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OPEN ACCESS CASE REPORT

Squamous Cell Carcinoma of the Nail Bed in a Centenarian: A Rare Case Report

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ABSTRACT

A 103-year-old female, with a history of hypertension, presented with a 6-month history of a progressive, ulcerative growth on her left thumb following trauma and subsequent nail excision. The lesion, originating from the nail bed, exhibited no discharge, bleeding, or pain but was associated with a foul smell and restricted thumb movement. Despite the absence of systemic symptoms, the growth's insidious nature and physical examination findings prompted urgent surgical intervention. The patient underwent a successful excision of the affected thumb, including metacarpal bone removal under local anesthesia. Histopathological examination confirmed well-differentiated squamous cell carcinoma (SCC). Postoperative recovery was uneventful, with the patient being discharged on postoperative day 1 and showing no signs of infection or complications at a 10-day follow-up. This case underscores the importance of considering SCC in persistent, non-healing wounds of the nail bed in geriatric patients, highlighting the challenges in diagnosis and the necessity for prompt surgical management to prevent disease progression.

Key Words: *Squamous Cell Carcinoma, Nail Bed Carcinoma, Geriatric Oncology, Nail Bed Surgery, Case Report*

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INTRODUCTION

Squamous cell carcinoma (SCC) of the nail bed is an uncommon entity that often presents diagnostic and therapeutic challenges. Despite its rarity, the potential for significant morbidity, particularly in the geriatric population, underscores the necessity for early detection and appropriate management. SCC can arise in various parts of the body exposed to carcinogenic factors; however, its occurrence in the nail bed is particularly noteworthy due to the unique anatomical and physiological characteristics of the area (1). Risk factors contributing to the development of SCC of the nail bed include chronic inflammation, such as paronychia, exposure to ultraviolet (UV) rays, and human papillomavirus (HPV) infections (2,3).

The diagnostic process for nail bed SCC is often complicated by its resemblance to benign nail disorders, leading to a delay in diagnosis. Histopathological examination remains the gold standard for diagnosis, highlighting the importance of biopsy in cases of persistent nail bed lesions (4). Management strategies for nail bed SCC vary from conservative surgical excision to more aggressive approaches like amputation of the digit in advanced cases, emphasizing the need for a tailored approach based on the stage of the disease and patient-specific factors (5).

Given the aging global population and the increasing incidence of skin cancers, including SCC, understanding the nuances of SCC of the nail bed in geriatric patients is of paramount importance. This review aims to elucidate the pathophysiology, diagnostic challenges, and treatment modalities for SCC of the nail bed, with a focus on optimizing outcomes for the elderly.

Case Presentation

A centenarian female, aged 103 years, with a significant medical history of hypertension managed with antihypertensive pharmacotherapy, presented to the emergency department manifesting a chronic wound on the pollical digit of her left hand. The initial appearance of the lesion was traced back to approximately six months prior to presentation, described by the patient as having an insidious onset and exhibiting a gradual progression in size and

severity. The patient recounted an incident of trauma to the affected digit three months anterior to her initial presentation, subsequent to which a surgical excision of the nail was performed. Post-operatively, the patient observed the emergence of a proliferative lesion originating from the nail bed, initially localized but later extending to involve the entire pollical digit. The lesion was characterized by malodorous discharge and restricted articulatory movement of the thumb, notably without the presence of exudate, hemorrhage, or nociception. The patient's medical history was devoid of pyrexia, respiratory or gastrointestinal symptoms, significant weight alterations, or cardiothoracic discomfort. Additionally, there was no familial precedent of comparable dermatological afflictions.

Upon physical examination, the patient was observed to be pallid with vital signs as follows: blood pressure measured at 110/70 mmHg, peripheral oxygen saturation at 96% in ambient air, pulse rate at 65 beats per minute, and respiratory rate quantified at 16 breaths per minute. Nutritional intake was primarily limited to liquids, attributed to dysphagia associated with advanced age. Dermatological examination of the left hand revealed an irregular, ulcerated neoplasm extending from the proximal nail fold to the mid-metacarpal region of the thumb, dimensions recorded at 7x3x3 cm. The lesion exhibited poorly defined margins, absence of tenderness, and no propensity for hemorrhage upon palpation. A significant impairment in the flexion of the thumb was noted.

Diagnostic evaluation included comprehensive hematological and biochemical profiling, which returned results within normal reference ranges. Cardiac and pulmonary assessments, conducted via electrocardiogram and chest radiography respectively, presented no abnormalities. The clinical presentation and preliminary investigations prompted the decision for urgent surgical intervention under local anesthesia, following informed consent obtained from both the patient and her legal guardian. The surgical approach entailed a wrist block followed by a 'fish mouth' incision at the base of the thumb, excision encompassing the skin, deep fascia, tendinous structures, and the involved metacarpal bone. The osseous structure was subsequently reshaped, ensuring meticulous hemostasis, and the surgical wound was approximated using Ethilon 2-0 sutures under aseptic conditions. The patient's intraoperative and immediate postoperative courses were uneventful, with discharge from the medical facility on the first postoperative day. Prophylactic antimicrobial therapy was administered intravenously, complemented by analgesia. Histopathological examination of the excised specimen corroborated the diagnosis of well-differentiated squamous cell carcinoma.

Subsequent follow-up evaluations demonstrated satisfactory wound healing, absent any signs of infection or surgical site complication, with suture removal accomplished on the tenth postoperative day. This case elucidates the imperative for heightened clinical vigilance and prompt therapeutic intervention in geriatric patients presenting with non-healing lesions of the nail bed, underscoring squamous cell carcinoma as a critical differential diagnosis in such instances.

Discussion

The presented case of squamous cell carcinoma (SCC) of the nail bed in a centenarian patient encapsulates several noteworthy aspects pertinent to the fields of dermatology and geriatric oncology. Squamous cell carcinoma, particularly within the nail bed, constitutes a rare clinical entity, often leading to delayed diagnosis due to its mimicry of more benign conditions such as chronic infections or inflammatory diseases (6). The rarity of SCC in this location, coupled with the advanced age of the patient, provides a unique lens through which to examine the intersection of geriatric medicine and oncologic dermatology.

Historically, SCC of the nail bed has been associated with a plethora of etiological factors, including but not limited to ultraviolet radiation exposure, human papillomavirus (HPV) infection, chronic inflammation, and prior trauma (7). The latter two factors appear to be of particular relevance in the presented case, highlighting the critical role of chronic irritation and physical injury in the pathogenesis of nail bed SCC. This is consistent with the broader dermatological literature, which posits that chronic inflammatory states may predispose to malignant transformation through a myriad of cellular mechanisms, including DNA damage and the promotion of a pro-oncogenic microenvironment (8).

The management of SCC in the nail unit, as demonstrated in this case, often necessitates surgical intervention, with the extent of surgery dictated by the tumor's size, depth of invasion, and presence of metastasis. In the geriatric population, the decision-making process surrounding surgical management must be carefully balanced with the patient's overall health status, functional capacity, and life expectancy. The successful surgical outcome in this case, characterized by the absence of postoperative complications and satisfactory wound healing, underscores the feasibility of surgical management for nail bed SCC in elderly patients. This aligns with existing studies suggesting that age alone should not preclude the consideration of surgical treatment for skin cancers, provided that patients are carefully selected and managed postoperatively (9).

Furthermore, the case illuminates the importance of a multidisciplinary approach to the care of elderly patients with skin cancers, incorporating considerations of pain management, wound care, and functional rehabilitation into the treatment plan (10). The prompt and comprehensive management described, from diagnosis through to surgical treatment and follow-up, exemplifies best practices in the care of older adults with cancer, emphasizing the need for tailored, patient-centered care strategies.

The novel aspects of this case include the patient's advanced age, the rarity of the condition in such age groups, and the demonstration of a successful surgical outcome despite potential age-related challenges. It contributes to the growing body of literature advocating for an aggressive approach to diagnosis and management of nail bed SCC, regardless of patient age, to prevent disease progression and optimize patient outcomes.

Conclusion

The case of a centenarian patient diagnosed with squamous cell carcinoma (SCC) of the nail bed encapsulates several critical insights pertinent to both clinical practice and future oncologic research. Firstly, it underscores the paramount importance of considering SCC in the differential diagnosis of chronic, non-healing lesions of the nail bed, especially in the geriatric population. The insidious nature of SCC, coupled with its potential for significant morbidity, necessitates a high index of suspicion and early diagnostic intervention to facilitate timely management.

Secondly, the successful surgical management of SCC in this patient, despite advanced age, reinforces the notion that age alone should not be a deterrent to the provision of definitive surgical care. This case illustrates that with appropriate perioperative planning and care, elderly patients can undergo surgical procedures with favorable outcomes, challenging the often conservative approach taken towards surgical management in the geriatric population.

Furthermore, this case highlights the need for a multidisciplinary approach in managing complex cases in older adults, integrating surgical, medical, and supportive care to optimize patient outcomes. The involvement of various specialties, including dermatology, surgery, geriatrics, and palliative care, can ensure a comprehensive treatment plan that addresses not only the oncologic issue but also the broader health concerns that accompany aging.

For future research, this case opens several avenues for exploration. There is a need for further studies to understand the specific risk factors, pathophysiology, and optimal management strategies for SCC of the nail bed in the elderly. Additionally, investigating the role of innovative diagnostic and therapeutic modalities in improving outcomes for skin cancers in geriatric patients could significantly impact clinical practice.

In conclusion, the presented case serves as a valuable addition to the dermatologic literature, offering critical insights into the diagnosis and management of nail bed SCC in the elderly. It calls for heightened awareness among clinicians about this rare entity and suggests a proactive approach in the care of older adults presenting with nail pathology, potentially improving outcomes through early intervention and comprehensive management.

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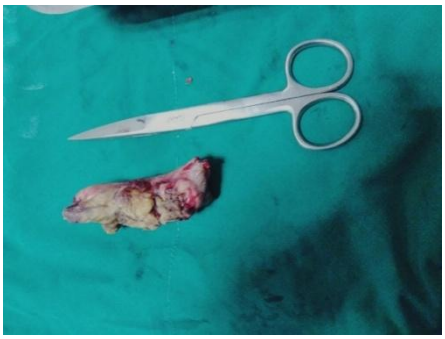
Images:

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THE OXFORD MEDICAL COLLEGE, HOSPITAL & RESEARCH CENTRE

Yadavanahalli, Attibele Hobli, Anekal Taluk, Bangalore – 562 107

HISTOPATHOLOGY REPORT

Patient Name:	Kanjakshi	**Accession:**	**B-2826/23**
Age:	100 Years	Department:	General Surgery
Sex:	Female	IP/OP:	199913
Doctor:	Dr. Sushil Kumar	Date:	05.08.2023

Nature of Specimen: Amputated left thumb

Clinical details: Growth from the left thumb nail following trauma.

Gross: Specimen consists of single amputated left thumb measuring 7x2.2x2.2 cms.
External surface - shows ulcerative lesions one measuring 3x3cm,
0.8cm away from the proximal surgical margin and 3cm from the tip of the nail. Another ulcer is seen at the tip of the finger measuring 2.5x2 cms.
Cut section shows greywhite lesion measuring 4x2cms.
A,B,C) Representative sections taken.
D) Surgical margin

Microscopy: Sections studied show a malignant tumor with superficial portion of tumor showing hyperkeratosis, parakeratosis and acanthosis. The tumor is seen invading the stroma with predominantly broad strands. Tumor cells are polygonal with round to oval nuclei and mild atypia. Numerous keratin pearl formation and focal areas of necrosis are also seen. Mitotic figures seen at basal layers. Stroma is moderate with lymphoplasmacytic infiltration. Proximal surgical margin is free from tumor.

Impression: Features are suggestive of Well differentiated squamous cell carcinoma- left thumb.

----End of the Report----

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