Differential Diagnosis

The Diver

This is a 51-year-old female who is in good health. In the past year, she had two vertebrae in her neck (cervical vertebrae 5 and 6) fused in a surgery known as a laminectomy. She has a history of occasional migraine headaches and a recent episode of sinus congestion for which she was taking an over-the-counter decongestant; she offers no other physical or medical complaints. She is an infrequent diver, with one vacation dive trip almost every year.

The Dives

On the fifth day of her vacation, she made two dives; she had taken the previous day off for rest and sightseeing. The diver started the day with a multilevel profile to 70 fsw (feet of seawater / 21 msw, or meters of seawater) for one hour and 15 minutes, followed by a one-hour surface interval. She then made a second multilevel dive to 70 fsw for approximately one hour. This final dive included a five-minute safety stop at 15 fsw (4.5 msw).

She made the dives with no incidents, but she did mention she was quite chilled during the last portion of each dive. More than half of each dive was spent at depths shallower than 70 fsw.

The Complications

The diver finished both dives at 1 p.m. Shortly afterward, she experienced the gradual onset of fatigue that seemed excessive since her dives were not strenuous. She also noted a headache that she described as located on both sides of her head, not like the migraines or other headaches she has previously had. She returned to her hotel, which was located at 2,500 feet (762 meters) above sea level, and took a nap that lasted an hour and a half. Besides the persistent fatigue, she said she felt "out of it" that evening. She was in bed by 8 p.m. that night and slept throughout the night, which she noted was not her normal habit.

She awoke the following morning with the same fatigue and mental sluggishness. As the day progressed, she developed intermittent knee pain; it continued for a while and then subsided altogether. Although her headache had become less intense after she had slept through the night, it became worse during the evening of the following day. She said it felt like she was getting the flu or a head cold. Because of her unusual and ongoing symptoms, her dive partner called DAN that evening. At this point she denied having any other joint aches, pains, numbness, tingling or weakness.

The Treatment

DAN gave the diver a referral to the local hospital for two main reasons:

- Because it is difficult to evaluate such symptoms over the telephone; and
- Mixed or vague symptoms after diving should be evaluated by a medical professional.

After evaluation by a physician, she was diagnosed as having a viral illness (flu) and given decongestants and a pain reliever for her headache.

The Outcome

On examination, the diver's congestion, which she began her dives with, had neither worsened nor cleared. She did not have a fever at any time during her post-dive illness, and her symptoms gradually resolved over the next three to four days. The diver's symptoms resembled decompression illness (DCI), but they were also not unlike a viral syndrome. According to the diver, the evaluating practitioner did not consider her recent dives as part of the diagnosis.

Discussion

How many divers would consider these symptoms as due possibly to DCI? Would they think instead that these discomforts were simply related to a long and busy vacation week that began with a previous case of sinus congestion? Chances are, most divers would do the same thing this diver did: take a nap, eat dinner, go to bed early and sleep it off, then call DAN if it didn't get better. This is a diagnostic problem many physicians face. Bilateral temporal area headaches, intermittent knee pain, excessive fatigue and an "out of it" mental status after diving are consistent with, but not proof of, DCI. The dilemma for physicians is knowing when ambiguous symptoms are related to the dive profile and therefore possible DCI, or whether they can be attributed to any other health problem. Pain is the most common initial symptom in DCI and should be evaluated thoroughly. Intermittent joint pain is common to exercise – including scuba diving – when someone uses muscles in a different way than normal daily activities.

Generally speaking, DCI bubbles exert a constant pressure, so tissue disruption and pain with DCI are not as likely to be intermittent. Such pain due to DCI does not usually change with positioning or manipulation and is often referred to as "different" or "unusual." Most individuals have had an episode of the flu, so the aches and pains associated with a viral illness are more familiar. Viral-related joint pain and general aches can be constant and increase with activity. It is easy to see that differentiating between these types of pain can be difficult. The bilateral headache could easily be attributed to sinus barotrauma, possibly from diving with preexisting sinus congestion. This headache was described as being different from any headache she had ever experienced, which made it suspicious, but not necessarily due to DCI. In the DAN DCI case data, headache has appeared as a symptom between 10 and 20 percent of the time.

Changes in mental status are hard to define unless they manifest as major signs, such as loss of consciousness, seizure, or inability to communicate with other individuals. These maladies should be easily recognizable by all divers as a sign of mental impairment and possibly related to DCI. Feeling "out of it" is a subjective symptom and difficult to quantify. In general, most DCI symptoms (60 percent) will occur within two hours minutes of a dive. In this case, the evaluating physician felt that this diver's symptoms were due to a viral infection: she felt a little better each day for three days and had no return of symptoms. Such ambiguous cases are reported to DAN every week, and we do our best to help medical practitioners sort out all of the details of the diving and symptom history.

Divers need to be suspicious of any symptom that occurs after a dive. While you're diving, make a mental note about anything unusual that occurs or any unusual symptoms you experience during the dive or afterward. Let your buddy know what's going on, and when you're topside, get a second opinion. And remember, symptoms can take up to 24 hours to develop. Get started early: call DAN as soon as you become suspicious. Finally, think about how you are diving: if you're trying to get maximum bottom time out of your tank, you should compensate with other safety factors. The simplest and most effective strategies are decrease your depths and increase surface interval times.