

Coffee Grounds are Nontraumatic for External Wound Healing

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ABSTRACT

A 17-year-old girl, suffering from juvenile rheumatoid arthritis, has been taking corticosteroids every day since she was a toddler. She had to have her right foot amputated due to an infected gangrene. Regrettably, an infection complicated the amputation wound. Silver sulfadiazine cream, which required daily changes, treated the wound. The patient expressed dissatisfaction and pain over the daily wound dressing replacement and sought a new procedure using coffee ground that required longer dressing changes. We need to replace the coffee ground with gauze wound dressings every seven days. The wound healed with coffee ground at the end of week 4. We did not give any antibiotic, as there was no indication. Our research indicated that wound tissue contact with coffee grounds has not caused allergic reactions or pain until the wound healed, because coffee has robust antibacterial, antioxidant, and anti-inflammatory abilities, and does not harm anyone or anything.

Keywords: coffee ground

INTRODUCTION

People pick coffee beans from the plants and grind them to produce a favorite scented for coffee drinks. Coffee ground is the most popular product in the world, sold by many countries. Besides that, the coffee ground has been made by the villagers in Indonesia as a home product that is applied for daily drinks and also as a traditional topical medicine for external wounds. They have a long history of using coffee ground as a topical remedy for wounds, guided by their local wisdom, which has proven to yield positive results without any adverse effects or allergic reactions. Then, they had a long history of applying coffee to wounds. I met some colleagues in Europe who had excellent experiences using coffee ground for minor wounds.

Our microbiologic experiment demonstrated that coffee ground has a strong capacity to inhibit both gram-positive and gram-negative bacteria cultures. In rats, it also heals subcutaneous wounds faster without any complication.¹

After successfully conducting an experiment in microbiology and involving rats, I started with clinical experiences. I have been researching coffee ground for superficial wounds with my patient's formal consent since 2006.

In my clinical experiences, I have been using Arabic or Robusta coffee ground since 2006 to heal many variety dozens of superficial wounds with satisfactory results and without any side

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effects. The use of coffee ground for wounds has been practiced also by some mothers in the world who claim to treat their children's minor wounds, as cut by sharp objects in the kitchen, with results that the wounds dry quickly and heal without complications. They admitted that their beliefs and experiences, passed down from their ancestors, influenced their views on this treatment.

THE CASE

A 17-year-old girl who had been taking corticosteroids daily since she was a toddler had juvenile rheumatoid arthritis.¹ One day, she had to have her lower right knee amputated due to a chronic infection that resulted in gangrene in the right foot. Unfortunately, the amputation wound became infected and did not close. The prior physician treated the wound with silver sulfadiazine cream, which required daily changes. The patient expressed dissatisfaction over the wound dressing gauze adhering to the wound, which resulted in pain during replacement. The process of changing the sticky gauze was painful. She found it annoying to change the wound pad almost every day.

After explaining the use of coffee for the wound to the patient and her family, they agreed to replace the silver sulfadiazine cream with coffee powder. The patient favored the use of coffee due to its less frequent replacement (once every 4 weeks).¹ The wound healed at the end of week 8. We did not give any antibiotic, as there were no indication.

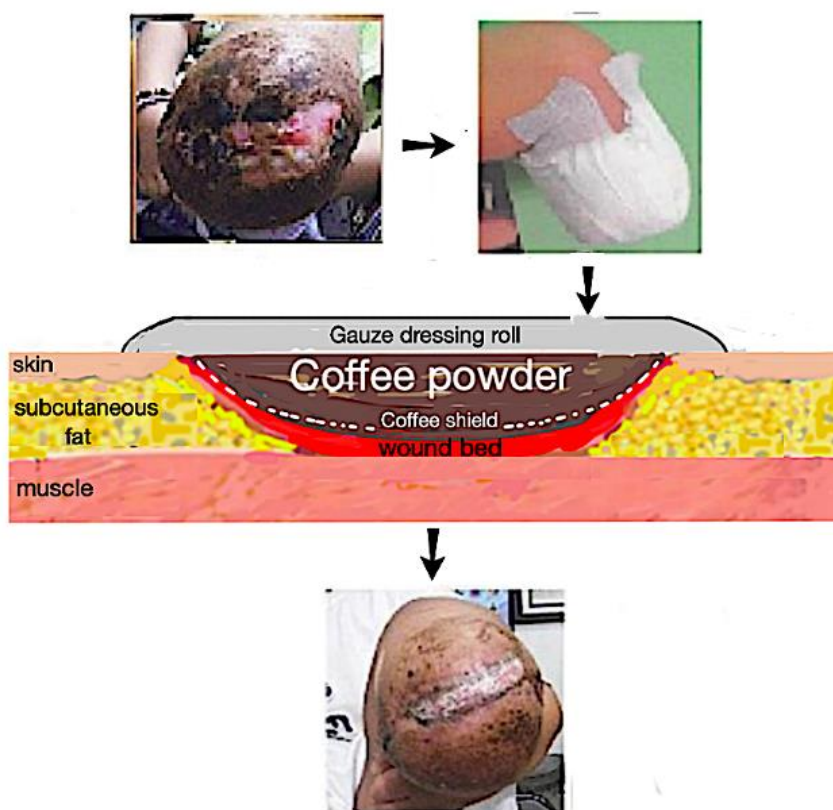


Figure 1: A 17-year-old girl with juvenile rheumatoid arthritis contracted a foot ulcer secondary infection and was healing in 8 weeks after using topical coffee ground.¹ The "coffee shield" is a thin layer of coffee ground that stays (not to be changed) on the wound bed surface to prevent damage to newly growing cells.

During the use of coffee, she did not feel any pain, mostly when changing the dressing, because it did not stick to the wound surface and did not require replacing all the coffee, only the ones that could be easily detached.

We used a newly made Arabica coffee ground (less than 1 week after production) that we bought from a legendary coffee shop in Bandung, West Java Province, Indonesia.¹

WHY COFFEE GROUND IS THE BEST FOR WOUND TREATMENT?

1. First of all, coffee has a beneficial effect on quick wound healing through its natural contents of antioxidants, antimicrobials, and anti-inflammatories. It has a pleasant aroma, is easily accessible, does not cause allergies, does not change skin color, is widely known worldwide, and is reasonably priced.¹
2. At the wounds, the coffee ground tends to stop bleeding fast because of its relatively adhesive granules, and the blood cells easily coagulate. The coffee granules typically adhere to the healing tissue until the skin heals. The tissue will not trap the coffee granules.^{1,2,3}
3. Furthermore, if the coffee ground does not stimulate the fibrous tissue to produce excessive scar tissue, then coffee could not lead to the formation of a keloid. In our case review from 2010 to 2020, no hypertrophic scar or keloid appeared in any of the patients treated with coffee ground.
4. Through robust antimicrobial capacity, coffee ground will help to prevent any microbial invasion of Gram-positive and Gram-negative bacteria into the wound tissue. It works by making a fluid that draws water out of the microbial cells and directly kills the germs using its chlorogenic acid and hydrogen peroxide.
5. Coffee is a natural product that has its ecosystems and self-sustaining, maintaining a variety of vegetation types for hundreds to thousands of years. Nature has its sustaining ecosystem, if not threatened by man. Coffee comes from nature and contributes to the ecosystem's equilibrium. Coffee production does not need the help of a large industrial system because it is enough with a simple, cheap home industry, but it still produces products that are qualified for humanity and sustainability.

THE NEW PARADIGM OF WOUND MANAGEMENT

The wound cleaning is not performed daily and not necessary because coffee's strong antibacterial ability kills and prevents bacterial contamination and growth. We should maintain a low in acidity level in the wound surface tissue to counteract bacterial growth.² We don't clean the wounds every day. Whether the wound is a clear cut or considered clean, it is not necessary to clean it, and the coffee ground is put on the wound surface directly. Once the wound is considered dirty, it should undergo cleaning. Cleaning with gauze and spraying will damage the wound cells and the newly growing cells.^{3,4} Research demonstrated that the cleaning gauze had lifted the new wound cells.

HOW THE COFFEE GROUND AIDS IN THE WOUND HEALING PROCESS?

Coffee ground has a powerful healing effect for acute or chronic wounds. Its robust antibacterial properties prevent bacterial growth and invasion from surrounding skin.¹ Figure 1 shows how the coffee ground is healing the chronic diabetic ulcers. The wound was not closed by pus, so it was not cleaned. We applied coffee ground to the wound and covered it with gauze to prevent spills. Every 3-7 days, we changed both the coffee ground and the gauze. We did not change the

coffee ground every day, as it remained in excellent condition (felt no pain, no sign of inflammation or allergy, and no foul odor). During the changing of the coffee ground, the deepest layer was not changed to prevent the superficial disruption of the newly grown cells in the wound base.^{2,3,4} Figure 1 refers to the deepest layer as the "coffee shield," which was about 2 millimeters thick.^{4,5} Replace all coffee ground apart from the "coffee shield" (or "settled coffee") with a fresh batch.^{3,4,5} The coffee shield, also referred to as settled coffee, serve as a protective barrier for the new growing cells and is a key aspect of the method known as "The New Paradigm of Wound Management." Our experiences revealed that no coffee became stuck, trapped, or transformed into foreign objects. The new growing cells lifted the coffee ground to the surface until the wound healed. The shield maintained constant contact with the wound surface, demonstrating that coffee powder possesses safe properties for the tissue. It is useful for maintaining growing cells until full healing occurs without causing negative reactions. For instance, the coffee shield remains in place for the full healing period of a wound, which may be more than 1 month.^{3,4,5}

Coffee can stay on wound tissue until it heals without complications, as it has antibacterial, antioxidant, and anti-inflammatory powers. In some cases of intractable peripheral hemorrhage of the inferior extremities, covering with coffee for three months (without changing the coffee) resulted in skin-covered wounds without any adverse effects.

Cover the entire wound surface with the coffee powder, then cover all of the wound's edges with coffee. In our experience, there were no significant differences in results using Arabica or Robusta coffee ground. For the best results in wound treatment, we use powdered Arabica or Robusta coffee products that are less than 6 months old.

THE WOUND CLEANED WHEN NECESSARY

Frequent wound cleaning is also traumatic, painful, and scary for the patients. We clean the wound surface only when necessary, not frequently. We clean the wound when it becomes dirty or covered with pus. The daily scrubbing of the wound surface can damage the newly growing tissue cells, and while these cells can repopulate until healing, they may do so more slowly and heal as a result. Wetting the wound surface will reduce acidity, making it easier for contaminant bacteria to multiply.² This is also the important function of coffee ground as a strong antibacterial, antioxidant and anti-inflammatory: to safely cover the healthy new cell multiplication.^{3,4,5} This, in turn, speeds up the healing process of wounds.

WHY USE THE WHOLE COFFEE GROUND?

The wisest and best way to achieve the goal of external wound healing is to use coffee as a whole, rather than one or more active substances. The last report mention the coffee grounds also good for pustular external wound healing.⁶

We applied the whole coffee ground with active substances inside (caffeine, chlorogenic acid, caffeic acid, etc.) for healing the external wound tissue, including pustular wounds.⁶ Caffeine blocks the generation of keratinocytes, and then it hampers the production of skin cells.⁷

Many researchers, including Ojeh, have described caffeine as unsuitable for healing wound tissue cells.⁷ Coffee as a whole, with caffeine, chlorogenic acid, caffeic acid, and others, is effective in stimulating the healing of tissue cells without negative effects.

Studies have shown that caffeine alone inhibits the healing of wound cells, including the growth of epithelial cells.⁷

Coffee has enzymes, such as anti-elastase and anti-collagenase, that help the wound-healing skin to reduce hypertrophic scars.⁸

Lastly, the widespread consumption of coffee in the world and its commonly well-identified safety profile for internal use could certainly contribute to a greater acceptance and potential accessibility of coffee ground as a topical remedy. This awareness highlights that a commonly consumed item can also provide positive external benefits. It bridges the gap between everyday life and potential therapeutic uses in a simple and accessible way.

THERE ARE SPECIFIC GUIDELINES FOR APPLYING COFFEE TO EXTERNAL WOUNDS

The requirements for using coffee for wounds include always storing it in a closed container. After use, use sterile equipment (tablespoon) and reseal the remaining coffee tightly. Ground coffee is made by a manufacturer known for its hygiene and meets health standards. We obtain our coffee grounds (Arabica, Robusta) from the only legendary coffee shop in Bandung. We have applied the coffee since beginning our research. The coffee should be used less than 1 month after production.

A review of coffee consumption in the village shows how to store ground coffee in a closed small container and use coffee produced within a maximum of two weeks.

CONCLUSION

The patient, a 17-year-old female with juvenile rheumatoid arthritis, has an infected wound on her right knee's lower amputation site. She declined to continue her wound treatment with silver sulfadiazine cream, necessitating daily dressing changes. She chose to continue her wound treatment using coffee ground because she changed the dressing once a week. The wound healed by the end of week 4. There was never a problem that happened during treatment with coffee ground. The presentation clearly stated that coffee ground is ideal for external wound healing because it has no side effects, is simple to apply, is cost-effective and sustainable, and does not harm anything or anyone.

Declaration of Competing Interest.

I declare that I do not have any competing interest.

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