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Understanding Cellular Behavior in the Diagnosis and Treatment of Melanoma

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Case Study Analysis: Melanoma in a 57-Year-Old Male

Introduction

Understanding how cells behave and how they change during disease is important in healthcare, especially for Advanced Practice Registered Nurses (APRNs). Some diseases are more than just a problem with one part of the body. Instead, they may be caused by many factors, like genes, the environment, and personal traits. Melanoma, for example, is strongly linked to ultraviolet (UV) radiation exposure, which damages DNA and contributes to the uncontrolled growth of melanocytes (Narayanan et al., 2010). This paper looks at a case study involving a 57-year-old man with a dark lesion on his arm. It discusses how changes in cell behavior can lead to disease, especially skin cancer, and how understanding these changes helps with diagnosis and treatment.

Patient Symptoms and Cellular Pathophysiology

The patient in the case study has a dark lesion on his upper right arm that has changed in size. He has had freckles before, but this one looks different. The biopsy showed that there are atypical melanocytes in the basal layer of the epidermis. These cells are invading the dermis in sheets and nests, which is not normal. The nuclei of these cells are irregular, and the nucleoli are large. The cells are also positive for Mart-1, which confirms they are melanocytes.

These findings are signs of malignant melanoma, a type of skin cancer that begins in melanocytes. Normally, melanocytes produce melanin and protect the skin from UV damage. However, when