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MALIGNANT WOUNDS

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Malignancies and wounds

In this issue of *Wound Healing Perspectives*, we discuss the important topic of malignancies and wounds. Although malignancies are an uncommon cause and/or complication of a wound or wound healing, they represent a common concern of patients with wounds. It is often critical to assure patients that their wound is not a cancer and often histologic support of this claim is needed through tissue biopsy.

One in 5 Americans will develop skin cancer and there are more skin cancers than all other cancers combined. Basal cell carcinoma represents the most common skin cancer affecting over one million Americans; while melanoma represents the deadliest of all skin cancer and, because of late detection, appears to be even more deadly among non-white patients. Looking at the skin and having a high index of suspicion is the first step to diagnosis.

This issue addresses subjects around the topic of malignancy. You will find information related to diagnosis and management of malignant wounds in general and squamous cell carcinoma in particular.

We hope you find this issue informative and useful in your practice.

Sincerely,

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An introduction to malignant wounds

The development of a malignant wound, also known as tumor necrosis, a fungating wound, or a malignant cutaneous wound, can be emotionally devastating for patient and family. These types of wounds can be challenging for physicians, especially when symptoms can no longer be managed effectively and the disease, as well as the visible lesion, persists [Barton and Parslow, 2001].

THE INCIDENCE OF MALIGNANT WOUNDS IS UNKNOWN. IT IS ESTIMATED THAT 5-10% OF PATIENTS WITH METASTASES WILL DEVELOP THEM.

Malignant wounds are caused by infiltration of the epidermis by a primary or metastatic tumor, cutaneous infiltration via the lymphatics or bloodstream, or as a result of direct invasion from a primary lesion. Once the fungating wound develops, perfusion of tissues is altered and the mass expands. The center of the tumor then becomes hypoxic leading to tumor necrosis.

Although the incidence of malignant wounds is unknown, it is estimated that 5-10% of patients with metastases will develop them. These wounds, which often present as a discrete, non-tender nodule and are often skin-toned, pink, violet-blue, or black-brown in color, can occur with many types of cancers, including breast, lung, head and neck, skin, melanoma, colorectal, sarcomas, cervical, and ovarian cancers. Assessing the

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HIGHLIGHTS INSIDE

Malignant wounds *(continued from page 1)*

wound properly, therefore, is imperative. When assessing and diagnosing a patient, for example, an evaluation of the patient's disease history and previous treatment—with referral to the oncologist—should be completed. A nutritional assessment and other diagnostic tests also should be performed. A comprehensive assessment will include all features and factors relevant to the lesion and its impact on the patient and family. Physicians should take into account the following relevant features of the wound: location, etiology, number of lesions or nodes, wound size, depth or extrusion, wound base color, tissue, drainage amount, type, odor presence, extent, intensity, evidence of infection, and periwound skin color integrity [Barton et al, 2001].

Intense symptoms such as bleeding, odor, and copious discharge could distract the physician from evaluating causative factors thoroughly, but steps should be taken to find the underlying cause. If wound assessment is done initially and in intervals, it will provide clues to disease status, changes in the lesion, as well as the patient's treatment needs [Barton et al, 2001]. For example, the wound's location provides insight into total impact as well as potential success of dressings. Meanwhile, the site of the lesion(s) may provide clues to the etiology of the primary lesion and help guide treatment decisions. Wound base tissue reflects the progressive course of tumor events, while monitoring nodules through scans, for example, can provide a visual baseline record [Barton et al, 2001].

What's more, cancer patients receiving radiation therapy, chemotherapy and/or other medications are at risk of developing acute and chronic skin reactions. Since 60% of oncology patients will receive radiation treatments, skin toxicity related to irradiation can be acute or delayed but typically begins two to three weeks after the start of treatment and typically persists up to four weeks following the end of the treatment. Patients can experience mild irritation to severe pain. Drug-related skin reactions can occur quickly and need to be closely monitored. Reactions with such medications as L-asparaginase happen quickly, while the onset of reactions may be much slower with drugs such as interferon. Patients receiving combination therapy can be expected to result in more significant cutaneous reactions.

SPECIAL ATTENTION SHOULD BE PAID TO PATIENTS WHO COMPLAIN OF ITCHING AND BURNING, NUMBNESS, OR PAIN.

Skin Assessment

When a patient presents with a malignant wound, one of the first steps is to assess and carefully monitor the skin around the lesion, especially when considering the level of disease activity. Even with a confirmed diagnosis and evidence of prior treatments, the clinician should remain abreast of any changes to the lesion, local area, and general patient status [Barton et al, 2001]. Special attention should be paid to patients who complain of itching and burning, numbness, or pain.

The appearance of periskin, for example, can vary. Periskin may appear normal in color or be inflamed, which could suggest disease progression under the skin. On palpation, skin may feel firm and warm with induration, be somewhat pliant with visible orange peel-textured lymphedema,

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Psychosocial aspects

The severity of psychological pain a patient with a malignant lesion is enduring can be difficult to decipher. Analyzing the subjective and objective symptoms may help in evaluating the patient's inability to cope with wound symptoms. Unpleasant symptoms such as odor, extensive drainage, and highly visible facial or neck lesions can have a negative impact on a patient's self-image. Patients may feel a range of emotions associated with their wound including guilt, anger, shame, confusion, and denial. They also may become socially isolated and seek seclusion. To help in the individual's coping, selected psychological professionals should be sought out to help. Support can come in the form of a psychologist, social worker, and other professionals. ■

SOURCE: BARTON ET AL, 2001

USING AN INTERDISCIPLINARY TEAM TO MANAGE THESE WOUNDS IS IMPERATIVE BECAUSE EFFORTS TO CONTAIN THE WOUND CAN BE ALL ENCOMPASSING. PATIENT ASSESSMENT MUST EXTEND BEYOND THE WOUND AND ADDRESS THE COMPLETE IMPACT OF THE LESION.

or if the patient has undergone previous radiation, the skin could be thin and fibrotic, according to Barton et al (2001). Defined areas of discoloration can indicate satellite areas soon to be incorporated into the primary lesion as tumor extension evolves. Nodules and satellite lesions may appear in a number of different ways. They may be raised or flat; pale or discolored; have defined or indistinct edges; be single or clustered or diverse; be intact and smooth or scaly with a vesicular or papular appearance; or be encrusted with drainage. Skin under dressings or tapes can show signs of dermatitis or signs of stripping damage.

Integrated Assessment

Since efforts to contain the wound can be all encompassing, especially if the wound has intense symptoms as discussed earlier, patient assessment must extend beyond the wound and should address the complete impact of the lesion. Therefore, using an interdisciplinary team to manage these wounds is important. This team may include the patient, family, caregiver, oncology professionals (medical, surgical, and radiation), palliative care professionals, family physicians, wound specialists, home care nurses, dieticians, pain specialists, therapists, and other counselors. Involving an interdisciplinary team of experts also helps ensure that there is appropriate intervention in terms of the patient's needs, availability of resources, and the patient's acceptance of the care plan. Factors such as nutrition also play a key role in the patient's quality of life and can promote comfort, reduce infection risk, and may help in preventing the development of pressure ulcers [Barton et al, 2001]. A nutritional assessment and related screening is necessary to identify patients at nutritional risk and should take into account the nutritional risk factors that adversely effect wound healing such as recent significant weight loss, impaired oral intake, impaired absorption (caused by infection, malabsorption, medication, and pancreatitis); as well as increased metabolic rate due to cancer, trauma, or infection, among other causes. ■

Minimizing patient pain

The majority of patients with an open wound experience some degree of pain. It may occur during wound cleansing or debridement (non-cyclic pain), during daily dressing changes (cyclic wound pain), or even while resting (persistent pain). Pain may also result from the tumor pressing on nerves and blood vessels [Naylor, 2002]. Healthcare professionals can minimize procedural pain by administering a combination of pharmacological and non-pharmacological techniques

Understanding the patient's pain experience is important and can be facilitated by giving the patient descriptive words to choose from to describe their pain. According to Kirsner, clinicians consider pain as the "fifth indicator" or vital sign and should be used to pinpoint disease. Asking the patient to complete a pain assessment profile can also help map out specific strategies to reduce or relieve the pain. ■

SOURCE: FOWLER, 2005; BARTON ET AL, 2001; NAYLOR, 2002, KIRSNER, 2005

Management issues associated with malignant wounds

There are a host of management issues when dealing with these devastating cutaneous lesions. Initial treatment typically focuses on eradication or control of the underlying disease pathology. If a metastatic cutaneous lesion develops, radiotherapy, chemotherapy, or surgery may still play a role in modifying disease progression even when the cure and wound healing are not part of the care goals. Once a thorough evaluation is performed, including wound-related issues and goals, an effective plan of care can be developed. Obviously, the priority of wound management goals depends on patients and their symptoms. Minimizing pain and discomfort, preventing and controlling bleeding, effective wound cleansing, control of odor and infection, management of exudate, maintenance of the periwound skin, improved dressings, and stabilization are all important considerations [Barton et al, 2001].

Periwound Skin

The friable, itchy wound margins and periskin can be extremely sensitive to external irritants and traumatic factors, according to Barton et al (2001). Such irritants include cleansing solutions and procedures, evaporation of wound moisture, adherence of dressings, irritation from wound exudate, as well as painful removal of adhesives. Gentle flush techniques, saturated compressions, or a shower can ease the pain of cleansing. Applying protective barrier pastes or ointments, alcohol-free liquid barrier films, or solid barrier sheets can protect and maintain periwound skin. Liquid, non-alcoholic barriers also are well tolerated and provide good protection under adhesive products [Barton et al, 2001].

Bleeding

Due to the abundance of friable capillaries and the absence of platelets in malignant wounds, bleeding can occur very easily and with very minor disruption of the wound. For example, bleeding can begin when inappropriate cleansing techniques are used or dressings become adherent. Spontaneous bleeding, on the other hand, may signify infection and should be investigated more carefully and treated quickly, states Barton et al. Tips to decrease the possibility of bleeding include completely saturating the dressings by showering prior to removal, maintaining wound moisture, and using a soft shower or gentle flush with isotonic saline for cleansing.

INITIAL TREATMENT FOCUSES ON ERADICATION OF THE UNDERLYING PATHOLOGY.

Exudate

When wound exudate is managed effectively, the patient's overall self-esteem and confidence will grow and quality of life will be significantly enhanced. According to Barton et al (2001), controlling wound exudate implies that the wound base remains slightly moist and that excess drainage is absorbed and contained within the dressing in order to prevent leakage and soiling of clothing and liners. If there is inflammation and edema in the tissue surrounding a fungating lesion—which can lead to large amounts of drainage from small open nodules—products to effectively absorb the exudate should be administered. These include using additional layers of alginate and hydrofiber dressings over the wound

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Odor: The unspoken side effect

Whether from infection or the presence of necrotic tissue, malignant wounds are frequently the source of offensive odor. Since odor results from the heavy bacterial colonization that is present within necrotic tissue, stagnant exudate, saturated dressings, or infection, successfully managing odor is dependent on the reduction of bacterial levels. Wound cleansing and gentle debridement to remove exudate, debris, and necrotic tissue can help. Odor may also be eliminated or reduced through use of topical antimicrobial agents, topical metronidazole, or by applying dressings with active charcoal. A 2005 study by Kalinski, Schnepf, Laboy, Hernandez, Nusbaum, McGrinder, Comfort, and Alvarez revealed that treatment with metronidazole 0.75% was easy, convenient, and essentially painless and yielded a 100% response rate on odor. ■

Diagnosing fungating wounds

Fungating wounds—a sign of a progressive and often life-threatening disease—can present a major problem for patients and healthcare professionals alike. According to a 2002 study by Naylor, these wounds may develop during the last few months of life or be present for a number of years. They often develop in elderly patients (70 years old or older) with metastatic cancer, who are in the terminal stages of their illness.

The majority of fungating wounds will develop in the breast area (62%), while 25% will be present in the head and neck area [Naylor, 2002]. These types of wounds may develop as a result of a primary skin tumor such as squamous cell carcinoma or melanoma; through direct invasion of the structures of the skin by an underlying tumor, such as breast cancer or hematological malignancy such as cutaneous T-cell lymphoma (mycosis fungoides); or from metastatic spread of a distant tumor, which can occur along tissue planes, capillaries, or lymph vessels.

Although rare, Naylor states that malignant changes may develop in chronic wounds, such as Marjolin's ulcers. This condition is most commonly associated with burn scar ulcers but can also develop in other chronic wounds such as pressure and venous stasis ulcers, as well as osteomyelitis. This type of malignancy usually occurs as an aggressive squamous cell carcinoma with a high rate of metastatic spread and local recurrence. In most cases, patients are over 50 and have lived with the ulcer for 25-40 years before signs of malignant change occur.

Improving the quality of life of patients is the primary goal of care for patients with fungating wounds and the care plan should focus on promoting patient confidence and self-esteem. Controlling the management of the symptoms associated with these wounds—exudate, malodor, bleeding, cosmetic appearance, and pain—is essential. ■

Management issues associated with malignant wounds

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base or absorbent cover dressings, such as semipermeable foams and products containing gel beads, which can absorb large amounts of drainage.

Aesthetics

The visible lesion and associated dressing are a constant reminder of the disease for the patient, and as a result, much thought should be placed in effective wound management strategies such as dressing selection. The dressing that is chosen, for example, should minimize wound interference with patient and family life, provide adequate control of symptoms, and allow for the potential of intimacy. Bulky dressings that interfere with body movements or other activities should be avoided. Dressings should provide comfort as well as independence for the patient. They should also be concealable under clothing, if possible. The ultimate goal of a dressing is to restore a patient's self-image and increase their overall confidence and self esteem [Barton et al, 2001]. ■

Cutaneous metastatic breast cancer

The skin is a common site for the spread of internal malignancies, and nearly half of observed skin metastases in patients with cancer are due to the progression of breast cancer. Cutaneous metastases can occur following breast-conserving treatment, which consists of lumpectomy followed by radiation therapy or mastectomy, even if post-surgical radiation therapy was delivered to the chest wall. Approximately 90% of local recurrence appears within five years following mastectomy and nearly 100% occur by ten years. ■

SOURCE: MOORE, 2002.

Malignant melanoma:
An ongoing public health threat

Malignant melanoma (MM) is the most serious of all the skin cancers, accounting for 4% of all skin cancers and responsible for more than 77% of skin cancer-related deaths [Perrotto and Glick, 2006]. MM typically arises from melanocytes at the dermal-epidermal junction. More than 50% of these lesions arise for the first time without a precursor melanotic nevus.

Nodular melanoma, which grows rapidly, has the greatest potential to ulcerate. Although the disease can occur in any population, it is most prevalent in the Japanese.

MM continues to be an ongoing public health threat and successful management of the disease depends on early diagnosis and treatment. According to Herman, Cook, Tyler, Seigler, and Mosca in a 2005 study, primary melanomas may have atypical presentation, making early diagnosis difficult and delaying proper treatment.

According to a 2006 study by Zelent, Neese, and Graham, malignant melanoma lesions can masquerade as neuropathic diabetic foot ulcers, as was the case with one 74-year-old male patient they studied. The patient had been treated for a considerable amount of time with what could be considered standard care for decubitus foot ulceration. The lesion had apparently been complicated by infection, which further obscured any clinical suspicion of atypical activity. Since his presentation was atypical, the authors maintain that soft tissue biopsy should be performed in patients with non-healing ulcerations of six months duration or longer in order to exclude malignancy. Other authorities recommend a biopsy as early as six weeks.

Risk factors for MM include increased sun exposure, light skin color, family history of melanoma, and presence of a precursor lesion, including Clark's dysplastic melanocytic nevus or numerous congenital melanocytic nevi. Clinically, nodular melanoma may be an ulcerated papule or plaque with colors ranging from blue to black to gray [Perrotto et al].

There are many ways to manage this disease, including wide surgical resection. However, melanoma must be staged before providing definitive therapeutic interventions. Staging is based on the primary tumor thickness (Breslow level), presence of regional lymph nodes, and any distant metastases. Clinical and histopathologic staging is utilized to determine the degree of surgical intervention, need for diagnostic imaging, and prognostic factors [Perrotto et al]. Although it may appear anywhere on the body, up to one-third of all cutaneous melanoma lesions occur in the lower extremity. The foot is the second most common overall area for presentation [Zelent et al]. Superficial spreading melanoma (which may appear on any body surface) is the most frequent type, characterizing up to 70% of all lesions. The lentigo maligna type accounts for up to 10% of all lesions and is most commonly found on sun-exposed areas. Finally, acral lentiginous melanoma is the least common type of radial growth phase pattern. These lesions appear flat but may be deeply invasive and have been associated with a poor prognosis [Zelent et al]. ■

Diagnosing squamous cell cancer

Squamous cell carcinoma (SCC) is another form of non-healing chronic malignant ulcers. Exposure to sunlight or ionizing radiation, ingestion of arsenic, and a history of burn scars in the ulcerated area are all potential causes. When venous insufficiency is present, it is not uncommon for SCCs to form ulcerative lesions and subsequently be misdiagnosed as a common venous stasis ulcer.

Although generally more common in men, SCC is often found in the legs of women. Clinically, SCC may be found anywhere on the body, including the lower extremities but most common on the head and neck.

Management of SCCs includes excision, cryosurgery, radiation therapy, curettage and/or electrosurgery, and Mohs surgery. Tumors arising in old burn scars, sites of radiation, and chronic osteomyelitis have a much higher rate of metastasis. ■

SOURCE: PERROTTO AND GLICK, 2006 AND ETUFUGH, PHILLPS, GOLDBERG, JENSEN, 2005.

Marjolin's Ulcers:
The latent epidermoid cancer

Originally described by Jean Nicholas Marjolin in the 19th century, Marjolin's ulcers are squamous cell malignant tumors that arise from chronic wounds. These tumors are usually found in the extremities and most commonly seen in post burn scar formation [Menendez and Warriner, 2006]. Marjolin's ulcers, however, also can originate from other types of long-lasting chronic wounds such as carcinomas that traditionally transform from the chronic open wounds of pressure sores (decubiti), which seems to be more aggressive than those from burn scars [Snyder, Stillman, Weiss, 2003].

Clinicians usually observe aggressive cancers that possess a propensity for local recurrence and lymph node metastases. Sinus tracts secondary to osteomyelitis, fistulas, and venous ulcers have a propensity to develop these cancers. Marjolin's ulcers also can be found in patients with syphilis and lupus vulgaris as well as in amputation stumps, small pox vaccination sites, epidermolysis bullosa scars, granulomas inguinale, lymphogranuloma venereum discoid lupus scars, fistulas from hidradenitis suppurativa and acne conglobata, pilonidal sinus tracts, skin graft donor sites, puncture wounds, dog bites, and blunt trauma. Burn scar carcinoma may present as a flat, indolent lesion with indurated and elevated margins and may exhibit foul-smelling drainage and underlying bone destruction; therefore these lesions may easily be mistaken for infection [Snyder et al, 2003].

According to researchers, Marjolin's ulcers are often latent and may not surface for many years. In fact, 12 to 47 years can pass between ulcer formation and documentation of malignancy. It also seems that the lag time with burn patients might be inversely proportional to the age of the patient at the time of injury [Snyder et al, 2003]. Most individuals who develop Marjolin's ulcers are 50 years of age (on average) and men are three times more likely to develop them. Sun exposure and sun damage is also linked to these type of epidermoid cancer. ■

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Cutaneous T-Cell Lymphoma

Cutaneous T-cell lymphoma and a rare variant/subtype of subcutaneous T-cell disease are often difficult to diagnose. These lesions can mimic many other cutaneous manifestations including eczema, psoriasis, lichen planus, and venous ulcers. According to the Cutaneous Lymphoma Foundation, the most common type of CTCL is difficult to diagnose in early stages, as the symptoms and skin biopsy findings are similar to other skin conditions. CTCL-MF is frequently misdiagnosed as other skin conditions and patients may go for years before a definitive diagnosis is established. Clinicians should examine the patient's lymph nodes and order various blood tests including a test for Sézary cells in the blood to properly diagnose the disease. Chest X-ray or CT scan may also be indicated. ■

QUESTIONS OR COMMENTS?
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Working with a Wound Healing Center

When should I send my patient to a Wound Healing Center?

This is one of the questions we hear most frequently from physicians. Knowing when to refer a patient to a wound healing center is crucial, especially if you have been treating a patient with a suspect malignant wound. If wounds have not shown significant progress in four weeks, they will likely need more advanced treatment modalities and a combination of modalities. With the continual advances in wound healing techniques, technology, and materials, Wound Healing Centers are not only abreast of these advances but specially equipped to work with patients with these types of wounds. These centers can administer special therapies to patients, as well as help primary care physicians avoid upfront costs and time-consuming training generally associated with advanced wound care. ■

IN THE UNCOMMOM SITUATION WHERE A CANCER AND A WOUND ARE INTER-RELATED, FOUR CLINCAL SITUATIONS CAN ARISE.

- A longstanding wound undergoes malignant degeneration. This may occur as 'early' as 18 months after a wound has appeared or as long as 60 years.
- A malignant tumor erodes and/or ulcerates and may present as a wound.
- An association exists between an inflammatory ulcer caused by vasculitis or pyoderma gangrenosum in association with a lymphoreticular malignancy.
- Treatment for a malignancy results in a wound such as after radiation therapy.

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