

to climb a third class wall to reach the start of the roped pitches. J.C. went left and B.Y. went right, with the plan to meet 100 feet higher. J.C. was 15 feet up on the wall when he pulled and dislodged a large block weighing at least 100 pounds. He could not prevent the rock from striking him and was knocked off his stance, subsequently falling backwards into the couloir with the block landing on top of his legs. He was wearing a small pack and helmet and did not hit his head. J.C. is a physician and was able to assess his injuries, which included deep lacerations of the left thigh, right shin, and left hand, a cracked front tooth, bruises to the left arm and ribcage, and a possible pneumothorax (collapsed lung). He was alert and had no obvious broken bones.

There were no other climbers in the area or cell phone reception. The pair had first aid gear and used ace bandages and duct tape to stabilize the bleeding from the lacerations. J.C. determined that he had no immediate life-threatening injuries. Despite pain and a possible pneumothorax, he decided they should attempt a self-rescue instead of B.Y. hiking out for help. They descended the couloir with two single rope 60 meter rappels, with J.C. rappelling and B.Y. down-climbing. J.C. took two prescription pain pills, and they hiked down 2000 feet and a few miles to camp in five hours with periods of rain and hail. J.C. was able to walk slowly without help using trekking poles. Upon reaching camp around 1700, J.C. was too exhausted to hike five more miles to the car. J.C. again assessed his injuries. He was no longer bleeding and was breathing comfortably at rest at 10,000 feet. He decided they should eat, hydrate, sleep, and hike out at first light. B.Y. agreed and they hiked out the next day with B.Y. carrying most of the gear. They arrived at the car three hours later and drove two hours to Mammoth Lakes emergency room, where J.C. was found to have a fractured left rib with a 40% collapse of the left lung. A chest tube was inserted with full re-inflation of the lung. The lacerations on his legs were irrigated and left open for later closure. J.C. was discharged four hours later and drove seven hours home that evening. He was back in the office seeing patients the following afternoon. Four weeks later, J.C. was fully recovered and climbing in Yosemite. (Source: J.C.)

(Editor's Note: We thank Dr. J.C. for submitting this report. He was fortunate to be able to manage his own medical care, and it is commendable that he and B.Y. were able to self-rescue.)

FALL ON ROCK – MISJUDGED PENDULUM

California, Yosemite Valley, El Capitan

At 0545 on July 18, Eric Ruderman (32) and Skiy DeTray (31) started a one-day ascent of the Nose on El Capitan (31 pitches, VI 5.9 C1, per SuperTopo). They were a strong team with several years of experience and over 20 walls

between them and they climbed at a high standard. Typical of fast ascents, they carried one 60-m rope and they “short-fixed”; i.e., after reaching the end of a pitch, the leader pulled up any remaining slack, anchored the rope, and began rope-soloing the next pitch to save time. Meanwhile, the second juggled, and when he reached the anchor he started belaying the leader.

Skiy led the first block of pitches to the base of the Stove Legs. Eric led from there, reaching the top of Boot Flake (top of pitch 16) by 0900. They were on schedule, with no glitches so far. Skiy juggled up to Eric and took over the lead. Eric lowered him out on pitch 17 to attempt the King Swing, a long and tricky pendulum to the left. He made the swing on his first try and pulled himself over to Eagle Ledge.

Of several ways for Eric to follow the pendulum, they had decided that the fastest and most efficient was for Skiy to back-clean; i.e., to remove all his protection behind him as he climbed the remaining 70 feet from Eagle Ledge to the anchor at the top of 17. That way the rope would run free between the anchor at 16—the top of Boot Flake, where Eric waited—and the anchor at 17, giving Eric the highest pendulum point for following the swing. The two anchors are approximately 50 feet apart and at roughly the same level, although out of sight of each other.

Skiy needed rope to begin short-fixing pitch 18 while leaving enough for Eric to lower himself under control across the King Swing. He began pulling rope and yelled over to Eric, “Stop me while you still have enough for the lower out.” Eric looked at his remaining rope and yelled back, “That should do it,” so Skiy anchored the rope and began short-fixing pitch 18, with his Grigri on his harness as a self-belay.

They estimated that Skiy had pulled over 50 feet or more of slack, and since another 50 feet or so stretched back to pitch 16, Eric figured he still had about 100 feet piled at his feet for following the pendulum. He rigged his ascenders on the line and attached them to his harness. He pulled the rope back through them until the line to Skiy’s anchor was tight. The radius of his pendulum was the distance from his ascenders to the anchor at 17, roughly 50 feet. He tied in short to his harness just underneath the ascenders to back them up and left the end of the rope also tied to his harness. The estimated 100 feet of slack rope lay between those two knots.

Eric looked at the distance he needed to go and at the pile of rope available. It looked like plenty, so he grabbed the mid-point of the slack and fed it through a carabiner at his anchor, resulting in a 50-foot bight—a length of doubled rope—on the other side of the carabiner from himself.

He began lowering himself down and across the gap by simply holding on to the doubled rope and feeding it back through the anchor carabiner hand-over-hand. After lowering about 25 feet, he ran out of rope, since half

the bight had fed through to his side of the carabiner and he was now holding the end of the bight, which was still on the other side of the carabiner, in his hands. He knew that if he let go of it, he would swing left, uncontrolled except for friction on the rock and in his system. He looked at the potential swing. A corner blocked his view, but the arc seemed insignificant, so he dropped the rope.

As Skiy—already 15 to 20 feet up pitch 18—watched from above, Eric swung above and past Eagle Ledge and struck a corner farther left with his arm, head, and back. To Skiy the impact didn't seem hard, but Eric was immediately limp, hanging upside down and motionless.

Skiy's yells to Eric brought no response, so he down-climbed to the anchor and rappelled on his slack. Eric was hanging inverted, with the pack contorting him in an awkward position, and bleeding profusely from a laceration on the back of his head. Skiy asked, "Eric are you with me?" But Eric just mumbled. Skiy got the pack off and turned him upright. And at that point, a few minutes after the impact, Eric started to come around. His most prominent complaint was his left wrist—very painful and obviously broken or dislocated. Skiy decided there was not much he could do medically where they were. Despite, or maybe because of, the possibility of internal head and back injuries, moving him 20 feet down to Eagle Ledge seemed better than hanging on the wall.

Skiy rigged Eric's Grigri just below the ascenders, unclipped the backup knot, and had Eric stand in a sling to un-weight the rope so the ascenders could be removed. Each climber was now able to rappel with a Grigri on his own line, except that Eric had only one good hand. Skiy dropped down to Eagle Ledge and controlled the tension on Eric's rope so that Eric only had to operate the lever on his Grigri. The descent was painful, as his wrist hung unsupported. They reached the ledge about 15 minutes after the accident. (Luckily, Skiy had just enough rope left to reach Eagle Ledge without having to build an intermediate anchor.)

Once Eric got securely anchored on the ledge, Skiy stopped the bleeding with his shirt and performed a more thorough head-to-toe exam. Eric's wrist was the most painful injury, but his spine was tender to palpation at the lower border of his rib cage and eventually the pain became excruciating. His neck was not tender and he had normal feeling and movement in both hands and both feet. Skiy fashioned a wrist splint with a pack strap and clothing, which helped ease the pain.

They initially considered the possibility of rappelling the route, but Skiy (a paramedic) and Eric (an EMTB) both realized that the potential for brain and spinal injuries made that option medically unwise as well as physically very difficult and risky; Eric needed to get off the route ASAP.

Skiy had started yelling as soon as they were secure on the ledge, and within 45 minutes a ranger was talking to them by loudspeaker. Skiy was able to convey Eric's condition.

Flying conditions were excellent, so two rescuers were short-hauled directly to Eagle Ledge by helicopter. Eric was immobilized in a litter, short-hauled to El Cap Meadow, and then, three and a half hours after his accident, he was transferred to an air ambulance. At Memorial Medical Center in Modesto he was diagnosed with a fractured 7th rib, contused lungs, a fractured wrist, one broken tooth, and the scalp laceration, but no serious head injury (probably thanks to his helmet). A few months of physical therapy led to a full recovery except for his memory. After letting go of his lower-out rope, the next thing he remembers is bleeding all over Skiy while hanging from his ascenders.

Analysis

In May a very experienced and skilled climber was trying to free climb across the pendulum to Hollow Flake on the Salathé Wall after the leader had made the swing. He had no back-rope, thinking he was low enough and the radius long enough that if he fell he would not build up much speed. He was luckier than Eric, fracturing only his fibula when he struck Hollow Flake.

Why are swinging falls so dangerous? First, if you fall from, say, ten feet to one side of and level with your pivot point, you will have the same speed at the lowest point of your swing as you will falling straight down ten feet, except that you are moving sideways. Second, instead of landing on your feet, with "only" a broken leg, you're apt to strike an obstacle sideways, with high risk of life-threatening injuries to your head, neck, chest, and pelvis. If you're lucky you'll be able to extend (and sacrifice) an arm or a leg to absorb the blow, but don't bet on it because you may be spinning out of control. This is a severe example, but significant risk remains even if you've already lowered partway, as Eric discovered.

Why is the danger misjudged? In addition to not realizing the physics involved, maybe it's because we're born with a fear of heights, so a ledge ten feet below us seems farther away and more dangerous than a corner ten feet to the side. Maybe looking across the swing just doesn't produce the same shivers as looking down. This effect is not confined to neophytes, as the case at hand illustrates.

Prevention: Maximize the rope available to the follower. Eric could have extended his rope by untying the end from his harness (while staying tied in short) and passing the single strand, instead of the bight, through the lower-out carabiner. Skiy also suggests not short-fixing that pitch at all—at the cost of only a few minutes—to give all the rope to the second. A

third option is a second rope, which has many other uses in an emergency, including the ability to descend El Cap routes anchor-to-anchor.

Eric said, “We were shooting for a one-day ascent, but my decision wasn’t due to haste, and I definitely wanted to be safe. The distance across seemed short, and I thought I had enough rope to just put the bight through the let-out biner. I never even thought about untying the end from my harness for more distance. Even when I ran out of rope partway across, I consciously estimated the swing would only be 10-20 feet. When I let go I was confident and I remember thinking, ‘I can run this out’. I just made a mistake in judging the swing.”

Finally, Skiy made this medical observation: “I learned that I don’t want to position myself below a heavily bleeding patient!” (Source: Eric Ruderman, Skiy DeTray, and John Dill, NPS Ranger, Yosemite National Park)

FALL ON ROCK, PROTECTION PULLED OUT, NO HELMET

California, Yosemite Valley, Church Bowl

On August 31, Tomoki Shibata (22) led Church Bowl Tree, a 5.10b crack, belayed by Hiroki Kishi. Shibata left his helmet at the base of the climb because the route was only one pitch long. From the ground up, in this order, he placed a camming device, another cam, a stopper, and a third cam. The stopper dislodged as he was climbing.

Details are sketchy, but when the stopper fell out, Shibata apparently realized that a single piece stood between him and the ground, and we think he decided to go for the bolt anchor several feet above. His feet were about 40 feet above the ground when his left hand-jam slipped out and he fell. His top piece pulled out under the force of the fall; he hit the ground on his feet and then tumbled over. The rope came tight just as he hit, absorbing some of the energy of the fall.

Shibata was carried 100 yards to the ambulance, examined at the Yosemite Medical Clinic, and released after treatment for a head laceration, a fractured right wrist, and a fractured left thumb.

Analysis

Shibata had four years climbing experience, mostly on bolted face climbs up to 5.11a. He had been climbing cracks and traditional routes (placing protection on the lead) for about six months prior to the accident. Church Bowl Tree, a popular, accessible, and relatively difficult climb, is fairly easy to protect, yet it has been the scene of various miscalculations and ground falls. Belayers should watch for these situations on any climb and not be afraid to encourage inexperienced leaders to protect conservatively. If not sure of a placement, double it up. (Source: Aaron Smith and John Dill, NPS Rangers, Yosemite National Park)