EDUCATION

EUROPEAN ONCOLOGY NURSING SOCIETY

EONS

Recommendations for the Care of Patients with

Malignant Fungating Wounds

Published by European Oncology Nursing Society (EONS)
c/o haysmacintyre, 26 Red Lion Square, London, WC1R 4AG, UK
Tel: 0032 2 779 99 23
email: eons.secretariat@cancernurse.eu
web: www.cancernurse.eu

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First Edition EONS Recommendations for Care of Malignant Fungating Wounds . (EONS 2015)

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The EONS Education Working Group reviewed this recommendation and provided valuable feedback. EONS thanks them for their expertise on this project.

1.0 Introduction and definition

Malignant fungating wounds (MFW) are defined as an infiltration of the tumour or the metastasis into the skin and can involve the afferent blood and lymph vessels and can develop anywhere on the body [1, 2].

Unless malignant cell growth is under control, either through medical treatment such as chemotherapy, radiotherapy, hormone-therapy, electro-chemotherapy or surgery, the fungation continues growing and as a consequence it evokes damage to the surrounding tissue through a combination of the loss of vascularity, proliferative growth and ulceration [3, 4].

A MFW presents both physical and emotional challenges to the patient, informal carer, and to health care professionals. The wound may be associated with the wound-related symptoms like odour, exudate, pain bleeding or itching. They may also adversely affect body image and self-esteem of the individual. An understanding of palliative care goals in the care of patients with a MFW is essential in developing an individualised care and treatment plan to enhance the quality of life of both the patient and their family [5].

It is difficult to determine accurately the number of patients being treated for MFWs. There are no exact statistics of MFW across Europe as their prevalence or incidence rates are not recorded in population-based cancer registers [2]. It is estimated that over five per cent of patients with cancer develop a MFW [6]. The most frequent sites for presentation of MFW are the breast (49%), followed by the neck (21%), the chest (18%), the extremities, genitals (17%), head (13%) and other areas (2%) [7].

1.1 AIM AND OBJECTIVE

The aim of this EONS document for the care of MFWs is to support best practice among nurses who manage such wounds, based on current literature and experiences.

The objective is to optimise the management of MFWs based on HTA (the Health Technology Assessment) elements: Method, Medical Treatment, Patients, Organisation, and Economics which should provide a structured approach towards all aspects of clinical and organisational factors, patient care, and health economics [8].

1.2 DEFINITIONS AND DESCRIPTIONS

The definitions/descriptions used in this document are listed in Table 1.

Table 1: Definitions

TERM	DEFINITION/DESCRIPTION
Acute wound	Acute wounds refer to those wounds, such as burns or other traumatic injuries and surgically created wounds that heal in a timely fashion [9].
Antimicrobial agents	Any substance with the ability to inhibit a microorganism, including both antibiotics and antiseptics, irrespective of being in the form of a dressing, solution, gel or drug [9].
Antiseptic	Agents inhibiting the growth and development of microorganisms. An antiseptic is a non-specific chemical possessing antimicrobial properties that can be used on skin, wounds and mucous membranes [9].
Chronic wound	Chronic wounds are defined as wounds that take longer to heal because of 1 or more factors delaying healing. Depending on the cause of the wound, wounds taking more than 4 to 6 weeks to heal are considered to be chronic.
Colonisation	Microbial multiplication in or on the wound without an overt immunological host reaction [9].
Electrochemotherapy	Is a combination of a chemotherapy injected into the tumour or bloodstream using an electric pulse to send the chemotherapy into the cancer cells. A special probe sends an electric pulse to the tumour. The electric pulse changes the outer layer of the cancer cell and this makes it easier for the chemotherapy to get inside the cell [5].
Infection	Invasion and multiplication of microorganisms in body tissues, evoking an inflammatory response (systemic and/or local) and causing local signs of inflammation, tissue destruction, and fever. It is perhaps worth noting that definitions of wound infection vary, but that diagnosis is based on clinical signs and symptoms [9].
Malignant fungating wound	Infiltration of the tumour or the metastasis into the skin and the afferent blood and lymph vessels [1, 2].
Wound cleansing	Removing harmful substances (for example, microorganisms, cell debris and soiling) from the wound, so that the healing process is not delayed/ hindered, or to reduce the risk of infection [9].

2.0 Management of malignant fungating wounds

Patients living with a MFW are vulnerable to tissue break down that may not always be preventable [10]. Consequently, there is little evidence about the palliative management of a MFW; most of the literature has been based on problem solving [11].

Unless the underlying malignancy can be treated effectively, the goal of managing MFW is palliation and not to heal. A clinical review by Woo and Sibbald (2010) of studies of MFWs suggested that in taking care of such wounds a systematised and comprehensive approach is required. The authors recommended one named HOPES (haemorrhage, odour, pain, exudate and superficial infection) (see Figure 1) [10]. Assessment frameworks such as this one can provide guidance on the parameters that need to be included in the assessment process. We have adapted Woo and Sibbald's (2010) framework to emphasise the impact on patients and caregivers of MFWs and to include pruritus as an unpleasant symptom experiences by some patients with MFWs.

2.1 ASSESSMENT

A comprehensive assessment that takes account of physical, psychosocial and psychological considerations will provide a substantive baseline upon which to develop a management plan. This assessment should include:

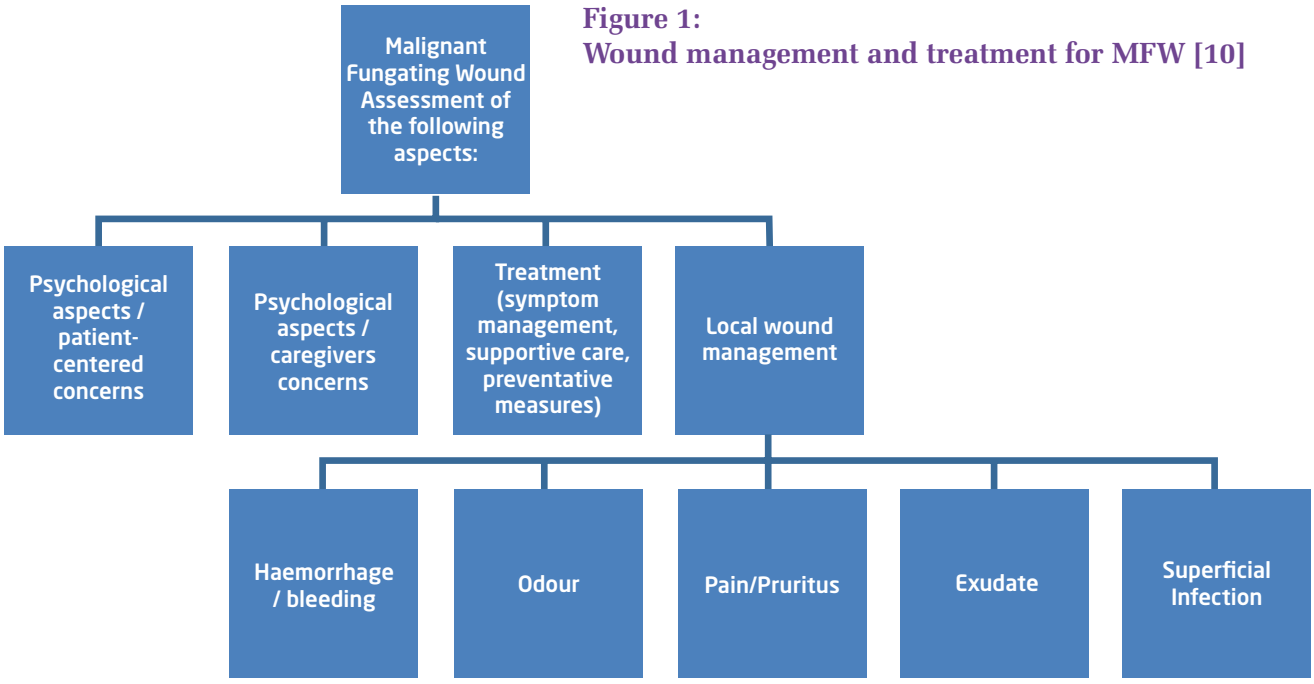

Figure 1:
Wound management and treatment for MFW [10]

2.2 PATIENT ASSESSMENT (GENERAL)

Required knowledge about the patient and their wound:

- Impact of the wound in terms of psychosocial functioning (e.g. is the patient avoiding social situations? are they unable to look at their wound, are they unable to discuss the wound with the people closest to them? which symptoms arising from the wound cause them the most distress?)
- Impact of the wound and wound management on the caregiver (e.g. is the caregiver the main person delivering the care? what resources and support do they need?, is their own social and work life affected by the time devoted as caregivers?)
- Underlying aetiology-cancer type, if known
- Wound location and appearance
- What are the past and current treatments of the cancer and the wounds?
- What co-morbidities (e.g. diabetes, immunosuppression, peripheral vascular disease or other diagnoses) does the patient have?
- Major symptoms arising from the wound and arising from their underlying cancer and co-morbidities
- Does the patient have any allergies/sensitivities to dressing products and/or adhesive tape?
- What medications are being prescribed to manage symptoms arising from the MFW?
- What dressings have been tried but not found suitable for the patient?

2.3 WOUND ASSESSMENT

Because the appearance and configuration of a MFW can be distinctly variable, assessing and measuring the size may not conform to conventional approaches. For example the wound margins may be rolled with multiple satellite nodules or skin discolouration indicating tumour infiltration beyond the immediate and obvious wound itself. This means that accurate measurement of these wounds is difficult and of questionable value clinically, or to the patient, if there is no treatment option. A photographic record of the wound, with the patient's consent for the images taken, can illustrate the progression of the wound and can be useful for providing the rationale for the choice of local wound management products, the frequency of dressing changes and the volume of products used.

MFWs can present serious complications such as fistula formation. If the MFW is near major blood vessels bleeding and haemorrhage can occur, the latter can be fatal. Tumours close to airways can cause obstruction. Compression and obstruction of blood vessels, for example the vena cavae, and lymphatics can give rise to tissue necrosis, oedema and lymphoedema. Therefore, recording the location of the wound and risk of haemorrhage or obstruction is of more value than wound measurement followed by a care plan that manages the risk and prepares the patient and family for such eventualities.

2.4 ASSESSMENT TOOLS

Regarding the assessment of MFW five assessment scales are described in the literature. These include: the Toronto Symptom Assessment System for Wounds [12], the Schulz Malignant Fungating Wound Assessment Tool [13], the Wound Symptoms Self-Assessment Chart [14], the TELER System [2, 15] and the Hopkins Wound Assessment Tool [16]. Five 'core' symptoms are assessed by all these scales, these include: odour, pain, exudate, itching and bleeding. Some scales assess psychosocial aspects and impact on daily life. The use of such scales varies widely and there is a lack of evidence to support one over another and clinicians may therefore deem one scale to be more suited to their care setting

than another. It should be noted that currently all scales are only available in English.
Before choosing an assessment tool it is recommended that nurses use one that meets the needs of their own work setting, and the skills and knowledge of the people concerned.

Table 2: Assessment tools

ASSESSMENT TOOL	ITEMS	COMMENT
Toronto Symptom Assessment System for Wounds [12]	Wound-related symptoms (pain with dressings, pain between dressing changes, exudate/drainage, odour, itching, bleeding) Psychosocial aspects (cosmetic or aesthetic concern, swelling or oedema around the wound, bulk or mass effect from the wound, bulk or mass effect from the dressing).	Wound related symptoms are assessed retrospectively over the previous 24 hours. Items are measured by a 0 - 10 visual analogue scale (VAS). This scale can be completed either by the patient, with assistance from the caregiver or by the caregiver him or herself.
Schulz Malignant Fungating Wound Assessment Tool [13]	General information about the patient (assessment date, chart number, patient's name, birth date, cancer diagnosis, wound onset date, medical history, medications and allergies); Items concerning the wound (pain with or between dressing changes, location of pain, description of odour and cause, amount of exudate, bleeding (location and quantity), location of oedema, tissue type (in per cent), wound location, wound dimensions, wound classification (shape of wound), appearance of peri-wound skin and wound management Items consist of open-ended questions to assess patients' perceptions (How severe? Pain feels like? How much drainage? Do dressings work? Does it affect social activities? How does the wound make you feel? Does it smell? Any swelling?).	Designed to be completed by health care professionals.

ASSESSMENT TOOL	ITEMS	COMMENT
Wound Symptoms Self-Assessment Chart [14]	Wound-related symptoms (pain from the wound, pain during dressing change, leakage of exudate, bleeding from the wound, smell from the wound and itching related to the wound) Level of interference (mood, anxiety, alertness, attitudes, functional abilities and severity of clinical symptoms).	Can be completed by the patient or by a caregiver. A VAS scale measures the questions on severity of the wound related symptoms and a five point Likert scale the level of interference.
TELER System [2, 15]	All aspects of local wound management and psychosocial impact of wounds are covered: discomfort, skin condition from erythematous maceration from exudate, skin stripping from dressings and fixation tapes, peri-wound irritation, necrotic tissue, sustained dressing fit in order to contain exudate leakage, odour and intrusion of dressings and dressing changes on day to day living.	Designed to be completed by patients, carers, clinicians. The content of a TELER indicator comprises a long-term treatment or management goal (Code 5), negotiated and not imposed on the patient or client. Each measure is a TELER indicator with six reference points on an ordinal scale. The codes of the indicator are written in ordinary language and define six clinically significant steps towards the achievement of the treatment or management goal. Indicators are selected for use following the patient and wound assessment. In routine care indicators are only used if the patient has the problem defined by the indicator. In research studies the indicators are selected to answer the research question. The system is now in a digital format. Nurses, patients or caregivers can record wound care outcomes using the TELER System. A licence is required to adopt TELER (http:www/longhanddata.com).
Hopkins Wound Assessment Tool [16].	Wound-classifications (wound, predominant colour, hydration, drainage, pain, odour, tunnelling/undermining).	Wound-classifications (wound, predominant colour, hydration, drainage, pain, odour, tunnelling/undermining).

2.5 Nutritional management

Patients with MFWs have a high metabolic demand. If there is high fluid output from the wound, including fistula fluid, general guidelines recommend 25–35 kcals/kg body wgt/day [17]. To ensure that the energy needs are met patients with a MFW may require regular meals and snacks throughout the day [18, 19].

Protein Requirements:

MFW can produce up to one litre of exudate per day. As a result these heavily exuding wounds have an increased demand for proteins. General guidelines recommend 1.5-2.5 grams of protein/kg body wgt/day [17]. Good sources of protein include meat, fish, poultry, eggs, milk, cheese, yogurt, nuts/seeds and vegetables [18]. Due to the high loss of protein through exudate and decreased appetite either through the disease process or nausea sometimes caused by wound odour, the help and advice of a nutritionist or dietician should be sought.

Fluid Requirements:

Fluid loss through wound exudate is often under-recognised as a cause of dehydration. Carers, patients and nurses should be conscious of this and support patients in encouraging where possible, extra fluid intake. To maintain adequate hydration, 1500-2000 ml/day of fluids is recommended [17, 18].

2.6 WOUND-RELATED SYMPTOMS

Symptom management of MFW is challenging not only for patients and their families but also for health care professionals. The most common symptoms of MFW, as identified by Woo and Sibbald (2010) include: Haemorrhage/bleeding, odour, pain, exudate. We are including pruritus in the pain element as some patients experience intense pruritus in the areas of unbroken skin, which is nonetheless infiltrated by tumour. The pruritic sensation is thought to arise as a result of stretching of the skin because of tumour filtration and pressure to nerve endings (http://www.nhsinform.co.uk/Cancer/treatments/othersideeffects/fungatingwounds).

Electrochemotherapy

A relatively new palliative treatment is now available, electrochemotherapy (ECT), and there is a growing body of research to support its use to control tumour infiltration of the skin and to manage symptoms such as bleeding, exudate, and oedema. In the United Kingdom (UK) the National Institute of Health and Care Excellence (NICE) guidance has reported the efficacy of ECT in palliating cutaneous infiltration of the skin from non-skin cancer origins (http://guidance.nice.org.uk/IPG446).

2.6.1 ODOUR

Malodorous wounds can have a profoundly negative impact on the quality of life of the individual and of their carers causing feelings of guilt, repulsion and leading to social isolation and depression [20-22]. Patients are often embarrassed by the odour which has been compared to the smell of rotting meat [23] and can cause a gagging reflex [24]. Feelings of isolation come at a time when family and carer support is most critical as individuals struggle to cope with the physical aspects of their wounds and the constant reminder of the underlying disease process [26].

Malodour is not attributable to any one particular source but is thought to be caused by a combination of bacteria, including aerobic and anaerobic species, necrotic tissue, poorly vascularised tissue and high levels of exudate [26].

2.6.2 MALODOUR MANAGEMENT OPTIONS

Management of malodour involves both con-

Table 3: Properties of common antiseptic agents used in antimicrobial wound dressing. [9]

TOPICAL ANTIMICROBIAL AGENT	TARGET SITE/ MODE OF ACTION	RESISTANT BACTERIA FIRST ISOLATED	EXAMPLES OF SYSTEMIC TOXICITY AND ALLERGENICITY
Cadexomer iodine	Oxidation of thiol groups, binding to DNA and reduction of fatty acids in membranes	-	Renal and thyroid dysfunction
Chlorhexidine Please check with the policies of your country if chlorhexidine is available or if its use is allowed.	Disruption of the bacterial inner membrane and coagulation of cytoplasmic components	*Proteus mirabilis* *Pseudomonas sp.* *S. aureus*	Risk of anaphylactic reaction to chlorhexidine allergy
Honey (medical grade) *	Prevents cell division in staphylococci and disrupts outer membranes of Pseudomonas	-	-
Iodine	Oxidation of thiol groups, amino groups, binding to DNA and reduction of fatty acids in membranes	-	Renal and thyroid dysfunction
Octenidine	Disruption of bacterial membranes	-	-
Polyhexanide (polyhexamethylene biguanide [PHMB])	Disruption of bacterial membranes by binding to phospholipids	-	Hypersensitivity rare, but possible
Povidone iodine	Oxidation of thiol groups, binding to DNA and reduction of fatty acids in membranes	-	Renal and thyroid dysfunction Allergic reactions
Silver	Interacts with thiol groups in membrane-bound enzymes and binds to DNA to cause strand breakage	*E. coli* *Enterobacter cloacae* *P. aeruginosa* *A. baumannii*	Argyria and argyrosis
Slow-release hydrogen peroxide products (based on glucose oxidase and lactoperoxidase)	Forms free radicals, which oxidise thiols groups in proteins and cause breaks in DNA strands	-	-

* Medical-grade honey should not be mistaken for regular table honey. Medical-grade honey has been rendered free of contaminants and bacteria through gamma irradiation, in laboratory-controlled conditions,. The most widely used medical-grade honey is Manuka honey. This honey comes from regions in New Zealand and Australia and has high antibacterial and anti-inflammatory properties. [26]

tainment of odour and treatment of its cause. To minimise bacterial concentration in the wound, debridement of sloughy tissue may be appropriate. However, the method of debridement is based on clinical presentation, patient treatment goals and knowledge and skills of the clinician and available resources. Due to the increased tendency for bleeding, surgical or sharp debridement is not recommended.

Autolytic or enzymatic debridement is the preferred method in MFW. Autolytic debridement is promoted by the use of dressings that maintain a moist wound environment such as hydrofibres, hydrogels, or alginate dressings.

Wound cleansing through irrigation with normal saline 0.9% or drinking or clean tap water should be promoted as this will remove excess exudate and loose debris. Cleaning can also be achieved, by showering the wound [27]. Caution should be exercised with this method and the clinician should check the quality of the water, the pressure of the water and the temperature to ensure it is not too hot or exerts too high of a pressure at the wound site. Other irrigation methods include use of syringes, water packs and repeated paper towel compresses. If cleansing with antiseptic agents (see Table 3) the amount of exudate has to be assessed as antiseptic solutions are rapidly inactivated by the exudate. [27]. Local policies with regards to the use of any particular antiseptic agents along with manufacturers' instructions should be referred to prior to commencement of therapy.

Odour management may be achieved through the selection of primary and secondary dressings that are capable of absorbing both exudate and odour. Activated charcoal dressings attract and bind the volatile odour causing molecules, thus helping to prevent their escape from the local wound area. Activated charcoal dressings include charcoal cloth combined with other dressing materials, plain activated charcoal cloth or charcoal with silver [27].

To help manage the bacteria responsible for wound-odour the application of specific antibiotics may be useful. The most common antibiotic for this purpose is Metronidazole [28]. This may be administered systemically but also topically. The systemic route may have side effects such as nausea and neuropathy. The effectiveness of systemic treatment may be reduced by a poor blood supply to the wound. In palliative wound care the topical application of metronidazole gel (0.75%) or the injectable metronidazole (500 mg bid or tid PO/IV) can be applied (not injected) on the wound with each dressing change. This gel is usually applied once daily for five to seven days. Anecdotal evidence suggests that metronidazole capsules/tablets can also be broken and the powder contents sprinkled onto the wound with each dressing change [27]. However, this practice is unregulated and base products in the capsules/tablets could act as irritants to the wound.

Licenced medical grade honey (e.g Manuka honey) has both antibacterial and debriding properties and reports of its use in chronic, radiotherapy induced and malignant wounds claim deodorising properties [29-31].

Attempts to manage odour in the patients' environment are very challenging and clinicians resort to a multitude of agents, the most common of which are over the counter room deodorisers, followed by the use of aromatherapy candles and oils [28]. Additional measures are outlined in Table 4, but the acceptability of these approaches needs to be discussed with patients and families as there is a risk they may cause offense due to the nature of the intervention e.g. cat litter under the bed.

Table 4: Environmental Agents reported by clinicians for combating malodour [28]

AGENT	ACTION
Shaving foam Cat litter Charcoal coals	Odour Absorption
Room Deodorisers	Room Deodorisers
Aromatherapy oils (lavender, bergamot, patchouli) Dried sage Aceto Balsamico	Odour masking

2.6.3 PRURITUS

Pruritus or itching is attributed to stretching of the skin, which irritates the nerve endings. Pruritus does not respond to drugs such as antihistamines. However, interventions that can relieve pruritus include:

- TENS (transcutaneous electrical nerve stimulation) machines, which stimulate nerves that carry non-painful messages to the brain (overriding and stopping the pain messages). TENS machines can also initiate the release of endorphins [32]
- dressings that keep the skin well hydrated, such as hydrogel sheets
- garments and bed linen that relieve pruritus from climatological conditions such as eczema can contribute to relieving pruritus for patients with MFWs.

2.6.4 EXUDATE

MFW, depending on their characteristics, could have a tendency to produce moderate to high levels (up to 1 litre) of exudate per day. Therefore effective clinical management of highly exuding MFW necessitates an accurate wound assessment including the volume and viscosity of exudate as well as an understanding of the exudate aetiology [33]. The production of exudate in MFW is associated with:

- the catabolism of tissues provoked by bacterial proteases
- The inflammatory process associated with infections
- The high vessel-permeability within the tumour [34]

Increased permeability and vasodilatation of the capillaries allows the fluid to pass through the vessel walls [10]. To avoid leakage it is important to choose a dressing that will absorb excess exudate, but still maintain a moist wound environment to avoid dressing adherence. The appearance and composition of exudate will vary according to its origins and the condition of the wound. Exudate is documented according to the colour and consistency.

Table 5 outlines four elements that should be considered when documenting exudate.

Exudate management

To manage exudate a variety of dressings have been designed for non malignant wounds. It can be difficult to find a dressing that conforms to the wound shape, size and the body contours. The aim is achieve a close fitting dressing with a good seal to prevent leakage. Suitable dressings of MFWs with a high exudate level include supra absorbent dressings, alginate and hydrofibre dressings, foam dressings and non-adherent wound contact layers, such as soft silicone with a secondary absor-

Table 5: Elements that should be considered when documenting exudate

ELEMENT	COMMENT
Colour	Usually a healing wound should have yellowish/slightly reddish exudate. This is serosanginous. If it is red this may indicate bleeding or just yellow- pus. See also Table 6
Consistency	The exudate should be thin, clear and watery (like plasma). If it is thick, opaque it is more likely to be pus or mixed with necrotic tissue
Odour	Malodorous exudate may indicate infection
Amount	The amount of exudate varies according to the size, shape and condition of the tissue. For example if the tissue is infected or inflamed the exudate may be profuse

Table 6: Types of exudate

TYPE	COLOUR	CONSISTENCY	SIGNIFICANCE
Serous	Clear, straw-coloured	Thin, watery	Normal. Possibly a sign of infection
Fibrinous	Cloudy	Thin	Contains fibrin protein strands.
Serosanguinous	Clear, pink	Thin, watery	Normal.
Sanguinous	Red	Thin, watery	Slight trauma to blood vessels
Seropurulent	Murky, yellow, cream-coffee	Thicker, creamy	Infection
Purulent	Yellow, grey, green	Thick	Infection. Contains pyogenic organisms and other inflammatory cells.
Haemopurulent	Dark, blood-stained	Viscous, sticky	Contains neutrophils, dead/dying bacteria and inflammatory cells. This means an established infection is present. Consequent damage to dermal capillaries leads to blood leakage.
Haemorrhagic	Red	Thick	Infection. Trauma. Capillaries are so friable they readily break down and spontaneous bleeding occurs. Not to be confused with bloody exudate produced by over-enthusiastic debridement.

bent dressing. Non sterile pads like menstrual pads can be effective because of their good absorption, availability and cost containment. Similar to odour management agents, their use should be discussed with the patient. Non sterile pads may be applied as a second layer (on top of a sterile low adherent dressing).

Where exudate is low, wounds should be managed with dressings that have a low absorbency so as not to dry out the wound bed. These dressings include non-adherent absorbent dressings (see Table 7).

It should be noted that the use of hydrating dressing products such as hydrogels can increase exudate. Hydrogels should only be used when the wound becomes dry. If the patient is losing large amount of fluids, including blood from the wound, the effects of fluid and cellular depletion need to be monitored, e.g. through blood tests, and replacement protocols implemented.

Tumour therapies such as radiotherapy, electrochemotherapy and/or chemotherapy may decrease drainage and reduce the tumour bulk.

Preventing maceration and irritation

Large amounts of exudate and/or occlusive dressings may cause maceration of the surrounding skin. Therefore it is recommended that the skin is protected with suitable barrier products in liquid, paste or solid form (See table 8). For extremely fragile skin non-adhesive dressings and tapes should be selected. To prevent trauma from adhesives and exudate thin hydrocolloid strips can be applied around the wound (picture-frame around dressing at edges). Further absorbent dressings that minimize exudate contact with the skin should be chosen and applied. When choosing a product a reduction of skin stripping resulting from frequent dressing removal should be the goal. The frequency and type of the wound dressing should be adjusted if drainage increases.

Topical corticosteroids are on occasion proposed to manage painful macerated and excoriated skin. However, the approach is to protect the skin from severe maceration that requires the use of corticosteroids to relieve patient suffering.

Possibilities of dressing fixation may include gauze bandage, tubular gauze, sport bras or bandages with a silicon layer or dressing retention garments.

2.6.5 HAEMORRHAGE/BLEEDING

Wound bleeding or haemorrhage may be a common and significant problem in MFWs and can be distressing for both patients and their families [35]. Most of the bleeding occurs because tumour cells erode blood vessels and may be compounded by decreased platelet function within the tumour [36]. The tissue within MFWs is very fragile and has a strong tendency to bleed because of the local stimulation of vascular endothelial growth factor [10]. The strength of collagen matrix formation may be affected through reduced fibroblast activity and on-going thrombosis of larger vessels [37].

Wound bleeding can also be provoked through wound dressing changes. This occurs mostly by removing the wound dressing that is adhering to the wound surface. Furthermore, the overall condition of the patient, including low Vitamin K levels or an abnormal platelet count, has to be taken in consideration. Pending the location of the tumour, severe bleeding can occur if the tumour erodes into a major blood vessel and may cause death [10] e.g carotid artery rupture.

Managing haemorrhage/bleeding

Preventative measures are important to reduce the risk of bleeding. To prevent and control bleeding a variety of topical agents can be applied. These topical agents, applied directly to the bleeding points in the wound, differ in ease of application, prescription and cost. The

Table 7: Level of exudate/Goals of care

ELEMENT	COMMENT
Low Exudate ● maintain moist environment ● prevent dressing adherence and bleeding	Usually a healing wound should have yellowish/ slightly reddish exudate. This is serosanginous. If it is red it could be blood or just yellow- pus. See also Table 6
High Exudate ● absorb and contain exudate ● prevent dressing adherence in areas of wound with decreased exudate	● Alginates ● Foams ● Gauze ● Polymers ● Superabsorbent dressings

Table 8: Strategies to protect peri-wound skin [10]

TYPE	DESCRIPTION	APPLICATION	COMMENTS
Silicone dressings	Polymers that include silicone together with carbon, hydrogen, oxygen	Apply to still intact peri-wound skin (2-3 cm)	Allergy is rare: certain types of silicone product are tacky, facilitating dressing adherence to the skin without any adhesive
Zinc oxide/petrolatum Acrylates	Inorganic compounds that are insoluble in water. Film-forming liquid skin preparation to form a protective interface on skin attachment sites.	Apply a generous quantity to skin. Spray or wipe on still intact skin surrounding the ulceration (2-3cm)	May interfere with activity of ionic silver. Allergy is uncommon; facilitates visualization of peri-wound skin
Hydrocolloid or adhesive film dressing	A hydrocolloid wafer consists of a backing with carboxymethylcellulose as the filler, water-absorptive components, such as gelatine and pectin (commercial gelatine desserts), and an adhesive.	Window frame the wound margin to prevent recurrent stripping of skin (2-4cm)	Window frame the wound margin to prevent recurrent stripping of skin (2-4cm)

risk of trauma and subsequent bleeding may be reduced by using non-adherent dressings that maintain a moist interface between the dressing and the wound. If bleeding occurs there are a number of haemostatic agents available (see Table 9). The use of these agents are prescribed outside their licence and careful documentation if required to meet professional and legal standards [38]. Radiotherapy and electrochemotherapy may sometimes help to control repetitive bleeds [39].

If haemorrhage is expected, in the form of an arterial bleed, then the haemorrhage can be fatal. In our clinical experience fatal haemorrhage is rare. Head and neck wounds that are adjacent to carotid arteries or those in the groin adjacent to the femoral arteries are the most likely to haemorrhage. The patient and family should be forewarned and the following items and medications should be on standby to help to sedate the patient and decrease distress: dark (red, brown, black or green) towels and Benzodiazepines- (Midazolam) subcutaneously [36].

Table 9: Topical haemostatic agents [10]

CATEGORY	EXAMPLE	COMMENTS
Natural haemostats	• Calcium alginates • Collagen • Oxidised cellulose	• Control minor bleeding • Available as a dressing material • Bioabsorbable
Coagulants	• Gelatin sponge • Thrombin	• Expensive products • Risk of embolization
Sclerosing agents	• Gelatin sponge • Silver nitrate	• May cause stinging and burning upon application • Leaves a coagulum that can act as a proinflammatory stimulus
Fibrinolytic antagonists	• Tranexamic acid	• Oral agent • Gastrointestinal adverse effects (nausea/vomiting)
Astringents	• Alum solution • Sucralfate	• May leave a residue on wound
Vasoconstriction	• Adrenaline	• Gauze soaked gauze in adrenaline 1:1000 applied with pressure for 10 minutes

All products have to be applied directly in or on the wound.

2.6.6 PAIN

Physical pain is a significant and complex phenomenon in MFW. Pain in MFW is caused through:

- the pressure of the tumour on other body structures
- damage to the nerves caused by the growing tumour
- swelling resulting from impaired capillary and lymphatic drainage
- infections
- exposure of dermal nerve endings
- mismanaged change of wound dressing [10].

Assessment of pain is vital as this will enable the health care professional to understand the type of pain the patient is experiencing and determine the most appropriate treatment. To avoid pain when cleansing the wound, irrigation is recommended rather than swabbing. To help prevent pain during dressing changes, low adherent dressings should be used. Maintaining the wound in a moist environment will not only reduce dressing adherence but will also protect exposed nerve endings [27, 40]. Depending of the type of dressing, most low adherent dressings can be left on during the daily radiotherapy sessions.

Pain management

To prevent pain while changing a dressing it is recommended to administer an analgesic prior to the dressing change: a booster dose of their usual opiate (see Table 10). Remove the dressing gently. When using analgesic drugs the World Health Organisation (WHO) guidelines for the control of cancer pain should be used [41].

A recent published review reported that the application of opioids topically might be useful [54]. The findings indicate that the topical opioids are safe because of the low doses used and the minimal systemic absorption of topically applied opioids, well below toxicity levels. Dosage varies between 6.25-15mg with the most common being 10mg morphine in 8g hydrogel [42].

The use of non-adherent and moist wound dressings facilitates a pain free dressing change. As stated previously, maintaining the wound in a moist environment will not only reduce dressing adherence but will also protect exposed nerve endings [43]. If pain cannot be controlled at dressing changes then it may be worth trying a product that requires less frequent changes. Irrigation of the wound with warm saline rather than cleaning with a gauze

Table 10: Recommendations to manage pain

RECOMMENDATIONS	
Prior to the dressing change	Administer an analgesic or booster dose of their usual opiate
Analgestic drugs	World Health Organisation guidelines
Wound cleansing	Irrigation of the wound with warm saline (room temperature) with a syringe rather than cleaning with a gauze swab
Dressings	non-adherent and wound dressings moistened with saline
Topical application of opioids	10mg morphine in 8g hydrogel [42]

swab will, in some cases, reduce pain. Complementary therapies can play an important part in pain management; therapies such as trancutaneous electrical nerve stimulation (TENS), relaxation, distraction or visualisation may help anxious and stressed patients who will have a heightened response to pain [44, 45].

2.7 HEALTH ECONOMICS IN NON-HEALING WOUNDS

Non-healing wounds such as MFWs often result in a considerable financial burden, which is associated with the significant use of dressings and time spent on dressing changes [7]. There is also a high incidence of co-morbidities that affect the quality of life of the patient, for example lymphoedema. Total patient management and resource utilisation for an individual with a MFW has to be taken into consideration when evaluating outcomes of care. To avoid complications, strategies and interventions have to be identified through assessment in an early stage and repeated during the care trajectory.

A cost-analysis of MFW management is a major problem as comparisons of cost analyses are compounded by variations in care protocols and the different funding models of different countries [9]. For example, variations are seen in pay rates and reimbursement strategies. To identify a series of standardised criteria for cost analyses that can be used substantial efforts will be required to identify the most economically effective ways to manage MFW. The collection of health-economic data is needed in clinical practice to record systematically the resources used with regard to MFW. A multidisciplinary team-approach incurs large costs and has to be seen as an integrated part of the entire resource utilisation of patients with a MFW.

3.0 Experiences of malignant fungating wounds

3.1 EXPERIENCES OF PATIENTS

Experiences of patients with a MFW differ but it can be said that living with such a wound demonstrate an intense and unforgettable experience [46] with a loss of control over their bodies [47]. This means they were losing control over themselves and their lives. Through their journey of illness their body moves from being bounded to unbounded. Symptom experience is seen as both physical and psychological and all-consuming with many implications for quality of life [47].

Research has reported that some patients with an advanced MFW delay seeking medical help [48]. Reasons being that individuals feel a sense of shame and blame thus contributing to their avoidance strategy [46, 48]. Patients put the presence of their wounds to one side and ignore the changes occurring to their body until their situation becomes unmanageable. MFW demonstrate an overwhelming sense of vulnerability of living within a body that cannot be trusted or one that is continually changing [2, 49, 50]. This is because the cancer becomes visible through their wounds. This visibility causes distress and represents a new challenge for patients.

Not only body awareness and loss of control, but knowing because of the malodour, they are being socially avoided.

3.2 EXPERIENCES OF FAMILIES

Research has shown that in the setting of MFW the families are often the ones who support the patients, and they themselves are likely to experience extreme physical and psychological distress [6]. Families report that it is hard for them to manage the wound-related symptoms and further describe a shift in their role from being a partner to being a supportive carer. They have to acquire the tasks of palliative wound care to manage their loved ones' wound. They describe the visibility of the wound as a 'dreadful experience'. This experience causes them psychological and emotional distress [25].

Ensuring that appropriate information is readily available for caregivers and that they can access support for their decision-making role are crucial [51]. If health care professionals lack skills to deliver this support, or do not recognise families' needs in this respect, families may suffer [52].

Good symptom management is an essential task when taking care of a loved one with cancer [53]. Bee et al. (2009) identified unmet practical needs of families, including medication and pain management, physical symptoms and comfort, nutrition, personal hygiene and elimination, positioning, professional support and emergency measures [54] and malodor issues. Meeting these needs requires the informal carer to be given appropriate support to be able to undertake practical nursing-based tasks [54].

3.3 EXPERIENCES OF NURSES

The lived experiences of patients with MFW reported by clinicians demonstrate that pain was identified as the most concerning clinical problem followed by physical problems, emotional stress, social concerns, functional compromise,

complications and nutritional deterioration [55]. Regarding the wound dressings nurses highlight that they have difficulties in applying the dressings to the wound as well as hiding disgust from the odor. Taking care of such patients was often found to be emotionally difficult as these wounds are in some cases incurable. Patient isolation and their changed body image represent a challenge for the nurses [56] .

The objective is to optimise the management of MFWs based on HTA (the Health Technology Assessment) assessment elements: Method, Medical Treatment, Patients, Organisation, and Economics which should provide a structured approach towards all aspects of clinical and organisational factors, patient care, and health economics for MFW.

4.0 Conclusions and implications for practice

Managing MFWs is challenging for patients, families and health care professionals. A palliative approach should be used to provide a good quality of life for the patient and their families. The care should be planned individually as the feelings of every individual are subjective. The wound-related symptoms like malodour, exudate, bleeding, pain and itching should be managed in an effective way. The psychological aspect of the wound should not be underestimated. Table 11 presents key-points for clinical practice when caring for patients with a MFW.

Table 11 :Key-points for clinical practice when caring for a patient with a MFW

Patient Assessment	• Impact of the wound in terms of psychosocial functioning • Co-morbidities • Functional limitations and compromise from wound location and symptoms
Assessment of MFW	• A clinical assessment is always required • It is important to review the symptoms of odour, exudate, pain, bleeding and psychological impact when assessing the wound with reference to a wound assessment tool if appropriate • Swab cultures can sometimes be helpful to determine the need for antimicrobial treatment, if the patient is showing signs of spreading infection.
Management of the symptoms: This includes the following strategies starting with Cleansing.	
Cleansing	• Wound cleansing reduces odour by removing necrotic tissue and decreasing bacterial counts • Gentle irrigation of the wound with normal saline is helpful and can be done as often as needed

Odour control	● Wound cleaning and use of dressings for exudate control is important to help reduce odour ● Metronidazole (orally or topically) can be helpful • Metronidazole 500 mg bid or tid PO/IV • Gel or injectable metronidazole can be applied (not injected) on the wound with each dressing change ● Activated-charcoal and antimicrobial (silver) dressings can help absorb and reduce odour when the dressings completely cover the wounds and contain the volatile substances responsible for the malodour ● Essential oils (bergamot, or lavender), shaving foam (in a bowl), placed in the room can be helpful. Incense may be helpful but strong scents can sometimes cause difficulties in breathing for patients or may induce nausea
Local bacterial colonization	● Local bacterial colonization of the wound is expected and should be treated with topical cleansing, debridement as appropriate and antimicrobial agents. ● If there are signs of systemic infection, the use of oral or intravenous antibiotics may be considered
Exudate	● Dressings should be selected that can best conceal the wound, absorb exudate and reduce odour ● Dressings are generally changed 1-2 times per day based on the amount of exudate and odour ● Menstrual pads can be especially effective because of their good absorption and availability, but discuss with the patient prior to use to ensure acceptability
Pain	● It is important to help control pain by using morphine and other medications (some malignant wounds can cause neuropathic pain) ● Topical application of morphine can be helpful to reduce wound pain for some patients. ● Dressing changes can be particularly painful. Giving a breakthrough or rescue dose of morphine prior to the dressing change can often be helpful ● Non adherent dressings are recommended

Bleeding	• Prevention is the best method to avoid bleeding. Care must be taken when removing dressings to avoid bleeding. Use warmed normal saline irrigation to moisten the dressing and prevent trauma during dressing changes. Use non-adherent dressings and moist wound products when possible • If bleeding does occur, apply direct pressure for 10-15 minutes. Local ice packs can also assist in controlling bleeding • Radiotherapy can be considered if appropriate for the patient and the tumour is thought to be radiosensitive. Electrochemotherapy can provide a 'vascular lock' and control bleeding • Haemostatic dressings or pressure dressings are sometimes required if the bleeding is severe • If a patient is at the end of life and having uncontrolled bleeding from a large wound, using dark towels/ blankets to mask the blood can decrease anxiety for the patient and family. Pain control and sedation with a benzodiazepine would be important considerations in this situation
Pruritus	• Apply cool hydrogel sheets or products with menthol or capsaicin-ointment (0.25-0.75% only by intact skin conditions) • Additives to baths such as specialized non- perfumed oils or oatmeal only for intact skin conditions
Concerns of managing MFW	• Ensure that the dressing used is not "too dry" and therefore causes more pain and bleeding at the time of dressing changes • Perfumes used sometimes become associated with the unpleasant odour rather than "hide" the smell and do not necessarily help • Healthcare providers can become "desensitized" to the smell and so must listen to the patient or family if they complain about the smell from the wound rather than rely on their own observations.

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Produced by The European Oncology Nursing Society

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