Decompression Illness with Extensive Gas Bubble Formation

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A 32-year-old man presented with unconsciousness after diving. He had surfaced from a 50-meter depth of water within 10 minutes and his consciousness later became disturbed. On arrival, an examination revealed the cutaneous finding of livedo reticularis (Picture 1) and hyperhemoglobinemia (Hb: 21.8 g/dL). An endotracheal tube was inserted and whole-body computed tomography performed to examine possible injuries revealed generalized extensive gas bubble formation in the brain parenchyma, the right subclavian, portal and bilateral femoral veins and the hip joint spaces (Picture 2, arrows). Despite supplying 100% oxygen and arranging for hyperbaric oxygen therapy, the patient died before the start of the hyperbaric oxygen therapy.

Type II (severe form) decompression illness is character-
ized by pulmonary and neurologic defects caused by arterial and venous gas embolisms resulting from the direct transit of inert gas into the circulation. It also leads to endothelial leakage and hyperhemoglobinemia due to hemoconcentration (1). The dramatic imaging findings of decompression illness have been so far been rarely reported.

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Reference