

The British underestimated Denali by trying for the top from 5000 meters with their limited acclimatization. Spending several extra days at a high camp would have made a quicker and safer ascent to the summit. (Source: Roger Robinson, Mountaineering Ranger, Denali National Park)

FROSTBITE, DEHYDRATION, AMS, WEATHER

Alaska, Mount McKinley

On May 3, 1989, the Seoul National University Alpine Association expedition, a party of five Korean climbers, flew to Kahiltna base camp to begin a climb of the Cassin Ridge on Mount McKinley. They went directly onto the route rather than acclimatize on the West Buttress first. On the 24th Ku-Taek Shin (22) became sick and was sick for the next five days. The group made it to 5200 meters on the Cassin on the 26th. Shin developed frostbite. He was wearing Koflach Vario Ultra (plastic double) boots with a woolen Loden liner, no vapor barrier liner socks and Berghaus Supergaiters; on his hands he was wearing an insulated shell over a pair of gloves. His susceptibility to cold injury was probably compounded by his illness (possibly AMS) and attendant dehydration. He and his party continued on to the summit on the 28th and descended the West Buttress, spending the night at Denali Pass. On the 29th the entire party descended to the medical camp. Shin was examined by doctors there at 2030 and he was found to have frozen fingers on both hands. This deep frostbite extended to the first PIP joint. Shin had deep frostbite on his left foot to the MTP joint. His right foot showed mild to moderate frostbite on the distal tips of the toes.

Treatment consisted of rapid rewarming of Shin's hands and feet in an antiseptic bath. He was given 1 1/2 liters of fluids intravenously for dehydration and was put on oxygen overnight. Shin was given Motrin four times a day to improve his circulation. He was re-evaluated in the morning. Conditions were poor for evacuation from the 29th through the 31st. By June 1, weather had still not improved, so Shin's party began sledding him to base camp. They took him to the Northeast Fork at 2300 meters where they waited for two days for a break in the weather so they could recover a cache in the Northeast Fork. Weather did not improve, so Shin's party recovered the cache and moved their camp to Kahiltna base camp on June 3. Weather did not clear up until the evening of the 5th when Jay Hudson flew Shin and his party to Talkeetna, continuing on to Providence Hospital at 2330. He was examined there and was scheduled to remain for observation and surgery, but he and his team all returned to Korea the next day. Based on the demarcation of dark coloration and the appearance of necrotic tissue, the prognosis was that Shin would lose eight fingers and five toes. (Source: Ralph Moore, Mountaineering Ranger, Denali National Park)

Analysis

Overboots would have provided more protection against the cold than did supergaiters, as would have vapor barrier socks and Aveolite liners. Once Shin became sick, it became imperative that he drink large quantities of liquids, which was not done. Shin's probable AMS, compounded by his dehydration, contributed to his cold injury.

Prolonged bad weather hampered Shin's evacuation for a week. Although his party got him to the medical camp on the West Buttress and sledded him down themselves, they delayed transporting Shin out to the lower base camp while they waited for weather to clear at the Northeast Fork so they could recover their cache. It would have

been better to continue out with Shin and then go back and get the cache, or to split the party so that Shin could be sledged out while his friends went to get the cache. (Source: Ralph Moore, Mountaineering Ranger, Denali National Park)

WEATHER, INADEQUATE PROTECTION—TENT VS. SNOW CAVE, AND CLOTHING

Alaska, Mount McKinley

On May 27, 1989, three members of a guided expedition on Mount McKinley were blown off the West Buttress from a camp near 5200 meters while resting inside their tent. One occupant of the tent, Assistant Guide John Richards, was freed from the tent as it began to slide. The two other occupants, Jim Johnson (46) and Howard Tuthill (31) fell to a ledge at the lip of a bergschrund 300 vertical meters down the ice slope. The two climbers were stabilized by another climbing party who descended to them. The climbers were evacuated by helicopter from the ice ledge the following afternoon during a weather window. (Source: James Litch, Mountaineering Ranger, Denali National Park)

Analysis

Dave Staeheli (Genet Guide) and his group did not have the energy to continue to 5200 meters as they had planned on May 25 when they moved up after six nights at 4300 meters. Winds prohibited movement the following morning; however, the party was able to do a carry to 5200 meters in the afternoon. On May 27, the party was again unable to move due to a third day of high winds at this site. During the afternoon a gust of wind had snapped one of the tent's poles and was repaired with an aluminum pole sleeve. Although efforts were made during this period to better anchor the tent, the marginal snow walls were not improved.

The tent, a North Face Pole Sleeve Oval, was tied to 12 different anchors, including five stakes, four ice axes, two pickets and one fluke. The snow walls were under a meter tall and only constructed around half of the tent. The tent was reported to tear away from the anchors like a zipper as the tent rotated, and finally popping from the site as the remaining anchors failed. The anchors on the guy lines were still in place, each holding a guy line and a grommet ripped from the tent fabric. The two main rear anchors, a picket and a fluke were still in place. The picket was bent at approximately a 20-degree angle along the longitudinal axis and was slightly twisted. The tent could not be retrieved to investigate the floor attachment loops.

Although tents frequently collapse due to high winds on Denali, this is the first report of an occupied tent being blown away in which the tent had pulled away from all of the anchors. The route along the West Buttress from 4100 to 5200 meters is very exposed to the wind. The camp at 5000 meters is just large enough for three tents, but is particularly wind-blown. Tents must be well-anchored and protected by strong snow walls that are as tall as the tent and surround it completely. Snow caves are the only alternative for assuring a good night's sleep along this ridge, other than continuing along to the 5200 meter camp and digging in there.

Had occupants in the tents dressed as a precaution during tent stays when exposed to extremely high winds, they would have been far better off in dealing with their exposure and eventual evacuation. (Source: James Litch, Mountaineering Ranger, Denali National Park)