



CEREBRAL VENOUS SINUS THROMBOSIS MASQUERADING AS HIGH ALTITUDE CEREBRAL EDEMA AT EXTREME ALTITUDE

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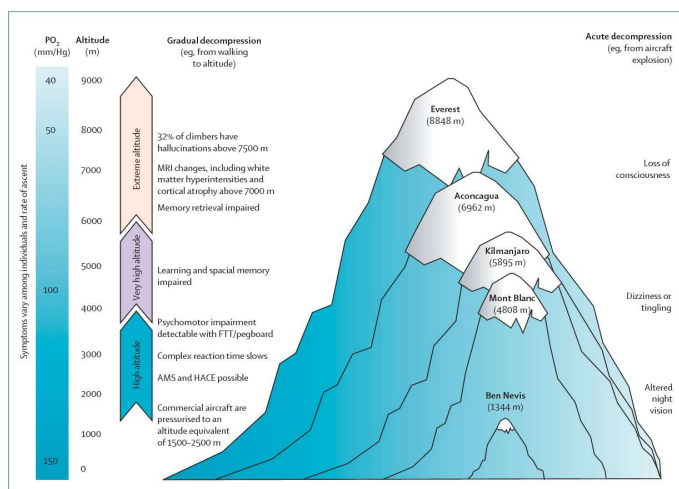
INTRODUCTION

- Cerebral venous sinus thrombosis (CVST) at extreme altitude is a rare and covert illness requiring immediate intervention
- The annual incidence estimates of CVST are 3-4 cases per million with a female: male preponderance ratio of 1.29:1
- CVST may masquerade as high altitude cerebral edema (HACE)
- Extreme altitude, defined as an altitude above 5500 m/18000 ft

PATIENT'S DETAILS

- A 38-year-old healthy married male had no problems on ascent from 2740 m/9000 ft to 5790 m/19000 ft.
- Monitored Staged-graded acclimatization schedule, Karakoram Himalayas in December.
- Acclimatizing for four more days at 5790 m/19000 ft,
- He ascended to 6700 m/22000 ft in a single day.
- The ascent was a challenging climb over a 700 m high ice wall with a 60 to 70 degree incline punctuated by two crevasses.
- Twelve hours after reaching the altitude of 6700 m/22000 ft, the climber complained of mild headache over the frontal region and general discomfort.
- A paramedic present at 6700 m/22000 ft reported his condition
- Hand-held radio communication device was used
- The medical doctor was at 5790 m/19000 ft.
- Preliminary examination revealed a normal temperature, hypertension, tachycardia, and tachypnea.
- Acute mountain sickness (AMS) was expectedly suspected.
- Rest at the same altitude, plenty of fluids, acetaminophen 500 mg, and acetazolamide 250 mg were initiated
- The patient reported improvement in his headache and went to sleep
- The next morning he complained of a mild to moderate frontal and central headache, discomfort, and lassitude.
- He was offered supervised portable altitude chamber (PAC) nursing for one hour along with acetaminophen and acetazolamide.
- There was transient improvement with rebound headache, tachycardia, tachypnea, and hypertension after a few hours.
- Severe AMS was suspected and PAC nursing was offered the second time for 2 hours with a 10-minute break in between.
- HACE was suspected. Immediate descent was planned from
- 6700 m/22000 ft to 5790 m/19000 ft.

- He had altered consciousness, feeble pulse and respiration with oxygen saturation 65%.
- Blood pressure could not be recorded.
- He was offered passive rewarming: warm crystalloids and dexamethasone 8 mg.
- Oxygen and inotropes were not available.
- His condition deteriorated further leading to his demise despite aggressive resuscitative efforts.
- Post-mortem investigations revealed superior sagittal sinus thrombosis delineating the development of CVST at extreme altitude.



DISCUSSION AND CONCLUSION

- Fatigue, dehydration, and hypoglycemia can coexist with AMS, HACE, AHCD, and CVST
- CVST is not only rare, but it is also a diagnostic and therapeutic challenge in extreme altitude.
- Prolonged hypobaric hypoxia and anoxia at extreme altitude can precipitate thrombosis through capillary damage.
- Haematological alteration leads to increased viscosity due to secondary polycythemia, and a hypercoagulable state,
- Death is attributable to herniation caused by mass effect in CVST.
- Extreme altitude stressors such as hypoxia, cold, terrain, weather, and logistics are deterministic for diagnosis, management, and prognosis
- Astute prudence needs to be exercised at extreme altitude where over-diagnosing and erring on the safe side are likely to be beneficial.

REFERENCES

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