**Case Report**

A 66-year-old elderly man was admitted to Franco-Vietnamese Hospital in Ho Chi Minh City, Vietnam because of fever and sudden onset of weakness and paresthesia of the bilateral upper and lower extremities. The results of spinal magnetic resonance imaging disclosed an epidural process on the posterior side of the vertebral body at C6–C7, compressing the spine with an ischemic signal on the spinal cord. Just before the medical evacuation, right leg deep venous thrombosis (DVT) developed but with no sign of pulmonary embolism. The evacuation was postponed, and he was treated with 7 days of low molecular weight heparin. The results of the ultrasound Doppler follow-up revealed no thrombosis in the right femoral vein. The aeromedical evacuation was arranged by the Family Medical Practice group in Ho Chi Minh City, Vietnam, and he was transferred to Taipei Medical University–Municipal Wan Fang Hospital in Taipei, Taiwan.

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Hospital on March 22, 2007 via a commercial airline. The patient received antituberculous medication upon admission, because the medical team suspected that his lesion in the cervical spine might be tuberculosis spondylitis (TB spine). After admission, the results of his complete blood count revealed only mild normocytic anemia, and blood biochemistry showed mildly elevated lactate dehydrogenase (233 U/L) and uric acid (8.8 mg/dL). Findings of the examination of the cerebral spinal fluid (CSF) showed elevated white blood cells (46/µL) with lymphocyte predominance (100%), mildly elevated total protein (46.4 mg/dL), but normal glucose level (42 mg/dL). The CSF findings were negative for Cryptococcus antigen, acid-fast stain, Indian ink stain, and polymerase chain reaction (PCR) for tuberculous bacteria. The patient received cervical spine surgery because of persistent neck pain and for fear of cervical spine instability. His quadriplegic condition did not improve after the surgery because of prolonged spine ischemia. The results of biopsy of the cervical spine revealed no sign of malignancy, with only focal inflamed granulation tissue with acute and chronic inflammatory cell infiltration. But adenocarcinoma of the prostate (Gleason score, 3+3=6) was diagnosed incidentally, upon finding of mildly elevated prostate specific antigen level. He received bilateral orchectomy and radiotherapy. He eventually returned to Vietnam to be with his family.

Discussion

The advance in air ambulance system is an important development in medicine in the 20th century. The aeromedical evacuation industry has grown in these few years, partly because people who are advanced in age or have underlying medical conditions are traveling to regions where road accidents and infectious diseases are endemic but dependable medical care is unavailable. When an attending physician decides that his patient’s medical needs surpass the available resources of the local medical system, he can aeromedically evacuate the patient through an international evacuation company or contact a global assistance company in the region. The global assistance company is often used and usually transports patients by commercial airlines. Our patient was transported via a global company, which coordinated the transportation plans through a medical director and evacuated using a commercial airline.

The patient received a preflight evaluation, which showed that he had a DVT of his right leg but no sign of pulmonary embolism. His evacuation was postponed because of concerns of him developing pulmonary embolism during the flight. The development of DVT and pulmonary embolism is related to long flights, but the flight time from Vietnam to Taiwan was short (around 3 hours). Since the patient was immobilized because of the cervical spine injury, he was at high risk for the development or worsening of DVT during the flight. He was evacuated using a commercial airline, after treatment with low-molecular-weight heparin. A physician and a nurse accompanied him on board the flight. Physicians are often included in international evacuation because of possible additional medical complications when retrieving a patient. Despite the patient’s multiple medical problems, he tolerated the flight well and sat in the business class seat without a stretcher. He required no special machineries, such as a ventilator, and needed only a neck collar to protect his cervical spine, intravenous access, and equipments for measuring vital signs.

TB spine is the most common form of skeletal tuberculosis. Our patient showed only laboratory abnormality with elevated white blood cells, lymphocytes being predominant, in the CSF, but the tuberculous culture and PCR analysis showed negative results. The patient received whole body tumor scan (67Ga, mCi) and whole body bone scan ($^{99m}$Tc MDP, 25 mCi) without showing abnormal results. According to a report by Alothman et al., the TB spine had backache (84%), fever (32%), and paraparesis (28%) as the most common symptoms, and spinal tenderness was the most frequent sign (45%). The findings of tissue aspirates had a yield of 70%, 35%, and 57% for granulomas, acid-fast bacilli smear, and culture, respectively. Except for the elevated sedimentation rate (94.5%), the laboratory workup for TB spine was not helpful. Both computed tomography and magnetic resonance imaging were found to be helpful in the diagnosis, often with complementary information. Our patient received surgery of the cervical spine to obtain a diagnostic biopsy specimen and stabilize the cervical spine, which is in accordance with the suggestion of the Medical Research Council. Although findings of the biopsy revealed only granulation tissue with acute and chronic inflammatory cell infiltration, his clinical condition still favored the diagnosis of tuberculous infection. The treatment duration for TB spine is not clear-cut. The current guideline of the British
Thoracic Society recommends a 6-month treatment for adults\textsuperscript{10}, but the American Thoracic Society recommends 6–9 months\textsuperscript{11}.

All forms of aeromedical transportation are expensive, and many domestic insurance policies will not cover the cost. However, early transportation from private hospitals to nations with socialized health systems can neutralize the transport-related costs of the insurer\textsuperscript{4}. Aeromedical evacuations in Vietnam usually involve transporting patients to hospitals in Singapore and Bangkok, Thailand. This is the first attempt for the Family Medical Practice group to get a patient transferred to Taiwan. The flight time from Vietnam to Taiwan (2½ to 3 hours) is not much longer than from Singapore or Thailand (1 to 2 hours), and the medical facilities in Taiwan are equivalent to if not better than those in the two countries at a greater economic cost. Therefore, aeromedical evacuation to Taiwan is definitely an advisable option in the future.

References