

CHOOSING THE APPROPRIATE DRESSING: SILVER

This article looks at the uses of silver dressings based on holistic and wound assessment. It examines when to use and the benefits of reducing the bacterial load in the wound bed.

“The use of silver dressings in wound care is now an established part of managing wounds.”

Dressings are a fundamental part of wound care. If dressings do not achieve the desired effect it can delay healing and cause distress and anxiety for both patients and nurses. It is paramount that patients are assessed to determine the cause of their wounds and the wound is not treated in isolation. Dressings do not heal wounds but provide the optimum environment for the physiological process of wound healing.

For optimum wound healing the underlying cause needs to be addressed: a venous leg ulcer will not heal without compression therapy and a pressure ulcer will not heal without pressure relief. In essence, wound dressings are only one element of caring for a patient with a wound.

Our patients need to be aware of the cause of their wound and what actions they can take to improve their wound healing. Losing weight, stopping smoking, exercising and eating a balanced diet could all contribute to improving general health and promoting wound healing.

Dressings are a key part of wound management and selection is dependent on the clinician making the right choice for the right wound at the right stage of wound healing. There are many categories of dressings, such as:

- ▶▶ Hydrocolloids
- ▶▶ Hydrogels
- ▶▶ Alginates
- ▶▶ Foams
- ▶▶ Antimicrobials
- ▶▶ Hydrofibers® (ConvaTec, Deeside)
- ▶▶ Honey.

Silver dressings

The use of silver dressings in wound care is now an established part of managing wounds. The role of silver is to reduce the bioburden, which delays healing in acute and chronic wounds (International Consensus, 2012). Silver is also used as an antimicrobial barrier for those wounds at high risk of infection. Silver dressings are used to reduce the bacterial burden in the wound bed when wounds are infected and failing to heal due to critical colonisation and infection.

Silver has been used in wound care since the 17th century when silver nitrate was used to treat proud flesh and sores (Thomas, 2010). Over the years silver has been used in different ways from inserting solid silver into wounds, or as silver salts, creams and ointments (International Consensus 2012). Silver nitrate sticks are still used in some practice for over granulating tissue, but due to their caustic action are not advised on delicate tissue. Silver dressings can be used as an alternative. Silver sulphadiazine (SSD) in the form

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of a cream has been used widely as an antimicrobial for preventing infection in patients with burns.

The development of wound dressings that contain silver has transformed how silver can be applied to a wound. They can provide a sustained delivery of silver which, along with properties such as absorbency, mean that a moist environment can be maintained and the dressing does not need to be changed so frequently.

Silver is now available in a variety of forms for wounds and can be found added to many types of commonly used dressings. Silver comes in different presentations such as mesh, foam and alginates (*Figure 1*).

Examples of Silver dressings:

- ▶ ACTICOAT® Flex (Smith & Nephew, Hull)
- ▶ ACTICOAT Moisture Control (Smith & Nephew)
- ▶ ACTICOAT Absorbent (Smith & Nephew)
- ▶ Sorbsan® Silver (Aspen Medical, Redditch)
- ▶ SILVERCEL® (Systagenix, Gatwick)
- ▶ AQUACEL® Ag (Convatec)
- ▶ Mepilex® Ag (Molnlycke, Dunstable)
- ▶ Urgotul® Silver/SSD (Urgo Medical, Loughborough).

Mode of action

In its metallic form, silver is unable to kill bacteria. To become effective against bacteria the silver atoms need to lose an electron and become positively charged silver ions (Ag⁺). Silver ions are highly reactive and bind to bacterial cell membranes causing cell death. Silver ions are effective against bacteria, viruses and fungi, including methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococci* (International Consensus, 2012).

Silver exerts its action in one of two ways: on contact with wound exudate, silver ions are released into

the wound bed and kill the bacteria at the wound bed, or exudate is absorbed into the dressing where the silver kills the bacteria within the dressing. It is important for clinicians to know the mode of action of the dressing they are using as some require moistening with water (not saline) to enable the release of silver ions, while others can be applied directly.

Clinical indications

All wounds are contaminated and colonised with bacteria, and can continue to progress to healing successfully (Vowden et al, 2011) Wounds become critically colonised when heavy growth of bacteria result in a prolonged inflammatory response and delayed healing. Silver dressings can help to reduce this bacterial growth, allowing the wound to commence healing again. If this is not recognised and addressed the patient could develop a systemic infection.

It is important to recognise systemic and local infection in patients with wounds. It has been identified that clinicians are not always skilled in recognising the subtle early signs of infection and treating it in a timely manner (Newton, 2011). Patients presenting with signs and symptoms of infection with a feeling of general malaise and a raised temperature should be treated with antibiotics. There is a risk of nurses diagnosing infection based only on wound observation and wound swabbing (i.e. local infection), resulting in patients receiving repeated courses of antibiotics that are not clinically required.

Silver dressings are appropriate for wounds that are infected systemically and locally. They can also be used where there is delayed healing due to critical colonisation. The patient's symptoms may include increased exudate, malodour, increased pain and tenderness,

discolouration of the wound bed, wound breakdown as well as the normal signs such as heat, swelling, inflammation and pain (Cutting and Harding, 1994).

Silver dressings are used to treat over granulation by applying firmly over the wound (Harris and Rolstad, 1994). It is thought that bacteria cause the wound to overgranulate and silver can kill the bacteria and allow the wound to return to skin surface and epithelialise.

Types of wounds

Silver is suitable for both shallow and cavity wounds. Silver can be used on many types of wounds such as leg ulcers, pressure ulcers, burns, diabetic foot ulcers and surgical wounds. Silver is suitable to be used on wet and sloughy wounds.

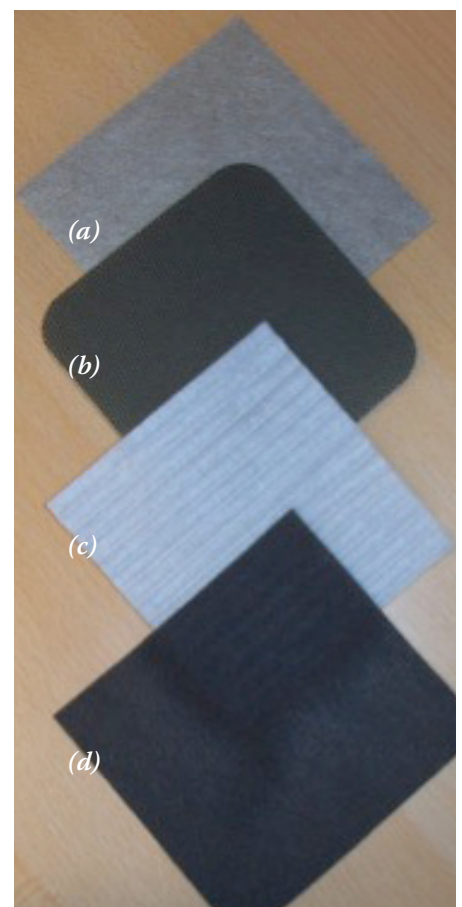


Figure 1. Examples of different presentations of silver dressings: (a) Silvercel Non-Adherent; (b) Acticoat Moisture Control (c) Aquacel Ag Extra; (d) Acticoat Flex 3.

It is recommended that silver dressings are used for 2 weeks in the first instance to assess effectiveness for the patient and wound. After 2 weeks, reassess the wound. If there are still signs of infection, continue and reassess every 2 weeks, documenting outcome and decision to continue. When the wound fails to make progress with a silver dressing consider an alternative antimicrobial dressing. If the wound has improved and there are no signs of infection discontinue the silver dressing and use a traditional dressing. If there is no improvement then reassess the patient and the wound and if patient unwell with a pyrexia consider antibiotics (International Consensus, 2012).

Contra indications and Considerations

- ▶ Silver dressings are contra indicated in hepatic and renal failure, pregnancy and lactation and in newborns
- ▶ Silver dressings are not effective in dry wounds
- ▶ Silver dressings cannot prevent infection and are not cost effective if used prophylactically
- ▶ Select a silver dressing that has appropriate exudate handling properties
- ▶ Always read the manufacturer's instructions before use
- ▶ Use the 2-week challenge for assessing and evaluating the need for a silver dressing
- ▶ Ensure patient pain is addressed adequately
- ▶ There is no need to swab unless infection is present, use vital signs to help diagnose infection
- ▶ Note the staining (bluish-grey, known as argyria) from some silver dressings onto the patients skin, this could give the patient cause for concern
- ▶ Ensure before using silver in a deep wound that the wound has been probed and the wound bed identified; do not insert into

a wound where a deep sinus is present

- ▶ Silver dressings can be used under compression therapy, however compression therapy may need to be reduced in acute infection
- ▶ Some silver dressings are made to stay in place for specific periods of time; ensure you have provided a suitable secondary dressing and that the dressing is not changed too frequently as this will unnecessarily increase costs
- ▶ Do not use if sensitivity to silver occurs; this can cause pain and burning sensations
- ▶ Do not use long term without specialist advice and support
- ▶ Do not use during radiotherapy or magnetic resonance imaging scanning.

Method of use

- ▶ Apply the silver dressing directly onto or into the wound bed, ensuring the dressing contours to the wound
- ▶ Use ribbon forms to insert into cavity wounds
- ▶ Ensure the dressing is not too large or too small; it should only overlap the wound by 1–2 cm
- ▶ Some silver dressings can be cut to shape but not all, check the manufacturer's instructions
- ▶ Some silver dressings require a secondary dressing
- ▶ Leave the dressing in place for the designated time for maximum effect
- ▶ Protect the surrounding skin with a skin preparation.

Conclusion

Understanding and choosing the appropriate dressing continues to be challenging for clinicians, especially with the plethora of products available. Wound care formularies will often provide information and rationale on use of dressings.

Silver dressings can be a useful tool in treating hard-to-heal wounds where critical colonisation and

infection exists. Silver can reduce the bacterial load in the wound bed, allowing the body to continue with the wound healing process. Silver is not a miracle dressing to replace all other dressings and there is a considerable cost attached to their use. Silver dressings can help to reduce pain, exudate, malodour and reduce the risk of infection. They can improve quality of life and patient outcomes.

It is always important to look at the whole patient to identify other issues that may affect overall wound healing. Without adequate nutrition and hydration, the body will have no energy for repair; without exercise the circulation may be compromised, medication can interfere with the body's natural responses and a multidisciplinary approach may be useful to address all issues. WE

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