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OPTIMIZING WOUND HEALING IN AN 83-YEAR-OLD WOMAN WITH ROOSTER PECK-INDUCED LACERATION: A CASE REPORT

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ABSTRACT

Background: Although chickens are generally considered harmless, rooster attacks can cause significant injuries in elderly individuals with fragile skin. Age-related structural and cellular changes delay wound healing, increasing the risk of complications. This report presents a rare case of a rooster-induced hand laceration in an elderly woman, highlighting wound characteristics, healing progression, and the role of dressing selection in optimizing recovery. **Case Presentation:** An 83-year-old woman presented with a hand laceration following an attack by a domestic rooster (*Gallus gallus domesticus*). The wound was initially irrigated, sutured, and dressed with paraffin gauze and sterile gauze secured with adhesive tape. Prophylactic antibiotics and tetanus immunoglobulin were administered. Despite appropriate initial management, inadequate compliance with wound care instructions led to repeated moisture exposure, resulting in mild periwound edema and maceration. The dressing was subsequently modified using a polyurethane film to maintain a dry and protective environment. Over the following days, the wound demonstrated progressive epithelialization and achieved complete closure with a thin, pale scar by day 11. The patient made a full recovery without infection or functional impairment. **Conclusion:** This case underscores that even minor poultry-related trauma can result in clinically relevant injury in the elderly. Transitioning from a conventional non-occlusive dressing to a polyurethane film provided superior wound protection, durability, and healing outcomes. Clinicians should consider both patient education and dressing selection as integral aspects of comprehensive wound management in older adults.

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BACKGROUND

Smallholder poultry production is an important component of agricultural systems in developing countries, contributing significantly to economic stability, nutritional security, and sociocultural well-being. Based on data analysis from 24 developing countries in the 2015–2020 period, more than 50% of households were reported to raise poultry, particularly chickens[1]. In Indonesia, data from Poultry Establishment Statistics 2024 reported 865 legal poultry farms in Indonesia, with the final stock population of layer chickens reaching 41.4 million heads[2]. Given this high prevalence, human–poultry interactions are inevitable and may occasionally result in injuries. Several case reports have documented severe and

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even fatal incidents resulting from chicken attacks. These include cases of serious ocular trauma leading to blindness in a child following pecking by a hen, penetrating brain injury in an infant caused by a rooster attack, and fatality in an elderly individual after being attacked on the lower leg by a rooster[2–4]. In addition, cases of severe knee joint infections following injuries caused by rooster attacks have also been reported[5]. Although these cases are rare, they highlight that human interactions with chickens can potentially cause serious injury.

In elderly individuals, the skin undergoes various physiological alterations that reduce its elasticity, tensile strength, and regenerative capacity. Age-related declines in collagen and elastin content, decreased sebaceous and sweat gland activity, and increased capillary fragility render the skin more prone to tearing[7]. Furthermore, structural changes at the dermo-epidermal junction compromise skin integrity, making the epidermis more susceptible to injury. Wound healing is further delayed due to diminished cellular function, particularly the reduced proliferative and migratory capacity of keratinocytes within the wound area[8]. Consequently, wounds in the elderly are at greater risk of progressing into chronic lesions, which can significantly impair quality of life and increase healthcare costs. Therefore, prevention, early diagnosis, and optimal therapeutic strategies are essential to prevent chronic complications[9].

Here, we present a rare case of a hand laceration in an 83-year-old woman resulting from a peck by a domestic rooster (*Gallus gallus domesticus*). This report highlights the wound characteristics, healing process, and the selection of appropriate dressings to optimize recovery.

CASE PRESENTATION

An 83-year-old woman presented to the emergency department with a laceration on the dorsum of her left hand following an attack by a domestic rooster on her rural farm. The incident occurred when the patient attempted to place the rooster into its pen by holding it with her left hand. The rooster suddenly became aggressive and pecked the dorsum of her hand, resulting in active bleeding. The patient immediately performed initial home care by rinsing the wound under running water and temporarily covering it with a makeshift bandage. She had no history of chronic illness or regular medication use, and her tetanus immunization status was unknown.

Approximately four hours after the incident, the patient presented to the emergency department for further management. Initial examination revealed a 4-cm linear laceration on the dorsum of the left hand. A stellate laceration was observed proximal to the linear laceration, while a superficial abrasion with partial tissue loss was present distally. The wound was actively bleeding but showed no signs of infection. Management included irrigation with normal saline and cleansing of the surrounding tissue, followed by primary closure using four simple interrupted sutures with nonabsorbable monofilament nylon. Fig. 1 shows the wound appearance after initial management. After suturing, topical antibiotics were applied, and the wound was covered with paraffin gauze as the primary dressing, followed by sterile gauze and adhesive tape as secondary layers. The patient received tetanus prophylaxis with tetanus immunoglobulin (TIG) and was prescribed cefadroxil as the oral prophylactic antibiotic for 5 days and paracetamol for analgesics if needed. She was advised to keep the wound clean and dry and to return every 2–3 days for wound evaluation and dressing changes.

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Figure 1. Initial wound presentation showing the linear laceration, which was primarily closed with four simple interrupted nonabsorbable nylon sutures (red arrow), stellate laceration (red circle), and abrasion with partial tissue loss (yellow arrow).

On day 3, the dressing appeared damp and emitted a slightly unpleasant odor. The patient admitted that she continued her usual household activities, as she had not yet understood the importance of maintaining a dry wound environment. As shown in Fig. 2A, the linear laceration remained approximately 4 cm in length with well-placed sutures and closely approximated wound edges. Mild erythema was noted in the periwound area without fluctuance or purulent discharge. The proximal stellate laceration exhibited hyperemic tissue with minimal serosanguinous exudate, while the distal abrasion demonstrated healthy pink granulation tissue with clear margins and no necrosis. The patient was re-educated on wound care, emphasizing the importance of hygiene, avoiding water exposure, and keeping the dressing dry. A follow-up visit was scheduled three days later.

By day 6, the dressing was again found to be partially wet, indicating continued non-compliance with wound care instructions. Upon removal, mild periwound edema was observed along the linear laceration, accompanied by slight maceration at the wound edges but no evidence of active infection. The proximal stellate laceration showed early epithelialization in the central area with partial fusion of the wound edges and mild surrounding soft-tissue edema. Meanwhile, the distal abrasion displayed a pink, physiologically moist wound bed without excessive exudate or necrotic tissue (Fig. 2B). The dressing was changed to paraffin gauze and sterile gauze as the inner layers, with a polyurethane film applied as the outer layer instead of adhesive tape. The use of polyurethane film was expected to maintain a clean and dry environment, prevent external contamination, and promote epithelialization.

After three days of polyurethane film application, the wound demonstrated marked improvement. The linear laceration appeared dry, with tightly approximated edges and no signs of erythema or edema in the surrounding tissue. The proximal stellate laceration exhibited healthy granulation tissue without exudate, and the distal abrasion had formed a thin, yellowish crust, indicating progression to the epithelialization phase. No signs of infection or maceration were observed (Fig. 2C). The polyurethane film remained adherent throughout the patient's daily activities, underscoring its excellent durability and adhesive properties.

On day 11, the polyurethane film dressing remained intact and well-adhered. As shown in Fig. 2D, the wound had completely closed with full epithelialization and the formation of a thin, pale scar without erythema, edema, or exudate. Both the stellate laceration and abrasion had fully healed, with the skin color beginning to resemble the surrounding tissue. There were no residual signs of inflammation, and the patient reported no pain or discomfort. The sutures were removed at this visit, as the wound demonstrated satisfactory healing.

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Figure 2. Sequential wound healing progression: (A) day 3, (B) day 6, (C) day 9, (D) day 11.

DISCUSSION

Injuries from chicken pecking on the elderly are very rarely reported. In this case, the rooster pecking caused wounds with various characteristics, including linear lacerations, stellate lacerations, and abrasions. This wound pattern is consistent with a previous report of a 76-year-old woman who suffered a rooster attack on her lower leg and died. An autopsy in that case revealed small lacerations that directly affected a varicose vein, causing severe bleeding[5]. Similar wound characteristics were also reported in a 90-year-old woman who suffered multiple wounds to her head, hands, and feet from a chicken attack. Lacerations likely resulted from pecking movements accompanied by epidermal pulling by the sharp beak, while abrasions likely resulted from pecks that did not penetrate the skin[10]. Although chickens are generally considered harmless, rooster attacks in elderly individuals can cause serious or even fatal injuries, especially in those with underlying risk factors.

In addition to the traumatic aspect of peck wounds, the risk of infection should also be considered. A case report described a 60-year-old woman who developed cephalic tetanus ten days after being pecked by a rooster without receiving treatment or prior tetanus immunization[11]. The latest clinical guidelines from the Centers for Disease Control and Prevention (CDC) also emphasize that animal bite wounds are categorized as dirty wounds and require evaluation for tetanus prophylaxis[12]. These findings emphasize the importance of administering TIG to prevent tetanus.

Chickens are known reservoirs of various pathogens that can be transmitted to humans. A study by Ayala et al. identified *Campylobacter jejuni* and *Listeria monocytogenes* as the most common pathogens in free-range chickens, whereas *Campylobacter coli*, *Yersinia pseudotuberculosis*, and *Salmonella enterica* were found in smaller proportions[1]. Bacterial contamination of wounds can prolong the inflammatory phase through persistent microbial presence and biofilm formation, leading to elevated pro-inflammatory cytokines, extracellular matrix degradation, and impaired growth factor activity, which may ultimately result in delayed healing or progression to chronic non-healing wounds[14]. The American Association for the Surgery of Trauma Critical Care Committee clinical consensus recommends prophylactic antibiotics for simple traumatic wounds with a high risk of infection, particularly in the presence of significant contamination or patient-related risk factors that may worsen infection outcomes[15].

In the present case, a first-generation cephalosporin (cefadroxil) was selected and administered for 5 days. This approach is supported by clinical evidence, as a study conducted in an emergency department involving patients with simple but highly contaminated traumatic lacerations undergoing primary closure demonstrated that prophylactic administration of a first-generation cephalosporin (cephalexin) for 2 days was as effective as a 5-day regimen in preventing wound infection[16]. Cephalosporins are bactericidal β-lactam antibiotics that inhibit bacterial cell wall synthesis by binding to penicillin-binding proteins, thereby preventing peptidoglycan cross-linking and leading to bacterial cell death[17].

Wound healing in the elderly presents unique challenges. Aging is associated with alterations

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across all phases of wound repair, including impaired inflammatory responses, reduced macrophage function, delayed re-epithelialization, angiogenesis, and collagen remodeling, ultimately resulting in decreased wound strength. Although the quality of healing may be preserved in healthy older adults, the overall healing process is temporally delayed compared with younger individuals[14]. In addition, frailty has been associated with delayed wound healing and poorer outcomes[18]. In the present case, poor adherence to wound care instructions further contributed to delayed healing. Several factors may affect adherence in elderly patients, including educational level, health status, medication frequency, satisfaction with counseling, and understanding of treatment explanations[19]. Compensatory strategies such as daily routines, repetition, external reminders, and simplification of instructions can help improve adherence. Furthermore, Technology-based approaches—including electronic reminders, text messages, and smartphone applications—may further enhance compliance[20].

Wound healing requires an optimal environment, so selecting the right dressing is crucial for effective healing[21]. Initially, we used paraffin gauze with sterile gauze and adhesive tape, which is the standard for superficial wound care at our institution. Paraffin gauze allows exudate to pass to the secondary dressing, maintains minimal moisture, and minimizes adherence to the wound bed, facilitating easier dressing changes[22]. Gauze and tape, classified as conventional dressings, can serve as both primary and secondary dressings[23]. These dressings are cost-effective, easy to apply and remove, and suitable for both superficial and deeper wounds[24]. However, the combination of paraffin gauze with sterile gauze and adhesive tape is categorized as a non-occlusive dressing, which remains permeable to fluids, gases, and even microorganisms[23]. Consequently, in elderly patients with poor adherence, such dressings are less suitable because they fail to protect wounds from water exposure and environmental contamination.

Film dressings are thin, flexible, and often transparent, typically used as secondary dressings. Their semipermeable nature permits the passage of water vapor, oxygen, and carbon dioxide, while preventing the penetration of liquids and bacteria[25]. After evaluation, a polyurethane film dressing was applied to this patient and demonstrated significantly improved wound healing progression compared with the initial dressing, despite being used during daily activities that could lead to environmental contamination. This finding aligns with studies by Arroyo et al. and Ezzelarab et al., which demonstrated that polyurethane film dressings in clean postoperative wounds resulted in better healing, lower infection rates, and improved patient comfort compared with conventional dressings[26,27]. In another study, Sakurai et al. also reported that polyurethane film dressings maintained optimal adhesion for up to four days, even during routine daily activities[28]. However, their study was conducted on healthy subjects. Thus, this case highlights the potential benefits of polyurethane film dressings as an effective and comfortable option, particularly in elderly patients who are vulnerable to wound contamination due to poor treatment adherence.

CONCLUSION

This case illustrates a rare rooster-induced laceration in an elderly patient, highlighting that even minor poultry-related trauma can lead to significant clinical consequences in this vulnerable population. The patient's age-related skin fragility and poor treatment adherence complicated the healing process, underscoring the importance of individualized wound management. The transition from conventional non-occlusive dressing to polyurethane film dressing resulted in superior wound protection, longer wear time, and more effective healing.

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This experience supports previous evidence on the benefits of film dressings for maintaining an optimal wound environment and patient comfort. Clinicians should remain vigilant for potential infections following animal-related injuries and consider both prophylactic measures and dressing selection as key elements of comprehensive wound care in older adults.

ETHICAL APPROVAL

There was no ethical approval for this study, but informed consent was secured from the patient and their family.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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No specific funding was provided for this article.

AUTHOR CONTRIBUTIONS

Conceptualization, MIA; investigation, MIA and DA; data curation, DA; writing—original draft preparation, MIA and DA; writing—review and editing, MIA; supervision, MIA.

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