



Lyme Disease Developing During Hyperbaric Oxygen Treatments



J. Ptak, S. Reetz, J. Buckey

Center for Hyperbaric Medicine at Dartmouth-Hitchcock Medical Center, Lebanon, NH
Geisel School of Medicine at Dartmouth, Lebanon, NH

Background

- Lyme disease (LD) is the most common vector-borne disease in the United States and is endemic in the Northeast.
- LD is caused by the spirochete, *Borrelia burgdorferi*.
- *Borrelia burgdorferi* is transmitted by the *Ixodes scapularis* (black legged/deer) tick. The tick must be attached for at least 36 hours to transmit the infection.
- Incubation period ranges from 3 to 30 days, with 7 to 10 days being the usual incubation period.
- Hyperbaric Oxygen Treatments (HBOT) have been recommended by some as treatment for both acute & chronic Lyme Disease.
- One presumed mechanism is that hyperbaric oxygen prevents the growth of, or is toxic to, *Borrelia burgdorferi*.
- Our center is located in an area that has been classified by the CDC as a high incidence state for LD (52 reported cases of LD per 100,000 people in 2016). Because of this we are more likely than many centers to have a patient develop LD during treatment.

Case Report

- 77 yo man receiving HBOT for radiation cystitis.
- On arrival for his 29th HBOT he asked the staff to look at a rash that had developed at the site where he had removed a tick 10 days earlier. The tick was removed after his 20th HBOT. After removing the tick, he had 8, 90-minute HBOTs at 2.4 ATA prior to onset of the rash.
- The rash was the classic *Erythema Migrans* (bulls eye) rash.
- He was seen by his PCP who diagnosed LD and he was treated with doxycycline.
- The case is unique because the patient was undergoing HBOT when he had the tick bite and during the development of the infection.

Discussion

- The tick bite and development of LD clearly occurred during the course of HBOTs.
- Although this is a single case, the fact that the patient developed LD during HBOT does not support the hypothesis that HBOT prevents LD.

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Borrelia burgdorferi



Ixodes scapularis
(black legged/deer) tick



Erythema migrans rash



Photos from Centers for Disease Control and Prevention.

