Malignant wounds

Managing odour

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John M. is 66 years old and has been a widower for 6 years; he has no children and retired from teaching at 58 years of age. He has been somewhat of a loner since the death of his wife, and his sister visits him regularly to fill that void. During the past couple of months she has noticed that John has had no appetite, has lost weight, and has had a meaningful decline in function. She visits more frequently, bringing meals and trying to encourage him to eat. On her most recent visits she has noticed a foul odour in John's home. He attributes it to his poor housekeeping and hygiene.

She visits today and finds John in his bed, unkempt, very weak, and unable to get up on his own. She perceives the odour in his home to be fouler and notices that the front of his shirt over his abdomen is damp. She is very worried and after a lot of coaxing she convinces John to go to the hospital, and calls an ambulance.

He is assessed in the emergency department. He is alert, has a temperature of 37.4°C, a heart rate of 96 beats/min, and a blood pressure of 102/70 mm Hg. He appears to be weak and mildly dehydrated. An abdominal examination reveals an extensive open wound with copious discharge and a foul odour, which has permeated the whole area. The wound extends from about the midline of his abdomen to his left flank, measuring 22 cm by 16 cm. You are concerned this could be an advanced malignant wound.

Malignant or fungating wounds occur when cancerous cells invade the epithelium, infiltrate the supporting blood and lymph vessels, and penetrate the epidermis. This results in a loss of vascularity and therefore nourishment to the skin, leading to tissue death and necrosis. The lesion might be the result of a primary cancer or a metastasis to the skin.[1-3]

The goals of care of malignant wounds can shift from healing to a palliative approach, focusing on 3 core principles. The most important principle is symptom management, followed by wound management and treatment of the underlying tumour if possible and appropriate.[1,4] Before approaching the care of malignant wounds, in order to provide realistic expectations, there is a need to address and remove the stigma and blame associated with nonhealing wounds.[5]

To properly manage malignant wounds, the malodour and exudate must be addressed, while concurrently focusing on managing the discomfort and isolation resulting from these wounds.[6] Patient comfort and quality of life need to take priority.

After talking with John and his sister, it is clear that returning home would be difficult, and John agrees that the best way to expedite investigation and management of his wound is to be admitted to hospital. On further inquiry, you learn that John has lost 12 kg during the past few months. His laboratory investigations reveal a hemoglobin level of 98 g/L, low levels of protein and albumin, a creatinine level of 178 µmol/L, and a urea level of 34 mmol/L. These results confirm he is malnourished and dehydrated. John is seen by the plastic surgery department, where a biopsy of the wound is performed and suggestions for wound management are given. The biopsy confirms a malignant squamous cell carcinoma. A computed tomography scan reveals metastases to the liver and intra-abdominal nodes.

The team managing John's care meets with him and his sister to discuss the diagnosis and palliative prognosis. With his approval, the oncology department is consulted to address the options for his treatment. John declines any disease-modifying therapy and, with his consent, he is referred to the palliative care team.

Staff report excessive necrotic tissue and copious wound exudates, as well as a very strong foul odour in his room. His roommate complains to staff about the odour. John confides in his sister and his nurse that he is most distressed by his embarrassment with the odour and the pain with dressing changes. To accommodate John and his roommate, John is moved to a private room within the palliative care service. The team is very aware of John's embarrassment, shame, and sensitivity regarding his body image and the odour from the large wound. The team social worker is consulted to assist the staff in addressing the psychosocial effect the malignant wound has on John.

Malodorous wounds result from bacteria that reside in necrotic wound tissue. They are usually polymicrobic, containing both aerobic and anaerobic bacteria. For the most part, it is the anaerobic bacteria that emit putrescine and cadaverine, which result in foul odours; they

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can cause gagging and vomiting, and loss of appetite. Some aerobic bacteria such as *Proteus* and *Klebsiella* can also produce offensive odours.[6,7] Odour assessment is subjective, and if one is exposed to an odour for a prolonged time, sensory cells become desensitized to protect individuals from the awareness of the smell.[6] Validated tools to more objectively assess odour are available.[2,6,8,9]

The proper approach to the management of malignant fungating wounds shifts from healing to addressing quality of life. It should be holistic and fall into 2 main categories: physical and psychological management (**Box 1**).[1,2,4,6]

*Attention is initially directed to John's wound pain. He is started on an opioid every 4 hours, and an opioid every hour as needed for breakthrough pain, which is titrated according to his as-needed use. There is also a nursing order to give a subcutaneous breakthrough dose 30 min before any dressing changes. The plastic surgery department and the wound management nurse clinician continue to follow John and recommend a framework to address his other priority symptom of wound odour (**Box 2**).[3,7,10]*

*Initially there is some surgical debridement of the extensive necrotic tissue followed by cleansing of the area with saline delivered via pressure from a syringe through a 19-gauge needle. Subsequently, a medical honey–based dressing is used. Medical honey dressings have various therapeutic effects that help debride tissue and control odour, and they can promote wound healing (although healing is unlikely in the palliative population) (**Box 3**).[10,11] Owing to the extensive size of and copious exudate from John's wound, the effectiveness of medical honey dressings is limited. An absorbent hydrocolloid dressing and a charcoal dressing are applied and changed twice a day or as needed to control exudate and odour.[2,6] Topical metronidazole powder (also available as a spray or gel) is applied with each dressing change.[7,8,12] John's room is well ventilated, and charcoal is strategically placed throughout the room. For the most part, the wound odour is eliminated, which John and his sister welcome. This greatly improves his quality of life.*

John has frequent visitors during his stay on the palliative care unit. His condition deteriorates over the next 4 weeks. He is unable to return home owing to the high acuity of his care. He dies in comfort and peace. His most physically and psychologically disturbing symptoms of pain and wound odour are controlled until his death. His sister expresses her sincere thanks for the efforts made to address John's dignity and quality of life.

Box 1. Physical and psychological aspects of malodorous wound management

Physical aspects
- Malodour
- Exudate
- Pain
- Bleeding
- Pruritus
- Infection
- Nausea and anorexia[6]

Psychological aspects
- Body image alteration
- Denial
- Depression, guilt
- Embarrassment, shame, revulsion
- Social isolation
- Problems with sexual expression
- Fear

Data from the BC Cancer Agency,[1] Morris,[2] Pereira et al,[4] and Holloway et al.[6]

Box 2. Framework for managing odour

Managing "bioburden" causing odour
- Cleanse using saline via pressure from a syringe through a 19-gauge needle
- Debride necrotic tissue
- Control exudate using absorbent hydrocolloid dressings with frequent dressing changes
- Use systemic antibiotics based on culture, or use topical antibiotics (metronidazole)
- Provide adjuvant treatment (chemotherapy or radiotherapy)
- Use nanocrystalline silver dressings (antibacterial)[10]
- Use honey-based dressings

Covering up or absorbing odour
- Activated charcoal dressings
- Baking soda
- Charcoal briquettes
- Perfumes or scents that mask odour
- Room ventilation

Data from McManus,[3] Paul and Pieper,[7] and Molan.[10]

Box 3. Therapeutic effects of medical honey dressings (Medihoney)

The therapeutic effects of honey-based dressings include
- anti-inflammatory properties that reduce pain and scarring,
- antibacterial properties that aid in healing and reduce odour, and
- debridement properties that reduce necrotic tissue, which decreases odour and helps with healing.

Data from Molan[10] and Pieper.[11]

BOTTOM LINE

- Malignant wounds occur when cancerous cells invade the epithelium and penetrate the epidermis, resulting in necrotic tissue.
- The treatment focus of malignant wounds shifts from healing to maintaining quality of life, falling into 2 categories: physical and psychological management.
- Malodour from malignant wounds can be very isolating and emotionally disturbing for the patient. Malodour and exudate can be addressed while concurrently managing the pain and isolation resulting from these wounds.
- Malodour results from both aerobic and anaerobic bacteria. It can be managed by interventions that control the "bioburden," and interventions that mask (cover up) or absorb the odour.

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Competing interests
None declared

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