

Finding Balance: Patient Care Challenges In Technical Rescue

When a medical emergency occurs in a backcountry setting, especially on difficult terrain, the chain of events set in motion once a call is received will, hopefully lead to a safe, timely and successful rescue. This response can vary tremendously depending what part of the world, or even what part of the U.S. you happen to be in. It is truly a completely different mind set for responding medical rescuers, many times requiring a patient assessment and care approach that focuses more on risk management for the patient and rescuers than on definitive care.

For most rescue teams tasked with this responsibility, technical rescue fits squarely in the low call volume, but high risk category of rescue. Just getting to the patient may be the crux of a rescue requiring specialized rescuers, equipment, time, and possibly working in extreme environments with very real objective hazards such as avalanche hazard, rock and ice fall potential, exposure, remote locations, darkness, and weather considerations.

So how does patient care fit in during a complex technical rescue? What is adequate care in the technical rescue setting? What are our priorities in patient care and transport in a difficult terrain setting where we may have the patient for many hours? In mountain rescue, I feel our primary goal as medical rescuers, once we access the patient, is finding a balance with (3) elements:

- Providing adequate and appropriate patient care
- Simultaneously expediting the transport of the patient to definitive care
- And finally in doing so, minimize risk to both the patient and rescuers during the rescue process.

Getting To The Patient

Safe and timely access with skilled rescuers is a must in mountain rescue. This will, typically be a small light and fast “hasty team” with communication and medical assessment capability. In this context, the prudent use of helicopters can be an invaluable tool in providing timely access and sometimes even transporting patients in the high mountains. However, relying exclusively on helicopters to be able to solve all of our difficult terrain rescues can lead to problems as well, but that is another topic. Patient access with a fast skilled team will set the tone for the eventual rescue.

The Patient Assessment

Once patient access is made, the patient should be secured as indicated and a focused patient assessment completed. This initial assessment and on-going reassessment of the patient should begin to set a realistic urgency level for the rescue. It will also address how we may medically manage the patient, and ultimately be a factor in how we choose to evacuate the patient.

Elements of a timely, focused patient assessment include answering these questions:

- ABCs?
- Altered level or loss of consciousness? Reliability?
- C-Spine Injury / Back Injury?
- Fractures, dislocations, soft tissue injuries, etc?
- Circulatory / Sensory / Motor function deficits w/ injury?
- Mechanism of Injury / TIME of injury?
- Environmental Factors (cold injury issues)
- Trends / Other medical assessment considerations

Clinical Decision Making

Once the patient assessment is made, a team oriented patient care and rescue plan can begin to take shape. Other variables affecting patient care and rescue will include the following:

- Overall Patient Condition
- Urgency level
- Terrain
- Number And Skill Level Of Rescue Team
- Equipment Available
- Transport Time To A Secure Location / Rapid Transport Possible?
- Weather
- Time of day
- Acceptable Risk / Benefit to all involved

In addressing prudent patient care, consider how you would care for this patient in an ideal, more controlled setting (i.e. ambulance / ER, etc). Then be prepared to safely adapt that care, with minimal equipment, to your current environment and situation. A realistic goal should be giving “adequate” care with on-going reassessment of the patient without delaying or significantly complicating the evacuation.

So what is adequate care in the technical rescue setting? Adequate care starts with solid patient assessment skills. This will always form the matrix of how, what, when, and where we administer appropriate timely patient care. Secondly, adequate care includes your ability to improvise and adapt quickly and safely with minimal equipment. Finally, providing adequate care, in this setting, includes critical thinking skills focused on good basic care.

For example, in technical terrain, the decision to utilize a litter to package and move the patient is a significant one and may impact time and complexity of the rescue. For a fall injury patient complaining of neck pain, a loss of consciousness, and external head trauma, it will be obvious. You safely immobilize, secure, package and move this patient as best you can, knowing it will be more time, equipment, and rescuer intensive. On the other hand, a patient with the same mechanism of injury, who is reliable, awake and oriented complaining of an isolated shoulder injury with no palpable midline cervical / thoracic spine tenderness, and did not strike their head or lose consciousness in the fall

may be able to assist in their own evacuation without the need for full spinal immobilization and a litter. This will greatly simplify the rescue for all involved. The key is a skilled patient assessment in helping determine what is best for the patient in this particular scenario. Please refer to your own local protocols regarding field c-spine clearance with a mechanism of injury.

ALS interventions and equipment in technical rescue is a nice thought and may be beneficial for some patients in some settings. However, a mindset of definitive care in difficult terrain could lead to complications. From experience, I find the longer I work in this setting, the less I do, unless it is absolutely necessary. Doing some interventions just because you can during a technical rescue may have significant negative consequences in the overall rescue. Always ask yourself “what is the risk / benefit to the patient (and the team) of this intervention in the big picture? Is it absolutely necessary right now? Can I maintain that intervention while the patient is moving?”

Remember, technical rescue is a just an access and transportation issue. Our objective should be to transport the patient to a more controlled setting as safely and timely as possible while providing adequate care. Definitive care, in this context, is not the patient interventions performed, but the timely effective transport of the patient to a more secure location. Definitive care does not occur on a cliff face.

The Patient’s Perspective In Technical Rescue

What really makes a difference in patient care in technical rescue? It goes without saying that a rapid extrication solution may be life-saving for some patients in technical terrain. However, a rushed, “just get the patient in the litter” approach can carry higher risk for the patient and rescuers and sometimes actually take longer. Remember, there are other important factors besides speed that come into play for the patient.

Patient Oriented Packaging

If a patient must be evacuated in a litter, they will be sensitive to how secure they feel, how comfortable they are, and how cold or warm they are during the evacuation. It is our responsibility as rescuers to take the time to ensure the patient is safely secured, packaged, and protected in the litter. A skilled medic should have the ability to safely improvise and adapt, based on the patient’s injuries or medical problems, in how the patient is positioned and packaged for the evacuation.

Thermal Regulation Considerations

Providing adequate insulation and environmental protection will significantly impact in how an immobile packaged patient tolerates a rescue in the mountains. Ensure the patient is adequately and effectively protected from the elements. There are many good ways to accomplish this. Remember, the packaging should also allow for accessibility for reassessment and treatment during the evacuation.

Security And Minimizing Patient Movement In The Litter

How secure the patient feels during the evacuation is an important factor as well. In technical terrain, ensure the patient is attached to the main and belay line system.

Anticipate and account for orientation changes in the litter with proper securing technique. For example, not accounting for the pull of gravity on a patient with lower extremity injuries during a steep embankment rescue can lead to the patient sliding to bottom of the litter possibly causing further injury. Not good form if you have to stop mid-slope and re-package a screaming patient.

A Comfortable Platform

Be cautious with relying on the use of a long spine board (LSB) as an immobilization device in the extended care environment. The LSB was intended as a rapid extrication device from an automobile for trauma patients suspected of having a spinal injury, typically based on mechanism alone. It was never intended as a long term immobilization device in mountain rescue. Prolonged exposure to an unpadded LSB can lead to significant complications. It is not only extremely uncomfortable for the patient, but it can also cause pressure point tissue damage, especially for an unconscious immobile patient. If you feel you have to use one, at least make sure it is padded.

A full body vacuum mattress is a much better backcountry tool as an immobilization and packaging device. Not only can it properly immobilize the spine, but it also minimizes patient movement, creates an insulated comfortable platform for the patient, and allows for secure patient positioning options in the litter. For example, positioning a nauseous patient on their side with the mattress may be helpful in better controlling an airway issue during the evacuation. We typically use a full body mattress for any patient packaged in a litter for comfort measures alone, regardless of whether they have a suspected spinal injury. Remember, a packaged patient will feel more comfortable and secure if you can maintain a slightly head up horizontal position with the litter, if the evacuation will allow.

Anticipating Possible Complications

Anticipating and preparing for possible complications during the evacuation is an important part of the patient's overall care. This includes considerations in oxygenation, pain management, nausea and vomiting, airway compromise, thermal regulation, and anxiety. Interventions may include the prudent use of pain and anti-nausea medication before and during the evacuation, oxygen administration, airway intervention, positioning considerations for some patients, and the use of portable suction to help clear an airway. A cliff face is not usually the place for many of these interventions. The objective is to safely get them to a more secure location, reassess the patient and then decide what needs to be done.

Choosing A Safe, Gentle Rescue Option

I feel one of our primary objectives in technical rescue is to orchestrate a gentle rescue solution in how we move our patient from point A to point B in difficult terrain. This means, not only for the patient, but the rescuers as well.

For example, what are your options with a patient at the base of a 50m cliff with a steep 200m "ankle breaking" boulder field in front of you? If terrain allows and skilled rescuers with proper equipment are a part of the equation, the use of a guiding line or sloping Kootenay Highline may work extremely well to move the patient down this

slope. In this example, a solution that may appear as more complex, can actually save time as the patient is continuously “floated” through this terrain instead of jostled, dropped, and traumatized along with the litter attendants. Again, this only works with a skilled team, with proper equipment, capable of rigging systems simultaneously with patient packaging.

Be careful not to create a situation where we jeopardize the overall safety of the system. This can happen in many ways. For example, maintaining a structured command and communication system within the team is vital to ensuring a safety oriented response, no matter how intense the crisis is. Communication breakdown during critical segments of the technical rescue progression (i.e. the edge transition), can easily result in unnecessary patient jostling or a drop of the rescue load. Another example would be adding the mass of a second attendant to the litter for a packaged patient being brought up or down a vertical cliff face. Adding a second attendant will effectively lower our overall static system safety factor for the rescue. Is it worth it? How much patient care can you actually do, even with two attendants, while the litter is moving in this environment? Gentle maneuvering and control of the litter, as it is moving, should be your focus during this phase of the evacuation, not active patient care. This can easily be accomplished with a single skilled litter attendant, thus maintaining an appropriate force level on the system.

And Finally, Be Nice...

Not surprisingly, how confident and professional the rescue team is can be a significant factor for the patient. This includes competent gentle patient assessment and care as well as effective communication with the patient throughout the evacuation. As a litter attendant, move slowly and smoothly around the litter. Advise the patient before you change positions on the litter. Let the patient know what to expect as obstacles present themselves or why the litter progression has stopped for whatever reason. Remember, be gentle, talk to the patient, and most importantly, be nice. The patient will appreciate it.

Finding Balance

In mountain rescue, relying on just one way of solving a given problem puts significant limits in our ability to provide what is best for the patient, and rescuers in technical terrain. Using skilled, well trained rescuers as the core of the team is the key to keeping risk within acceptable levels while providing adequate care for the patient. A successful rescue will always come down to the team’s ability in finding balance between appropriate patient care and the technical aspects of the rescue.

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