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CASE REPORT

The Use of TRAUMAGEL® for Hemorrhage Control in a Complex Head Laceration: A Case Report

David Jay Kleiman[1], Tyler Nicholas Carruth[2], James Infanzon[1,3], Marvin E Nix[1,3], Brian J Goldstone[3]

[1]Cobb County Fire and Emergency Services, Marietta, GA, USA; [2]Medical Affairs, Cresilon, Inc., Brooklyn, NY, USA; [3]Department of Emergency Medicine, Wellstar Kennestone Regional Medical Center, Marietta, GA, USA

Correspondence: David Jay Kleiman, EMS Division, Cobb County Fire and Emergency Services, 1595 County Services Pkwy, Marietta, GA, 30008, USA, Tel +1 770 528 – 8000, Email David.Kleiman@cobbcounty.gov

Abstract: Prehospital geriatric falls account for approximately a fifth of emergency medical services (EMS) call volumes nationwide, with a significant proportion involving head injuries and lacerations. Managing these injuries and associated hemorrhage requires substantial resource utilization, including personnel, time, and supplies. Complicating care is that many geriatric patients are maintained on long-term oral anticoagulant or antiplatelet therapy, making hemorrhage control more difficult. Failure to achieve adequate hemostasis in the field can delay critical assessments and further intervention. This case report describes the prehospital use of a novel hemostatic gel (Traumagel) in managing a complex head laceration. Traumagel achieves rapid and reliable hemostasis in complex wounds that may not be amenable to other hemostatic techniques. Deploying this gel alone or in combination with traditional methods enables emergency medical providers in the field to shift their focus to advanced patient care, allowing for earlier transport to definitive care. In this case, an elderly patient on chronic antiplatelet therapy (Clopidogrel) sustained a complex, open scalp laceration following a ground-level fall. EMS controlled a mixed venous-arterial hemorrhage unresponsive to direct pressure and traditional hemostatic interventions using Traumagel. Effective field hemostasis helped avoid trauma activation and potential operative intervention. The wound was successfully repaired in the emergency department without complication. This report underscores the importance of EMS providers integrating traditional techniques with emerging hemostatic technologies to optimize outcomes in moderate to severe trauma-related hemorrhage.

Keywords: TRAUMAGEL, geriatric, anticoagulant, antiplatelet agent, hemorrhage, case report

Introduction

Hemorrhage control is a cornerstone of trauma care, especially in prehospital and emergency settings where timely intervention is critical.[1,2] While existing modalities such as hemostatic gauzes, tranexamic acid, manual compression, and tourniquets are effective, they have limitations due to anatomical challenges, application complexity, and patient discomfort.[3]

Head injuries and ground-level falls among the geriatric population account for nearly 17% of all EMS calls.[4] Many of these older trauma patients are on long-term anticoagulation, which complicates bleeding control, particularly in the scalp and head, where bleeding can be profuse and visualization is difficult secondary to hair.[5] With scalp injuries, clinicians typically rely on indirect signs such as blood-soaked gloves or manual probing to locate wounds, leading to the indiscriminate application of hemostatic interventions and requiring extended periods of direct pressure. Maintaining adequate compression during the initial evaluation, patient transfer, and handoff to ER providers can be logistically challenging.

TRAUMAGEL (herein after referred to as Traumagel) is a novel hemostatic gel in a prefilled, single-use 30cc syringe, designed for rapid application to the site of bleeding. Traumagel achieves hemostasis without requiring

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prolonged external pressure (~three minutes) or bandaging. The flowable gel is directly applied to the source of bleeding. It conforms to the injury site, forming a mechanical barrier that allows the body to create a clot and achieve hemostasis. Due to its non-porous nature, Traumagel does not integrate with the blood clot and is easily removed with irrigation. This report highlights the opportunity for EMS providers to integrate traditional techniques with emerging hemostatic technologies in treating difficult hemorrhagic injuries, particularly in patients with other complicating comorbidities, including anticoagulant therapy. We report a case where Traumagel was successfully used alongside traditional methods by EMS to control hemorrhage from a scalp laceration in an elderly patient on antiplatelet therapy (Clopidogrel) after other methods had failed. This allowed for safe and efficient transfer to a Level 1 trauma center for definitive management.

Case Presentation

An 84-year-old male sustained a large, open scalp laceration after tripping while gardening. EMS arrived to find the patient alert but disoriented, with no recollection of the fall. His history included cardiovascular disease, permanent pacemaker placement, and chronic antiplatelet therapy (Clopidogrel).

Initial vital signs were stable. The stellate laceration measured approximately 4×7 cm, with active mixed arterial and venous bleeding. The laceration extended to but did not penetrate the galea aponeurotica or periosteum. Initial attempts at controlling the hemorrhage with direct gauze pressure and impregnated gauze proved unsuccessful. Traumagel was applied directly to the wound, overlaid with gauze, and secured with palm pressure for three minutes as shown in Figure 1. Hemostasis was achieved and maintained during transport to a regional Level I trauma center (Figure 2).

In the ED, the wound remained hemostatic, and the patient was stable. Initial laboratory evaluation revealed a hemoglobin level of 13.8 g/dL, platelet count of 211×10^9/L, and normal coagulation factors. Initial removal of Traumagel led to rebleeding in isolated areas, but was easily managed with limited palm pressure. A site of persistent arterial bleeding was controlled with suture ligation. Subsequent saline irrigation removed the remaining Traumagel, and the laceration was repaired with approximately 35–40 sutures. Direct inspection of the wound with hemostasis achieved and Traumagel removed demonstrated the laceration extended to but not through the galea aponeurotica.

Total blood loss from the wound was difficult to estimate, given losses in the field and with initial gauze packing, although the patient remained hemodynamically stable throughout. The patient received empiric antibiotics, tetanus

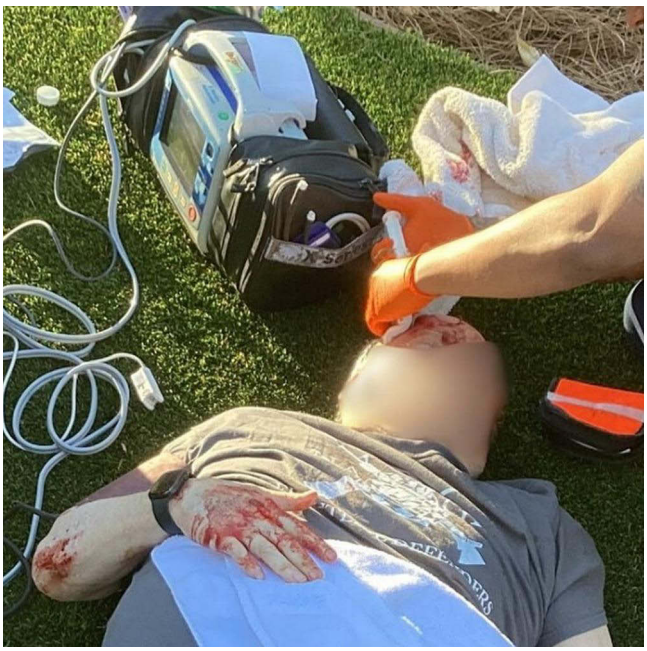

Figure 1 Deployment of Traumagel directly to the scalp wound in the field.

Figure 2 A stabilized wound with Traumagel and gauze allows for faster transfer to definitive care by EMS.

prophylaxis, and local analgesia. Per protocol for head trauma in anticoagulated patients, brain imaging was obtained. The patient, who did not meet criteria for trauma activation, was admitted for observation and discharged without further complications.

Discussion

Traditional hemorrhage control methods such as manual compression, gauze packing, hemostatic dressings, and tourniquet application remain the foundation of prehospital bleeding management.[3,6] While effective, all methods have limitations depending on wound location, size, and complexity.[7,8] Particularly in head lacerations, applying hemostatic gauze and dressings can be challenging due to the irregular and complex nature of the wounds, often requiring forceful packing and prolonged wound pressure that can be painful and time-consuming.[9] In the elderly population, ongoing bleeding is further complicated by the increased incidence of anticoagulation and antiplatelet therapy.[5] In this case, Traumagel provided a rapid and practical alternative to traditional approaches. As a plant-based, flowable biopolymer gel, it is rapidly applied and easily conforms to complex wounds of varying geometry. The gel's combination of polysaccharides forms a mechanical barrier that supports clot formation without adhering to tissue, allowing for clean removal with simple saline irrigation. Traumagel's application requires minimal time, no forceful packing, and only consistent pressure for three minutes. Facilitating rapid hemostasis, even in deep or irregular wounds, has utility in both prehospital and clinical environments.

In this case, no rebleeding occurred during transport or emergency department handoff. Importantly, Traumagel minimized the need for prolonged manual compression, reducing patient discomfort and clinician workload. Its ease of application and efficacy allowed EMS personnel to reallocate focus to other critical assessments and interventions. Successful deployment was supported by prior training on Traumagel use, underscoring the importance of provider education.

Compared to traditional methods requiring continuous clinician effort and visualization, Traumagel facilitates more efficient hemorrhage control. This minimizes personnel time and effort on the scene, allowing the clinician to attend to other injuries and speed up transport to definitive care. The downstream effect in the emergency department includes

expedited cross-sectional imaging, more rapid management of additional injuries, and accelerated definitive wound repair. As currently indicated, Traumagel is most effective with external bleeding from compressible sites. Current limitations to the use of Traumagel would include non-compressible sites, or deep cavity bleeding, including intraabdominal or intrathoracic hemorrhage.

Conclusion

This case demonstrates the effectiveness of Traumagel in achieving rapid hemostasis of an actively bleeding scalp wound in a patient maintained on antiplatelet therapy (Clopidogrel). Unresponsive to other techniques, the gel was deployed in the field, and hemostasis was achieved. This facilitated transfer to a Level 1 trauma center, and the patient was able to receive emergent CT imaging to evaluate for intracranial injury as well as move to definitive suture repair of the wound without delay in care. Traumagel presents a promising adjunct in prehospital trauma hemorrhagic care, particularly in older patients on anticoagulant or antiplatelet therapy. Future prospective studies comparing Traumagel with established hemostatic agents and assessing long-term outcomes will help define its role within evidence-based prehospital hemorrhage control strategies.

Ethics and Consent Statement

The authors submit that the activities described in the approval application did not meet the regulatory definition of human subject research provided in 45 CFR 46.102. An institutional review board approval was not required for publishing the case details.

Informed Consent

Written informed consent was obtained from the patient for publishing anonymized information, including images in this article.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

TNC is an employee of Cresilon Inc. All authors declare no other conflicts of interest regarding the publication of this article.

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