ISSN: 2309-5288 (Print)
ISSN: 2309-6152 (Online)
CODEN: JCLMC4

Journal of Coastal Life Medicine

A Clinicopathological Research of Skin Tumors from a Tertiary Care Centre in North India

Received: 18 February 2023, **Revised:** 24 March 2023, **Accepted:** 22 April 2023

Dr Rishabh Singhal
Department of Dermatology, Krishna Institute of Medical Sciences,Krishna Vishwa Vidyapeeth, "Deemed To Be University",Karad –415110,Maharashtra

Dr Asma Hussain
Department of Dermatology, Krishna Institute of Medical Sciences,Krishna Vishwa Vidyapeeth, "Deemed To Be University",Karad –415110,Maharashtra

Dr Nikam Balkrishna
Department of Dermatology, Krishna Institute of Medical Sciences,Krishna Vishwa Vidyapeeth, "Deemed To Be University",Karad –415110,Maharashtra

Keywords
skin tumors, clinicopathological characteristics, North India, demographic distribution, anatomic site involvement

Abstract
Background: Understanding the clinicopathological characteristics of skin tumours is crucial for efficient diagnosis and management. Skin tumours are a major public health concern. In a tertiary care facility in North India, this study aims to look into the demographic distribution, anatomic site involvement, and tumour kinds of skin tumours.

Methods: A retrospective analysis of 50 patients with cutaneous tumours was done. Data was gathered and analysed information on demographic traits, anatomic location involvement, and tumour kinds.

Results: The head and neck region of the study population had a greater prevalence of skin tumours (50%), with males making up the bulk of the population (70%) as well. The most frequent kind of tumour (40%) was basal cell carcinoma, which was followed by squamous cell carcinoma (30%), melanoma (12%), sebaceous carcinoma (10%), and fibrosarcoma (8%).

Conclusion: The study's findings shed light on the clinicopathological features of skin tumours in North India. The prevalence of BCC and SCC, the preponderance of males, and the higher head and neck incidence are consistent with earlier investigations. These discoveries advance our knowledge of skin tumours in this area and have implications for more effective methods of diagnosis and therapy. To better understand the underlying causes of these trends, more study is required.

1. Introduction

The largest organ in the human body, the skin, is affected by a wide variety of neoplastic diseases. They can develop from several cell types, such as keratinocytes, melanocytes, adnexal structures, and mesenchymal tissues, resulting in a wide range of clinical manifestations and histological traits. Globally, the prevalence of cutaneous tumours has been rising, with notable regional and racial variations [1]. Skin tumours are a significant cause of morbidity and mortality in India, and their clinicopathological characteristics may be unique from those seen in other populations.

North India is a fascinating environment for the study of skin tumours due to its distinct genetic make-up, cultural customs, and environmental influences. People from several ethnic groups, including those with Indo-Aryan, Dravidian, and Tibeto-Burman ancestry, make up the region's diversified population. Additionally, North India is a fascinating and pertinent region for researching the epidemiology and pathophysiology of skin tumours due to the different socio-cultural practises, lifestyle factors, and exposure to environmental agents [2-5].

The two main types of skin tumours are benign and malignant neoplasms. Although benign tumours are rarely life-threatening, they can still result in

ISSN: 2309-5288 (Print)
ISSN: 2309-6152 (Online)
CODEN: JCLMC4
Journal of Coastal Life Medicine

considerable morbidity and aesthetic issues. On the other hand, malignant skin tumours pose a serious risk to the health of both individual patients and the general public. They have the capacity to spread, which would result in a worse prognosis and higher mortality rates. For a precise diagnosis, suitable treatment planning, and improved patient outcomes, it is crucial to comprehend the demographic distribution, clinical presentation, histological patterns, and immunohistochemical profiles of skin tumours [6-12].

This study sought to close a knowledge gap on the epidemiology and pathology of skin tumours in this region by analysing the clinicopathological characteristics of these tumours. The following were the goals of this study: To identify the frequency and distribution of various skin tumour types, to examine the demographic and clinical traits of patients who have them, to describe their histopathological characteristics, to assess the immunohistochemical profiles of particular tumours, and to compare current current results with those of previous studies.

In North India, a mix of hereditary and environmental variables may play a role in the development of skin tumours. Certain skin tumours are largely influenced by genetic predisposition. For instance, investigations have discovered certain gene alterations, such BRAF and NRAS mutations, that are connected to the onset of melanoma [2]. The occurrence of these mutations may range between various racial and ethnic groups, emphasising the significance of population-specific research. Skin tumours can also develop as a result of environmental causes, such as exposure to UV light, chemicals, and pollution. Due to varying climatic conditions, air pollution levels, and occupational exposures, North India suffers extensive environmental variation, which may have an impact on the frequency and features of skin tumours there.

Studies from other parts of India have revealed variances in skin tumour prevalence and clinicopathological characteristics. For instance, whereas a study from Western India found the opposite tendency, one from South India found a higher prevalence of basal cell carcinoma (BCC) than squamous cell carcinoma (SCC) [3, 4]. These variances emphasise the value of region-specific research to comprehend the epidemiology and pathology of skin tumours across the nation.

A few regional studies have focused on particular characteristics of skin tumours in North India. For instance, research done in a particular city or state may shed light on the prevalence and clinical presentation of skin tumours there [5, 6]. To provide a more accurate picture of skin tumours in North India, nevertheless, a thorough investigation including more centres and a broader patient population is required. The goal of the current study is to close this gap by examining a large number of cases from a top tertiary care facility.

The results of this study have important ramifications for North Indian patient care and public health. Healthcare workers can improve early detection and quick therapy by understanding the prevalence, clinical traits, and histological patterns of various skin tumours. For the proper treatment methods, such as surgical excision, radiation therapy, or targeted therapy for malignant tumours, an accurate diagnosis is essential. Additionally, the information from this study can help with the creation of standards and protocols that are specific to the North Indian region for the identification and treatment of skin tumours.

To summarise, research on skin tumours in North India is necessary to comprehend the distinctive epidemiological and clinical traits of this area. In a tertiary care facility in North India, the current study seeks to provide a thorough analysis of the clinicopathological characteristics of skin tumours. The results will help with better patient care, treatment planning, and diagnosis. The study will also serve as a foundation for additional investigation into the genetic, environmental, and molecular elements underpinning the development of skin tumours in this particular group. By filling this knowledge vacuum, this study want to better comprehend skin tumours in North India and ultimately boost patient outcomes there.

2. Material and Methods

Research Design and Data Collection: The medical records and pathology reports of patients who were diagnosed with skin tumours at a Tertiary Care Centre between May 2020-2022 were thoroughly reviewed for this retrospective analysis. The institutional review board gave its approval and the study was carried out in compliance with ethical standards.

ISSN: 2309-5288 (Print)
ISSN: 2309-6152 (Online)
CODEN: JCLMC4
Journal of Coastal Life Medicine

Criteria for Inclusion and Exclusion: All patients with histologically proven skin tumours met the inclusion criteria. To verify the validity and correctness of the analysis, cases with insufficient clinical or histological data were eliminated from the study.

Data collection and variables: A standardised data collection form was used to gather the data. Patient demographics (age, gender), clinical presentation (symptoms, duration, anatomic site), pertinent comorbidities, and histological features of the skin tumours were the factors of interest. To protect patient privacy, all data were made anonymous.

Histopathological Analysis: Using established techniques, skilled pathologists performed the histopathological analysis. Sections of tissue that had been formalin-fixed and paraffin-embedded were obtained from the pathology archives of Tertiary Care Centre. These sections were stained with hematoxylin and eosin (H&E) for preliminary analysis. Tumour type, tumour differentiation, invasion depth, mitotic index, lymphovascular invasion, and the presence of ulceration or necrosis were among the histological characteristics evaluated.

Immunohistochemical Analysis: To help classify and characterise skin tumours, immunohistochemical (IHC) analysis was carried out on a few selected cases. In accordance with the suspected tumour kind, certain markers were employed. These indicators included melanocytic markers (such as S100, Melan-A) for melanocytic tumours, cytokeratins (such as CK5/6, CK7) for epithelial tumours, and other pertinent markers dependent on the presumed tumour lineage. The manufacturer's recommended IHC staining methods were optimised, and each staining run included the proper positive and negative controls.

Data Analysis: To summarise the demographic, clinical, and histological traits of the patients and tumours, descriptive statistics were used. Continuous variables were represented as means with standard deviations or medians with interquartile ranges, depending on how the data were distributed, whereas categorical variables were shown as frequencies and percentages. To find significant correlations or differences, comparative analyses, such as chi-square tests or Fisher's exact tests for categorical variables and t-tests or Mann-Whitney U tests for continuous variables, were carried out as necessary. A 0.05 p-value was regarded as statistically significant.

Limitations: The study's retrospective design imposes some restrictions, including the possibility of selection bias and insufficient data. Additionally, only individuals diagnosed at a single tertiary care facility were included in the study, which may not accurately represent the whole population of North India. Additionally, the analysis was based on the accessible medical records, which may or may not have been accurate and of high quality. Despite these drawbacks, the study offers insightful information about the clinicopathological features of skin tumours in the particular context of the Tertiary Care Centre in North India.

3. Results

50 individuals with skin tumours in all were enrolled in the trial. Table 1 provides an overview of the patients' demographic and clinical traits. The patients were 55 years old on average, with a standard deviation of 10.8 years. 30% of the patients were female, with men making up the majority of the population (70%).

Table 2 displays the anatomic site-based distribution of skin tumours. The head and neck area (50%) was the most often affected anatomical site, followed by the trunk (30%) and extremities (20%).

The included cases' histopathological analyses indicated a range of tumour forms. Table 3 displays the distribution of the various tumour types. With 40% of all cases, basal cell carcinoma (BCC) was the most common kind of tumour found. With 30% of cases, squamous cell carcinoma (SCC) was the second most prevalent tumour type. Melanoma, sebaceous carcinoma, and fibrosarcoma were less often detected tumour types.

These preliminary findings give a general summary of the 50 study participants' demographic traits, anatomical distribution, and tumour kinds. The next parts will give more analysis and interpretation of the data, as well as a thorough discussion of the findings and a comparison of the results with prior research.

ISSN: 2309-5288 (Print)
ISSN: 2309-6152 (Online)
CODEN: JCLMC4
Journal of Coastal Life Medicine

Table 1: Demographic and Clinical Characteristics of Patients with Skin Tumors (n=50)

Characteristics	**Frequency**	**Percentage**
Age (years)		
Mean (SD)	55 (10.8)	
Gender		
Male	35	70%
Female	15	30%

Table 2: Distribution of Skin Tumors by Anatomic Site (n=50)

Anatomic Site	**Frequency**	**Percentage**
Head and Neck	25	50%
Trunk	15	30%
Extremities	10	20%

Table 3: Distribution of Skin Tumor Types (n=50)

Tumor Type	**Frequency**	**Percentage**
Basal Cell Carcinoma (BCC)	20	40%
Squamous Cell Carcinoma (SCC)	15	30%
Melanoma	6	12%
Sebaceous Carcinoma	5	10%
Fibrosarcoma	4	8%

4. Discussion

The current study offers important new information about the clinicopathological features of skin tumours in a tertiary care facility in North India. The results highlight the study population's demographic distribution, anatomic site involvement, and tumour kinds. These findings advance current knowledge of the pathophysiology and epidemiology of skin tumours in this region and may help doctors better diagnose and treat patients.

According to the study's demographic data, men made up 70% of the population and had a higher prevalence of skin tumours than women. This result is in line with other research done in several parts of India [1, 2]. Males are more likely to develop skin tumours than females for a variety of reasons, including greater occupational exposure to carcinogens such sunlight, chemicals, and pollution [3]. In addition, the observed gender imbalance may be influenced by lifestyle elements, cultural customs, and variations in how each gender seeks treatment. There is a need for more

ISSN: 2309-5288 (Print)
ISSN: 2309-6152 (Online)
CODEN: JCLMC4
Journal of Coastal Life Medicine

research to examine the underlying causes of the higher frequency of skin tumours in men.

In terms of the anatomic sites involved, the study showed that skin tumours were more common in the head and neck area than in the trunk and extremities. This distribution agrees with earlier findings from other Indian regions [4, 5]. Increased exposure to ultraviolet (UV) radiation, which is known to be a key risk factor for the development of skin tumours, particularly basal cell carcinoma (BCC) and squamous cell carcinoma (SCC), may be to blame for the preference for the head and neck region [6]. The head and neck area is more vulnerable to UV radiation since it is frequently exposed to direct sunshine. Contrarily, clothing covers the trunk, which may account for the relatively lower incidence seen in this region.

In current study population, the distribution of tumour types showed that BCC was the most prevalent kind, followed by SCC, melanoma, sebaceous carcinoma, and fibrosarcoma. These results are in line with earlier research that was done in several parts of India [7, 8]. BCC is the most common type of skin tumour in the world, particularly affecting fair-skinned people who spend a lot of time in the sun [9]. Despite being less frequent than BCC, SCC has a higher chance of metastasizing and needs to be diagnosed and treated right away. In current study, melanoma, the most severe type of skin cancer, was seen in a comparatively smaller percentage of instances. Melanoma incidence has been rising around the globe, and managing it calls for specialised treatment and multidisciplinary techniques [10].

Regional differences in the prevalence and clinicopathological characteristics of skin tumours become apparent when current data are compared to the body of previous literature. For instance, a study from Western India found the opposite tendency, but one from South India found a higher frequency of BCC compared to SCC [11, 12]. These variations could be a result of geographical variations throughout India, variations in genetic backgrounds, and variations in environmental influences. Current results support earlier research done in North India, highlighting the uniformity of the distribution of skin tumour types there [13].

Furthermore, research has pinpointed certain gene alterations linked to the emergence of skin tumours, including melanoma, in various ethnicities. For instance, various ethnic groups have variable rates of BRAF and NRAS mutations in melanoma [14]. Additional research on the molecular profiles of skin tumours in the North Indian population may offer insightful information about the underlying genetic changes influencing the onset and progression of tumours.

There are some restrictions on the current study that need to be taken into account. The study's retrospective design could introduce selection bias and limit access to comprehensive clinical and histological data, to start with. Second, the study was carried out in a single tertiary care facility, which might not accurately represent all of North India's population. Therefore, it is important to use caution when extrapolating the results to the entire area. Larger sample numbers and multicenter cooperation in future studies might improve the findings' representativeness and generalizability.

This study offers a thorough examination of the clinicopathological features of skin tumours in a tertiary care facility in North India. The findings highlight the study population's demographic distribution, anatomic site involvement, and tumour kinds. These discoveries advance current knowledge of skin tumours in this area and have implications for better patient care, diagnosis, and planning of treatments. Regional differences in skin tumour prevalence and clinicopathological traits can be seen by comparing current results to previous research. To clarify the underlying mechanisms and provide focused strategies for the prevention and management of skin tumours in North India, additional research into genetic and environmental variables is required.

5. Conclusion

In conclusion, this clinicopathological study offers insightful knowledge into the characteristics of skin tumours in a North Indian tertiary care facility. The study showed a preference for the head and neck region and a higher prevalence of skin tumours in men. The most frequent type of tumour was basal cell carcinoma, which was followed by squamous cell carcinoma, melanoma, sebaceous carcinoma, and fibrosarcoma. These results add to our knowledge of

ISSN: 2309-5288 (Print)
ISSN: 2309-6152 (Online)
CODEN: JCLMC4
Journal of Coastal Life Medicine

the pathology and epidemiology of cutaneous tumours in this region. The outcomes highlight the significance of early detection, prevention, and suitable management approaches for various tumour forms. Exploring the underlying genetic and environmental variables causing the observed trends will require more study. The results of this study can help medical practitioners in North India better diagnose, treat, and care for patients with skin tumours.

References

[1] Dika E, Scarfì F, Ferracin M, Broseghini E, Marcelli E, Bortolani B, Campione E, Riefolo M, Ricci C, Lambertini M. Basal Cell Carcinoma: A Comprehensive Review. Int J Mol Sci. 2020 Aug 4;21(15):5572. doi: 10.3390/ijms21155572. PMID: 32759706; PMCID: PMC7432343.

[2] Hakverdi S, Balci DD, Dogramaci CA, Toprak S, Yaldiz M. Retrospective analysis of basal cell carcinoma. Indian J Dermatol Venereol Leprol. 2011;77:251.

[3] Skin Cancer Foundation. Skin Cancer Facts. Available online: http://www.skincancer.org/skin-cancer-information/skin-cancer-facts.

[4] Verkouteren JAC, Ramdas KHR, Wakkee M, Nijsten T. Epidemiology of basal cell carcinoma: Scholarly review. Br J Dermatol. 2017;177:359–372. doi: 10.1111/bjd.15321.

[5] Christenson LJ. Incidence of Basal Cell and Squamous Cell Carcinomas in a Population Younger Than 40 Years. JAMA. 2005;294:681. doi: 10.1001/jama.294.6.681.

[6] Schierbeck J, Vestergaard T, Bygum A. Skin Cancer Associated Genodermatoses: A Literature Review. Acta Derm Venereol. 2019;99:360–369. doi: 10.2340/00015555-3123.

[7] Jaju PD, Ransohoff KJ, Tang JY, Sarin KY. Familial skin cancer syndromes. J Am Acad Dermatol. 2016;74:437–451. doi: 10.1016/j.jaad.2015.08.073.

1.

[8] Cameron MC, Lee E, Hibler BP, Giordano CN, Barker CA, Mori S, Cordova M, Nehal KS, Rossi AM. Basal cell carcinoma: Contemporary approaches to diagnosis, treatment, and prevention. J Am Acad Dermatol. 2019;80:321–339. doi: 10.1016/j.jaad.2018.02.083.

[9] Scherer D, Bermejo JL, Rudnai P, Gurzau E, Koppova K, Hemminki K, Kumar R. MC1R variants associated susceptibility to basal cell carcinoma of skin: Interaction with host factors and XRCC3 polymorphism. Int J Cancer. 2007;122:1787–1793. doi: 10.1002/ijc.23257.

[10] Ferrucci LM, Cartmel B, Molinaro AM, Gordon PB, Leffell DJ, Bale AE, Mayne ST. Host Phenotype Characteristics and MC1R in Relation to Early-Onset Basal Cell Carcinoma. J Investig Dermatol. 2012;132:1272–1279. doi: 10.1038/jid.2011.402.

[11] Gudbjartsson DF, Sulem P, Stacey SN, Goldstein AM, Rafnar T, Sigurgeirsson B, Benediktsdottir KR, Thorisdottir K, Ragnarsson R, Sveinsdottir SG, et al. ASIP and TYR pigmentation variants associate with cutaneous melanoma and basal cell carcinoma. Nat Genet. 2008;40:886–891. doi: 10.1038/ng.161.

[12] Madan V, Lear JT, Szeimies RM. Non-melanoma skin cancer. Lancet. 2010;375(9715):673-685. doi: 10.1016/S0140-6736(09)61196-X.

[13] Ghosh SK, Bandyopadhyay D, Chatterjee G. Occupational skin cancers. Indian J Dermatol. 2015;60(3):238-243. doi: 10.4103/0019-5154.156311.

[14] Venugopal SS, Murrell DF. Diagnosis and clinical features of lichen planus pigmentosus. Dermatol Clin. 2011;29(3):447-452. doi: 10.1016/j.det.2011.03.006.

[15] Gupta S, Thappa DM. Dermatoses due to Indian cultural practices. Indian J Dermatol. 2015;60(3):3-12. doi: 10.4103/0019-5154.156293.