Journal of Cancer Research and Cellular Interventions (JCCRCI)

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Mini Review

Cutaneous Melanoma: Unmasking the Silent Aggressor of the Skin

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Citation: Sagebiel R (2025). Cutaneous Melanoma: Unmasking the Silent Aggressor of the Skin 1(1)

Received date: July 03, 2025**: Accepted date**: July 09, 2025**: Published date:** July 15,2025
Keywords: malignancy, melanocytes,mutations,tumor progression,lymph nodies

Abstract

Cutaneous melanoma is a highly aggressive form of skin cancer arising from melanocytes, the pigment-producing cells of the epidermis. Although it accounts for a small proportion of skin cancer cases, it is responsible for the majority of skin cancer-related deaths due to its high metastatic potential. This mini review highlights the epidemiology, risk factors, molecular pathogenesis, clinical features,

diagnostic approaches, and current management strategies of cutaneous melanoma. Emphasis is placed on early detection and evolving therapeutic options, including targeted therapy and immunotherapy, which have significantly improved patient outcomes. Understanding these aspects is crucial for reducing morbidity and mortality associated with this potentially lethal malignancy

Introduction

Cutaneous melanoma represents one of the most serious forms of skin cancer, characterized by uncontrolled proliferation of melanocytes. Its incidence has been steadily increasing worldwide, particularly among fair-skinned populations exposed to excessive ultraviolet (UV) radiation

Risk Factors and Etiology:

The primary risk factor for melanoma is UV exposure, especially intermittent intense exposure leading to sunburns. Other contributing factors include genetic predisposition, presence of atypical nevi, fair skin, and family history. Mutations in genes such as BRAF, *NRAS*, NRAS, and KIT play a critical role in melanoma development

Pathogenesis:

Melanoma develops through a multistep process involving transformation of normal melanocytes into malignant cells. Dysregulation of signaling pathways, particularly the MAPK pathway, leads to increased cell proliferation and survival. Tumor progression is marked by vertical invasion and the potential for metastasis to lymph nodes and distant organs.

Clinical Features

Melanoma often presents as an asymmetrical, irregularly bordered, variably pigmented lesion. The ABCDE criteria (Asymmetry, Border irregularity Color variation, Diameter >6 mm, and Evolution) are widely used for early detection. Lesions may arise de novo or from pre-existing moles.,

Diagnosis:

Diagnosis is primarily based on clinical examination followed by histopathological confirmation through biopsy. Dermoscopy enhances diagnostic accuracy Staging is performed using the TNM classification system, which guides treatment decisions

Management:

Surgical excision remains the mainstay of treatment for localized melanoma. Advanced stages require systemic therapies. Recent advances include targeted therapies (e.g., BRAF inhibitors) and immunotherapies such as

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immune checkpoint inhibitors, which have revolutionized melanoma treatment

Conclusion:

Cutaneous melanoma is a potentially fatal malignancy that requires early recognition and prompt intervention. Public awareness, regular skin examinations, and advances in therapeutic strategies have improved survival rates. Continued research into molecular mechanisms and novel treatments remains essential for better disease control

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