



Wound Sleuth

By Carol Ott, MD FRCPC
and Amanda Goldberg, MD FRCPC

Hematoma: Sometimes a Mild Bump Can Lead to Large Bruises

JR is an 86-year-old female who presented with a large hematoma on the anterior-lateral left leg (see Figure 1). She is wheelchair-bound due to cervical neuropathy and had bumped her leg on someone else's wheelchair. The injured area was 22 x 16 cm. Her past medical history included hypothyroidism, hypertension, osteoarthritis, bilateral leg lymphedema and obesity. Several months prior, she had a similar hematoma on the right leg requiring evacuation, currently healing. It too had occurred secondary to a mild traumatic injury.

Current medications:

- Acetylsalicylic acid (ASA) 81 mg daily
- Vitamin D3 1000 IU daily



Figure 1: Presentation

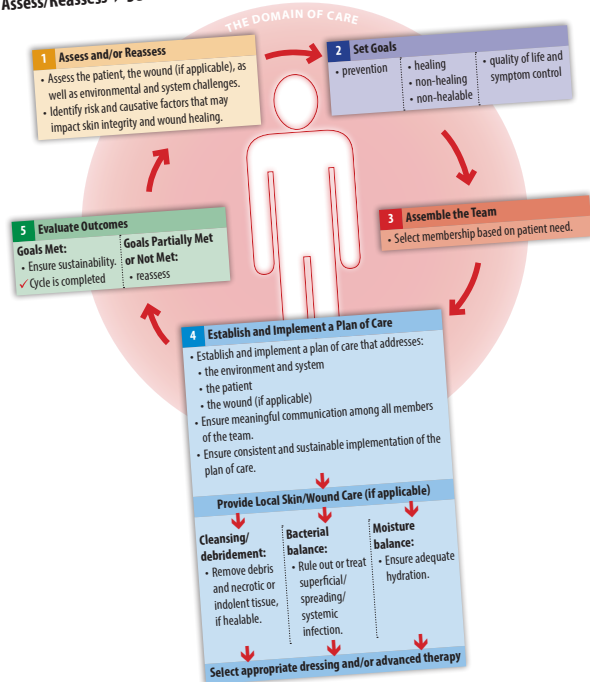
- Levothyroxine 50 ug daily
- Ferrous gluconate 300 mg daily

A hematoma is clotted blood that has accumulated outside a

blood vessel. It can occur due to injury to the wall of the blood vessel. The blood vessels damaged could be veins or arteries.¹ In the case of our patient, the

The Wound Prevention and Management Cycle

Assess/Reassess ► Set Goals ► Assemble Team ► Establish and Implement ► Evaluate



WoundsCANADA^{ca}

© 2018 Canadian Association of Wound Care. All rights reserved. Printed in Canada. WB-1753Ea

Figure 2: The Wound Prevention and Management Cycle

hematoma was just under the skin. Hematomas can be deeper as well and not seen at the skin level. They can be caused by a variety of injuries to the blood vessels including falls, surgery and IV needle insertion.

Q Question 1: What medications could cause bleeding, and when should they be prescribed?

Q Question 2: How would you treat this injury?

A Answer 1: Antiplatelets and anticoagulants are commonly prescribed drugs and significantly increase the risk of bleeding.

Common antiplatelet agents include acetylsalicylic acid (ASA), clopidogrel and ticagrelor. These are typically used for patients who have experienced a heart attack or stroke, or who have coronary artery disease or peripheral arterial disease. There is well-established evidence that ASA is beneficial for secondary prevention.²⁻³ This means that for patients who have had a heart attack or stroke, an antiplatelet agent could prevent

another similar event from occurring.

ASA works by blocking the enzyme cyclo-oxygenase, leading to a decrease of thromboxane A₂, a potent stimulator of platelet aggregation and prostaglandins. The decrease in thromboxane A₂ leads to difficulty forming the platelet plug created during hemostasis.

ASA is often used for primary prevention in asymptomatic individuals to prevent cardiovascular disease, prescribed to patients who have not had a cardiovascular event but may be at risk of one. However, the most recent Canadian Stroke Best

Practices Recommendations advise *against* the use of ASA for primary prevention. A recent randomized controlled trial of 19,114 older adults showed that the use of aspirin for primary prevention was associated with higher all-cause mortality.² Side effects of taking ASA include increasing a person's tendency to bleed—often in the stomach, and rarely in brain—and decreasing protection of the stomach mucosa by inhibiting the prostaglandin cycle (see Table 1).³

Other antiplatelet agents such as clopidogrel and ticagrelor work by blocking the binding of adenosine phosphate to a specific receptor—P2Y₁₂. By blocking this pathway, platelet activation is inhibited, affecting aggregation of the platelets and also affecting hemostasis.

Anticoagulant agents include warfarin, heparin, and the newer direct oral anticoagulant agents (DOACs), which include apixaban, rivaroxaban, edoxaban, and dabigatran. These all work by affecting the coagulation cascade, decreasing the body's ability to form clots. Warfarin is a vitamin K antagonist, and heparin acts to indirectly bind to antithrombin. The newer agents—the DOACS—directly target the enzymatic activity of thrombin and factor Xa. These anticoagulants are typically prescribed to prevent stroke in people who have atrial fibrillation and to treat venous thromboembolic disease, which includes deep-vein thrombosis and pulmonary embolism. The

Canadian Cardiovascular Society recommends prescribing direct oral anticoagulants over warfarin for most patients with atrial fibrillation.⁴

A **Answer 2:** *Treating the Wound*

In treating the wound, we can refer to The Wound Prevention and Management Cycle (see Figure 2) as a guide to ensure we are covering all areas needed.

Step 1 – Assessment: We can see that these injuries were trauma-induced onto a leg with edema.

Step 2 – Goals of Care: We wanted to heal this wound as

well as prevent further ones. We evacuated the wound. We also discussed the need for ASA, compression and safety measures.

We knew this wound on her left leg should heal, as she had had other wounds previously that had healed. On Doppler ultrasound we observed biphasic waveform pedal pulses indicating that she had sufficient arterial flow. A physical exam also showed no signs of vascular disease. We had trialed compression in the past for lymphedema but were unsuccessful in finding something comfortable for her.

Step 3 –Team: We assembled a

team comprising nurses to perform daily care on the wound, an occupational therapist to evaluate her sitting situation and look for trauma-inducing issues, a physician willing to debride, and her family physician to discuss her anticoagulation needs. Personal support workers involved in her care were brought into the care circle to discuss other possibilities of how to prevent future trauma to her legs.

Step 4 – Plan of Care: Our plan of care was established, the hematoma was evacuated at the bedside, and within days



Figure 3: During debridement



Figure 4: Day after debridement



Figure 5: Two weeks after debridement



Figure 6: Two months after debridement, skin filling in

Key Points³

- ✓ Acetylsalicylic acid (ASA) is still strongly indicated for secondary prevention in patients who have had manifest cardiovascular, cerebrovascular or peripheral artery disease.
- ✓ ASA is no longer recommended for primary prevention in individuals without a history of symptomatic cardiovascular disease, stroke or peripheral artery disease; the harms of daily ASA use could potentially outweigh the benefits.
- ✓ These revised recommendations present an opportunity for increased focus on primary prevention through healthy lifestyle choices, lifestyle modification and management of vascular risk factors.
- ✓ The decision to start, stop or continue ASA therapy is individualized, and the decision-making process should be shared between health professionals and patients, weighing risks, benefits, values and preferences.
- ✓ Important questions remain, including benefits of ASA for younger high-risk patients, individuals with subclinical vascular disease and asymptomatic atherosclerosis, and outcomes in patients who cease taking ASA after long-term use for primary prevention.

the wound began to heal (see Figures 3 to 6).

Step 5 – Evaluate: At the two-month mark, we observed good healing, and have every reason to believe the wound will go on to full healing. Her previous injury on her right leg has healed.

Step 1 – Reassess: We will reassess the need for compression in the future; however, at this point, our occupational therapist was able to adjust the patient's wheelchair to increase leg elevation, which has been helpful in reducing edema.

Discussion

It is important to treat the cause of the injury and any reasons it may be slow to heal.

Both times our patient developed hematomas, we looked for underlying reasons that she had developed such large hematomas. She has several reasons for being at high risk for these. She is wheelchair-bound and unable to move her legs much. She has lymphedema and venous stasis in her legs but is unable to tolerate compression. She also takes ASA 81 mg daily.

As an antiplatelet agent, ASA will prevent the platelets from sticking together and forming a blood clot that stops the bleeding of a wound. So, once blood vessels in our patient's leg became damaged, her platelets

could not stick together, affecting her ability to clot.

Our patient has no recorded previous stroke, cardiac events or known peripheral arterial disease. Therefore, it would be reasonable to consider stopping the ASA, as it has not been shown to be beneficial in primary prevention. However, she has several family members who have had strokes and knows well the devastation they can bring. Even after discussion on how the side effects of the ASA include bleeding—which has occurred twice in her legs—possible stomach bleeding and rare intercranial bleeding, she has chosen to continue with the ASA at this time. We need to work on other ways to decrease the risk of injury to her legs. 🩹

References

1. Davis CP. Hematoma. San Clemente, CA: eMedicineHealth. Available from: www.emedicinehealth.com/hematoma/article_em.htm#what_are_different_types_of_hematoma.
2. McNeil JJ, Nelson MR, Woods RL, Lockery JE, Wolfe R, Reid CM, et al. (2018). Effect of aspirin on all-cause mortality in the healthy elderly. *N Engl J Med*. 2018;379:1519–1528.
3. Wein T, Lindsay MP, Gladstone DJ, Poppe A, Bell A, Casaubon LK, et al. Canadian stroke best practice recommendations: Acetylsalicylic acid for prevention of vascular events (7th ed). *CMAJ*. 2020. 192(12):E302–311.
4. Perry TL, Wright JM, Mintzes B, O'Sullivan C, Tejani A. New oral anticoagulants. *Can Med Assoc J*. 2015;187:603.

ReadyWrap® Foot SL **NEW**

Low-profile foot coverage that fits into everyday footwear.



- 1 Easy to fit in a shoe with its slim, tubular design
 - 2 Adjustable straps conform comfortably around the ankle
 - 3 Low-stretch material provides therapeutic self-management
 - 4 Easy to apply with its simple, color-coded strapping system
- Pairs well with ReadyWrap® Calf



2136

www.venosan.ca

info@LRmed.ca Phone: 888-836-6726

stryker

Delivering incontinence skin protection



Sage Comfort Shield® Barrier Cream Cloths

- Protects skin from incontinence episodes
- Makes skin assessment easy and allows the use of other products such as anti-fungals without removing dimethicone barrier¹
- Helps eliminate mess of standard zinc oxide and petroleum-based barriers; makes cleanup easier



Now available

Call **800 323 2220**
or visit **sageproducts.ca**
to learn more

Reference: 1. West, D. (written communication-letter) December 2013

27132 Copyright © 2020 Stryker

Sage Products LLC | 3909 Three Oaks Road | Cary, IL 60013 | sageproducts.ca | 800 323 2220

In Canada, imported by: Cardinal Health Canada Inc. Mississauga, ON L5T 1C2



Fall 2020

Virtual Conference

OCT. 15-18, 2020



FALL 2020 VIRTUAL CONFERENCE

Registration opening soon!

Join us October 15–18, 2020

MARK YOUR
CALENDAR!



WoundsCANADA^{ca}
25 years of advancing wound prevention and care