

# Use of Alginates and for Management of Symptoms of and Their Impact on Quality of Life

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**M**alignant wounds develop in 10 per cent of cancer clients. They are characterized by visible changes in the skin, with cancer cells protruding through the dermal layer. Wounds are not only cutaneous—sinuses may drain from areas of necrosis or from erosion into organs such as the bowel. Symptoms such as copious exudates, bleeding, infection, pain, and foul odour can occur.<sup>1</sup> This can be devastating for both clients and their families, affecting quality of life. The right choice of dressing can help control exudate and improve quality of life.

Alginates and foams have proven to be effective for the symptoms of malignant wounds.<sup>2</sup> The literature states alginate is a natural polymer derived from brown seaweed.<sup>3</sup> Alginates act via an ion exchange mechanism, absorbing exudate and forming a non-adherent gel.<sup>4</sup> Alginates are designed to absorb large amounts of discharge<sup>5,6,7</sup> and can be changed every two to seven days.<sup>8,9</sup> Alginates transport excess exudate from the skin surface to prevent maceration. They are strong when wet and are fibre-free.

Alginates may influence wound healing in a number of ways not yet fully understood.<sup>5,6,7,10,11,12</sup> In 1999, Bowler et al. showed that alginates and hydrofibres sequester and bind bacteria.<sup>13</sup> The use of an alginate showed that healing time was significantly faster in Stage III or IV pressure ulcers.<sup>14</sup> In a multicentred, randomized controlled trial comparing an alginate dressing to a hydrofibre dressing in the management

of various wound types, researchers found that the alginate dressing demonstrated a statistically significant faster healing time when compared to the hydrofibre.<sup>15</sup> Alginates contain calcium and sodium. It is well established that calcium plays an important role in wound healing and it is possible that calcium in the wound fluid, some of which is released from the alginate dressing, may modulate the healing.<sup>16</sup> Perhaps sodium's ability to kill bacteria or other unique properties of calcium alginates may be influencing this outcome. Further study is warranted in this area.



"Window-framed" foam dressing.

However, alginates are designed to have a secondary dressing.<sup>4</sup> Foams have proven effective as a secondary dressing with alginates, increasing the absorption of fluid. Many foam products are water resistant<sup>3</sup> and can be left on for up to seven days.<sup>4</sup> Foams come in either a polyurethane polymer or a hydrocellular construction.<sup>17</sup> Both

have been shown to be equally effective.<sup>18</sup> Most are hydrophillic, which means they will absorb exudate and wick into the attached backing, thus keeping the skin dry.<sup>19,20</sup> Exudate management depends critically on venting excess fluid.<sup>21</sup> Because some foams are permeable to air and moisture, it is important not to cover them but only to "window frame" the dressing (see photo 1) with tape to allow maximum evaporation.<sup>22</sup> Foams are 80 per cent air, offering cushioning, insulation, and absorbability.<sup>3</sup>

Let us examine how alginates and foams affect each symptom of malignant wounds.



For two case studies comparing the outcomes and cost-effectiveness of alginate and foam dressings, please visit the *Wound Care Canada* section of the CAWC Web site at [www.cawc.net](http://www.cawc.net).



# Foams

## Chronic Malignant Wounds

### Exudate and Periwound Skin

Increased exudate in malignant wounds is caused by an excessive permeability of the tumour to fibrinogen and plasma colloids, the secretion of a vascular permeability factor, and the general inflammatory response.<sup>23</sup> Alginates and foams, when combined, are excellent for managing increased exudate.<sup>24</sup> Alginates absorb up to 20 times their weight, and foams can absorb from 1,000 to 3,000 cc per square metre per day.<sup>3</sup> Foam wicks away moisture<sup>19</sup> and alginate transports exudate away from the wound;<sup>5</sup> therefore, the use of both together helps prevent maceration of periwound skin.

Periwound skin can be affected by a number of factors, including cleansing solutions and procedures used for cleansing and maceration from wound exudate, absorption and evaporation of moisture, and adhesive products that strip the skin.<sup>25,26</sup> Application of protective barrier products such as pastes, ointments, solid barrier sheets or alcohol-free liquid barrier films helps to protect and maintain the periwound skin. Liquid barriers that contain no alcohol provide effective protection to the periwound skin.<sup>25</sup> Choosing an adhesive product that is skin-friendly to affix the dressing decreases the pain and trauma associated with adhesive removal.

### Bleeding

Bleeding in malignant wounds is caused by the absence of platelets and the abundance of friable capillaries. Because bleeding occurs easily, it is essential that dressings do not adhere or cause trauma. Alginates are ideal for bleeding wounds as they have hemostatic properties.<sup>1</sup> They do not adhere when saturated, allowing for easy removal.<sup>5</sup> Foam dressings are also effective for bleeding wounds because they are highly absorbent and non-adherent.<sup>4</sup>

### Malodour and Infection

The presence of a malodorous wound is a constant reminder to the patient of the underlying disease and often contributes to diminished self-esteem, embarrassment, depression, and social isolation.<sup>25</sup> Wound malodour is caused mainly by heavy bacterial colonization, both aerobic and anaerobic, that occupies the moist environment, necrotic tissue, exudate and dressings.<sup>27</sup> Debridement of the sloughed and necrotic tissue is not recommended in malignant wounds because of the tendency for these wounds to bleed.<sup>24</sup>

Appropriate systemic antimicrobial therapy is essential when the signs and symptoms of infection extend beyond the wound margin or the wound probes to bone.<sup>28</sup> Antibiotics that are effective against anaerobes may be applied topically to control bacteria and produce surface deodorization and odour control.<sup>27,29</sup> Topical antimicrobial agents for local symptoms and signs of infection or increased bacterial burden such as ionized silver dressings, cadexomer iodine and topical antibacterials may help to reduce bacterial colonization and treat the wound surface.<sup>28</sup>

Both foams and alginates can be used on infected wounds.<sup>22</sup> Foams provide a bacterial barrier and are non-occlusive.<sup>3</sup> Effective containment of wound drainage by the use of semi-occlusive dressings, which are sealed at the wound edge, help to control wound odour. Adhesive foams, absorbent hydrofibres, alginates or hypertonic dressings, together with semi-occlusive dressings, are effective in controlling odour when sealed at the wound edge.<sup>30</sup> Frequent dressing changes, quick containment, and removal of soiled dressing materials will help to control odour.

Charcoal-impregnated dressings may be helpful to absorb gases and filter odour from the wounds.<sup>25</sup> The use of local external deodorizers, air fresheners and other fragrances close to the person or in the room

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often merely mask odours, aggravating sensitivity to odour.<sup>30</sup> The use of odour absorbers such as vinegar, baking soda, and charcoal briquettes in the room have been reported to assist with odour reduction within the environment.<sup>29,30</sup>

### Pain

There are a number of mechanisms that can cause pain in patients with malignant wounds. There are many pharmacological and non-pharmacological interventions available, such as regular and bolus systemic pain medications, local anaesthetics, and relaxation strategies. As well, techniques used in caring for the person such as pain-reducing dressings, skin barriers, pressure relief surfaces, and lifting and turning strategies are interventions that can help reduce pain.<sup>25</sup>

Alginates and some foams prevent pain because they do not adhere to wounds. Alginates must be moist to be removed.<sup>4</sup> Foams are approximately 0.5 cm thick and provide a cushion to reduce pressure and provide comfort to a painful area.<sup>31</sup> Alginates and foams can be left on for two to seven days, thus reducing the pain and trauma associated with frequent dressing changes.<sup>8,9</sup>

The best approach to pain management is an individualized plan of care for each person. It involves a careful assessment of the wound and the pain as well as identification of the impact the pain is having on the person's activities of daily living and quality of life.<sup>24,25</sup>

### Quality of Life

The symptoms of malignant wounds can be overwhelming for clients. More than 30 per cent of clients

with malignant wounds have psychosocial problems resulting from the wound.<sup>34</sup> Grocott states society is repulsed by uncontrolled body fluids and resulting odours, causing clients to hide away.<sup>21</sup> Disfiguring wounds or bulky dressings can cause body image changes, which promote social isolation often resulting in depression.<sup>32</sup> Pain resulting from the wound and from painful dressing changes can be very debilitating. Since these malignant wounds rarely heal, their management is based on symptom control, promoting comfort and maintaining or improving the patient's quality of life (see Figure 1).<sup>35</sup>

Alginates and foam dressings are effective for large amounts of exudate and therefore can assist in preventing depression and social isolation.<sup>21</sup> Alginates and foams are thin, self-adhesive and conform well to contours. This increases the freedom to carry out normal daily activities.<sup>33</sup> Many types of foam are flesh-toned, assisting with body image changes. Alginates and foams are effective in reducing pain in malignant wounds, therefore improving quality of life.

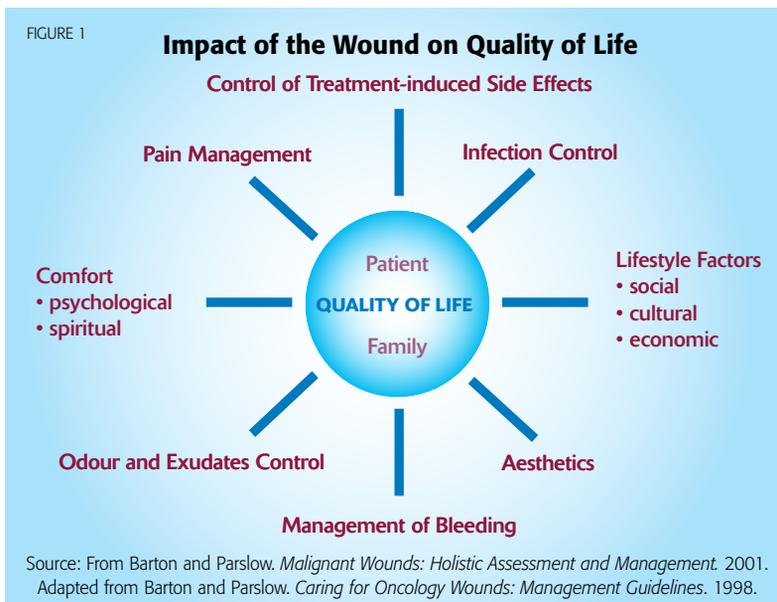
Social support from family and staff are also extremely important in the client's quality of life. Research shows such support alleviates social isolation resulting from malignant wounds.<sup>32</sup>

Alginates and foams are highly effective dressings for chronic malignant wounds. They control the symptoms, increase the quality of life for clients coping with cancer, and are cost-effective. ☺

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