromised	65% vs 73%	.58
L zone: healthy vs immunocompromised	18% vs 45%	.089

Table 3: Shows the statistical analysis

DISCUSSION

The researcher investigated the incidence of Mixed Histology in SBCC among various MAUC anatomic zones and adjusted for changes in patient immunological status in order to give scientific data directly applied to the MAUC. The data collected in this study indicate that there is a distinct anatomical component to tumor activity. The incidence of Mixed Histology SBCC on the head is higher than on the extremities or trunk. There was a considerably greater rate of MIXED Histology in tumors found in Zones H / M than in Zone l across the total study population (74% and 66% vs 25%) accordingly. When separating healthy (55%and 70% vs 18%) or immunocompromised patients (71% and 86% vs 74%), the only analysis of subgroup among immunocompromised patients that could be considered incredibly significant statistically was one that compared L Zone to M Zone. Most SBCCs of Zones H and M are now classified by the MAUC system as "suitable" for Mohs surgery because of their nodular/high-risk characteristics (best outcome, 65%; worst-case scenario, 85%). In 2016, Bartos V et al., and Ghanadan A et al., studied Mixed Histology in Basal Cell carcinoma at scales ranging from 32% to 40% [20-22]. The authors wanted to get identical results for SBCC particularly, hence these trials were conducted on index biopsy of any type of Basal carcinoma. The researchers found a 58% MH ratio across all index sBCC biopsies in their study cohort. This figure is about 20% to 30% higher than any previous report's value for BCC in general in the literature. According to this research, SBCC has a larger likelihood of mixed histology (MHC) than an arbitrary Basal Carcinoma of any category, and about 60% of all cases might likely get poor therapy if Mohs surgery is usually seen as "inappropriate" [23-25]. All anatomical locations were shown to have a higher prevalence of mixed histology in immunosuppressed individuals, with an overall rate of 70% and as high as 86% in the most at-risk area. The frequency of mixed histology tumors in Zone L is nearly three times higher in immunosuppressed patients than in healthy ones, even though no subgroup correlations were statistically significant (45% vs. 18%, p-value. 089). This difference is statistically significant in a larger sample population. Even though the patient's immunological condition has little influence on whether a given SBCC is Mohs-appropriate in Zones L under the existing MAUC, this information is nevertheless useful in determining therapy decisions. According to the findings of the researchers, over half of the SBCCs found inside Zone L in immunocompromised persons had a nodular feature or worse. Mohs surgery is regarded as "suitable" for these patients. The patient's immunological status may have an impact on the present grade of Zone L SBCC lesions, hence a thorough study is necessary.

CONCLUSION

The findings indicate that SBCC in the head and neck area has a greater rate of Mixed Histology, providing good evidence for the standard MAUC scoring. In light of these findings, modifying the MAUC in a way that prevents patients from undergoing SBCC surgery on high-risk anatomical locations would be erroneous.

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