IMAGES

Clinical Images

A group of 5 climbers was on a day climb in late fall on a practice gully on Mt Andromeda in the Canadian Rockies, Alberta, Canada. During the descent, 3 climbers were waiting at the top of the snow area (the Figure) for the last 2 climbers to rappel down to them. The victim, one of the waiting climbers, was climbing with

his ice ax tethered to his climbing harness by a 3-foot-long sling. He decided to descend unroped. After an awkward trip, he set a world record for the most, and fastest, consecutive summersaults, rolling 1500 feet until coming to rest. What is his most significant medical problem?

Practice gully on Mt Andromeda in the Canadian Rockies, Alberta, Canada. Photograph by Gordon G. Giesbrecht.

Answer

Unbelievably, the patient sustained only minor physical injuries. Despite having a 3-pointed lethal weapon tied to his waist, the only injury from the ice ax was a small puncture wound on the upper leg. He also fractured a bone in his hand and had some knee trauma, both of which were resolved without further treatment.

The most significant issue in this remote area was cold stress. The patient's clothing was packed with snow; he felt very cold and was shivering violently. Acting by his strong survival instinct, the victim tried to insulate himself from the snow by placing his climbing helmet under his torso. Although this would have provided little thermal protection, it was an excellent example of what humans will try to protect themselves.

The climbing team's only ropes were being used by the last 2 rappelling climbers. Although the terrain from the top of the snow area seemed easily navigable, the remaining 2 waiting climbers resisted the urge to descend quickly to the victim unroped.

By the time the rescue party descended safely, the victim was quite agitated and was anxious for treatment. As the healthy climbers scurried around with a needless sense of urgency, one of them stepped on another's hand with his crampons, thus producing another injury. Other than some food, water, and climbing gear, the relevant group gear consisted of only a light sleeping bag and a space (foil) blanket. There were no extra dry clothes available. Thus, while handling the victim gently, as much snow as possible was taken out of his clothing. The victim was placed gently in the sleeping bag and was wrapped in the space blanket. His shivering declined gradually during the next 30 to 45 minutes while he remained alert and conscious, indicating that his thermal condition was not worsening.

Three climbers went for help while 1 stayed with the victim. A helicopter arrived but soon departed because it was too windy to land. Two volunteer Search and Rescue (SAR) teams arrived after 8 hours. The victim was transported manually by sled to an emergency vehicle and then to medical facilities in Jasper, Alberta, Canada. Physical injuries were treated, and the victim experienced no sequelae.

Lessons learned

"An ounce of prevention is better than a pound of cure." The victim was by far the most skilled climber in the group and decided to descend unroped. An awkward trip—from which he normally could have recovered—incapacitated him and could easily have been fatal.

It is important to remember that rescuers must place priority on their own safety. This was indeed practiced because the group waited to rope-up and delayed arrival by about 10 minutes. Despite how serious this incident looked, "emergency" problems would have arisen only if the victim had a major bleed, an obstructed airway, or cardiac problems. In the 20 to 25 minutes before the victim was thermally protected, he most certainly would not have become hypothermic. Rescuers must recognize that it takes a long time for an otherwise healthy young adult to become hypothermic while lying on snow. It is also important to note that, even if he were hypothermic, a calm strategic course should be followed. There is no need to rush, because changes in body temperature occur slowly (ie, no more than 1°C to 2°C per hour). The major mistake made by the rescuers was the frantic actions that caused a puncture wound on a healthy climber's hand.

Because of the limited gear, the group was not able to follow the usual advice of getting the victim into dry clothing. But they did the best they could by following the remainder of the advice and treated him gently and insulated him from conductive heat loss to the snow and from convective and evaporative heat loss to the air. In fact, because the victim was not hypothermic and was otherwise healthy, he remained warm and wet in his "cocoon." But his condition may not have remained stable if he had spent the night on the mountain slope.

To conclude, it is important to prepare for the reasonable worst-case scenario, even on a short day-climb. The group would have benefited by having some extra clothing and by using more conservative safety techniques during the descent.

Gordon G. Giesbrecht, PhD
Winnipeg, Manitoba, Canada

References

1. Giesbrecht GG. Prehospital treatment of hypothermia. *Wilderness Environ Med.* 2001;12:24–31.