

## Forbidden Incident Summary

### **Executive Summary**

While descending the west ridge of Forbidden after successfully summiting, an experienced Mountaineers climber performed a diagonal rappel to one side of the natural fall line. She lost her footing and a large pendulum resulted in blunt force trauma that caused her to lose consciousness, and without an autoblock or knots in the ends of the rappel rope, she slipped down the rope and off the end. Based on the information from a thorough investigation, the primary cause of this fatality incident was the pendulum caused by rappelling well off of the fall line and the secondary cause was not employing backup systems to protect from sliding off the end of the rope (e.g., placing knots in the rope ends or using an autoblock).

There are several opportunities for The Mountaineers to re-evaluate climbing curriculum, including emphasizing the increased risks of an off-the-fall-line rappel with increasing lateral forces contributing to more challenging foot placements and larger, more forceful than anticipated pendulums.

### **Review Purpose**

The goals of this incident review summary include (1) understanding the immediate causes and other contributing factors that led to the incident, and (2) creating an informative report The Mountaineers can use as a source for education and key lessons learned to share with our community.

### **Trip Specifics**

The trip objective was the Mt Torment / Forbidden Peak traverse with a planned over-night bivouac along the ridge.

### **Summary of climbing trip prior to incident**

The trip was unexceptional up to the point of the incident. All party members had appropriate gear, were in good condition, were healthy during the trip, and had the skill & experience necessary to successfully complete the trip well within an acceptable risk envelope. Team dynamics were fine. All participants had completed long, committing routes, so there was a shared understanding and open communication, honesty, and trust.

Weather was damp, misty, cool, and overcast the evening and ensuing morning of their mid-ridge bivy, so the party remained at the bivy sight allowing time for the weather to clear somewhat and the rock on the ridge-route to dry. By mid-morning they were underway, and although the rock had dried, the weather remained misty and overcast.

Once at the notch at the base of Forbidden's West Ridge, the party took time to dry damp gear and discuss next steps. At this point any party member could have chosen to wait at the notch while the others summited but all party members wanted to continue and made for the summit.

### **Immediate causes/known facts**

Based on the information available, the primary cause of this fatality incident was a pendulum during a rappel. The victim identified slings to one side of the rappel fall line that could have been an intermediate anchor point and she headed for them, but lost her footing, and the resulting pendulum

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created sufficient momentum that a blunt-force trauma during the pendulum caused her to lose consciousness, resulting in loss of control of her rappel brake hand.

The secondary cause of this fatality incident was not employing backups for the rappel. The victim did not use an autoblock and did not tie knots in the ends of the rappel rope strands.

### Potential supporting causes/contributing factors

**Diagonal rappel.** The victim identified a potential anchor position off the fall line, and she was focused on reaching that anchor position when she suddenly lost her footing. She may not have perceived the extent of increasing potential energy while moving further from fall line.

**Footing.** Increased potential energy would have created increased lateral forces on foot placements, likely contributing to lost footing. The lateral forces resulting from a diagonal rappel off of the fall line are less obvious (and less practiced against) than the downward forces of gravity. The victim wore mountaineering boots while other party members wore other footwear (approach and climbing shoes)

**Knots or autoblock.** The Mountaineers climbing programs teach the importance of using back-up risk management equipment and techniques in all aspects of climbing. Specifically, for rappel, The Mountaineers teaches autoblock use and knots tied in rope ends. The victim chose no knots to reduce the likelihood of the rope getting stuck; this is not uncommon, and it was a conscious choice she and her climbing partner discussed. It is unclear why she chose not to use an autoblock.

**Sense of urgency.** There were no time constraints or issues that would have created an objective sense of urgency. Although the party did start climbing later than originally planned that morning to allow time for the weather to clear and the rock to dry, they also took time to stop at Forbidden's West Ridge notch to dry gear and discuss next steps. There was no imminent bad weather approaching, the climb party had permits through the next day if they wanted to climb another objective, and they had cleared their schedules to allow for the possibility of climbing the next day.

**Rope teams moving at different speeds.** The first rope team did move faster, and the second rope team could potentially have experienced an unconscious sense of being in catch-up mode. It is human nature not wanting to be the slower rope team or delaying the climb party, and this may have contributed.

**Trip style.** Initially this trip was planned as a private two-person trip. Several days before the trip, with two more people expressing interest (including the victim), the trip was listed as a formal Mountaineers trip.

The party may have been in "climbing with a friend" mode. Climb parties may behave differently on a friends climb versus a Mountaineers climb. Rope teams among friends may be less inclined to remain closer together, and may be less likely to check one-another's progress. A leader of a formal Mountaineers climb may have a greater sense of responsibility/accountability for all members of the climb party, and may consciously decide to keep the rope teams somewhat closer together.

On the other hand, it is not uncommon for rope teams on Mountaineers intermediate climbs to become more separated than on basic climbs. Additionally, both rope teams had very experienced Mountaineers instructors/leaders on them, and so the first rope team may not have discerned any need or inclination to stay close to the second rope team.

**Mental strain.** This was the second day of a two-day trip, and the weather was less than optimal the prior day, throughout the night, and into the morning of the second day. Potentially, the climb party did not sleep as well as they might have otherwise. Participants indicated they were “normally” tired on the second morning, and do not attribute tiredness or mental strain as a contributing factor in their assessment of the incident.

All members of the climb party were in excellent Mountaineering condition, were not physically taxed, and had been on long and committing climbs before. They all had prior experience with this sort of climb, and they would have had experience in managing mental strains associated with such trips.

Had any of the climb party felt less than prepared to continue, there was a convenient and safe stopping and waiting point at the notch at the base of Forbidden’s West Ridge. The climb party stopped there to dry gear and gather themselves, and all chose to continue on to the summit.

**Halo effect.** During the discussion about whether to put knots in the rope ends, the victim described reasons for not using them, and her partner concurred, but did not inquire about not using an autoblock. Given their ridge traverse with an emphasis on simul-climbing to move expeditiously, not using autoblocks may have become the implicit standard practice for the trip. At the point where they transitioned to a full-on rappel, her partner did not question the more experienced climber on not engaging an autoblock.

**Safe vs. fast.** The climbing party had been simul-climbing much of the trip in order to move expeditiously on the ridge traverse. There is at least some potential that this “fast” mentality influenced decisions on rappel (knots and autoblock).

### **Summary of Consequences**

An overall review suggests this fatality incident was the result of multiple factors building upon themselves.

The climb party may have been a little more tired than they would have been otherwise due to misty, overcast weather reducing the comfort of their overnight bivy. Because the first rope team was moving faster, the second rope team may have experienced unconscious pressure to keep up. They may still have been in “moving fast” mode associated with simul-climbing the ridge traverse.

Perhaps all of these factors contributed to the victim not considering all alternatives when selecting a potential intermediate anchor point off the fall line, not deploying an autoblock and not using saddlebags for ropes with knots in the end to avoid the ropes becoming stuck.

It is difficult to gauge the increasing potential energy resulting from a diagonal rappel, and The Mountaineers does not expressly train or practice off-the-fall-line rappels. Additionally, it is difficult to gauge the lateral forces on foot placements, and in stiff Mountaineering boots which provide less traction than other climbing footwear, these lateral forces likely contributed to the victim’s loss of footing.

The pendulum and impact that caused the victim to lose consciousness is the primary cause of this fatality incident. Not using sufficient backup is the secondary contributing factor. Lack of an autoblock and knots in the end of the rope compounded the consequences of the pendulum.

### **Recommendations & Key Lessons Learned**

There are clear opportunities for sharing key lessons learned with The Mountaineers climbing community. Mountaineers climb programs have an opportunity to train for:

- risks associated with increasing potential energy when leaving a rappel fall line; increased lateral forces on footing; the potential for larger and more forceful than expected pendulums.
- further reinforce intermediate-level alternative rappel techniques---requiring a higher level of climbing skill and experience---such as the saddle bag rope carrying technique to prevent ropes with knots in the ends from becoming stuck when on rappel.
- increased repetition of the use of autoblocks to ensure they can be accomplished with a smooth rappel.
- even more clearly guard against allowing the halo effect to prevent speaking up about risk management concerns and techniques.

Finally, The Mountaineers has an opportunity to reinforce expedition mentality on all trips, where the leader maintains focus on the progress of all party members, and in the context of technical climbing:

- the lead rope team keeps in mind staying within an appropriate distance of the follow-on rope team to reduce risk of the follow-on rope team feeling a sense of urgency to keep moving.
- different participant behaviors / expectations with different types of climbs: private / friends climbs vs. official Mountaineers climbs.