Case Report

A Case of Syncope Induced in the Supine Position

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We experienced a reproducible supine syncope followed by upper abdominal pain. A 66-year-old man was transferred to our hospital after an episode of syncope during sleep. He had a history of acute pancreatitis, diabetes, hypertension, and dyslipidemia, but no history of presyncopal attack. One night, his wife noticed he was snoring abnormally in bed, and he did not respond to her voice until after she tried many times to wake him. The same attack was reproduced three times in the same situation. One of the attacks was recorded under a continuous ECG and radial tonometry. In this case, a presyncopal attack and a sense of ill-feeling were provoked by the patient lying in a prolonged supine position. He was eventually diagnosed as metastatic liver tumor 5 months after the first attack. Because few cases of syncope attack have been reported in the supine position, its underlying mechanisms deserve consideration.

1. Case Presentation

A 66-year-old man was transferred to our hospital on February 29, 2009, after an episode of syncope during sleep. He had a history of acute pancreatitis at the age of 25, and diabetes, hypertension, and dyslipidemia from his early 60s. On February 27, 2008, at 10:15 PM, his wife noticed he was snoring abnormally in bed, and he did not respond to her voice until after she tried many times to wake him. When the paramedic examined him at home, his consciousness level was JCS II-20 and his BP 109/70 mmHg. His BP recovered to 121/71 mmHg in the ambulance. Upon his arrival at the emergency room, there were no particular findings to cause syncope, but he was found to have a thoracic aortic aneurism and bilateral peripheral artery disease.

According to his wife, he had experienced presyncopal episodes several times in the supine position recently. There were severe stenotic lesions of bilateral iliac arteries, and he was scheduled to receive percutaneous transluminal angioplasty. After admission, when he lay in the supine position for 10 min for a baroreflex function test, he experienced a sense of upper abdominal pressure, which developed into

hypotension, a cold sweat, and an unpleasant feeling. During a physical exam, his face was pale, he was yawning, and he was generally sweating. His BP could not be measured, but his pulse was 60 and there was tenderness in the upper abdomen. He felt better after sitting up, but he was then admitted to our hospital. A 24-hour Holter ECG presented no findings to cause syncope, and echocardiography was normal except for mild LVH. During the hospitalization, a gastric fibroscope was performed but only superficial gastritis was found. Abdominal CT and echo showed no abnormal findings at that point. The syncope and its attendant symptoms were fully reproduced on three separate occasions when he was in the supine position (Figure 1). However, we could not detect any cause of upper abdominal pain or subsequent presyncope during his hospitalization. On July 3, 2009, he revisited the clinic with similar complaints, which had developed to include right lateral voluntary abdominal pain with a sense of chest filling. Chest-enhanced CT showed multiple metastatic tumors in the liver (Figure 2) originating from a small-cell carcinoma in the lung (cT4, N3, M1, stage IV). He was transferred to the respiratory department and received chemotherapy. He partially responded to the

FIGURE 1

FIGURE 2

therapy but died on February 1. We did not perform an autopsy because his condition changed very much since he first visited the hospital.

2. Discussion

We experienced a reproducible supine syncope followed by upper abdominal pain. In this case, a presyncopal attack and a sense of ill-feeling were provoked by the patient lying in a prolonged supine position. The same attack was reproduced three times in the same situation. One of the attacks

was recorded under a continuous ECG and radial tonometry. Because few cases of syncopal attack have been reported in the supine position [1, 2], its underlying mechanisms deserve consideration. Neurally mediated syncope is induced in a standing position such as in the head-up tilt test. The principal mechanism of syncope is a lack of central and peripheral vasoconstriction against gravity with venous pooling. Therefore, syncope attack is easily resolved by placing the patient in the supine position. On the other hand, vasovagal fainting can be induced by various circumstances, such as an unpleasant sight, emotional upset, unanticipated pain, venipuncture, prolonged upright posture, and excessive heat or dehydration [3]. Marrison and Parry reported an interesting case in which NMS was observed in the supine position at night. In that case, GERD was provoked by food intake at night, which caused upper abdominal pain and psychological stress, resulting in vasovagal syncope [2]. Iskos et al. reported a case with a systemic disease; just after the patient lay supine in the head-up tilt test, a syncope attack developed [1]. Unlike these reports, in the present case the patient had had diabetes, hypertension, dyslipidemia, and peripheral artery disease, but there had been no definitive trigger of upper abdominal pain, such as gastrointestinal tract disease or tumors.

The cause of the pain could have been related to occult metastatic liver tumor before it was detected by contrast CT. To the best of our knowledge, there are only two reports of three cases of supine syncope, each of which had a complex medical history, such as Hodgkin's disease in the first case of Iskos's report [1], systemic lupus erythematosus complicated by arthritis, renal insufficiency, and anemia in the second case of Iskos's report [1], and atrial fibrillation, hypogonadism, osteoporosis, and arthritis in the third case [2].

Although rare, supine syncope could be a precursor of critical diseases, and thus careful followup is needed for this condition.

In the present case, metastatic liver disease was found 5 months after the patient's first ER visit, but no tumor was found at that time. There is a report that paraneoplastic syndrome (PNS), accompanied by small-cell carcinoma, induced NMS [4]. With regard to PNS, neurological symptoms such as Lambert-Eaton myasthenic syndrome and encephalomyelitis would be possible, but NMS is the least possible manifestation of PNS [5]. Therefore, a possible explanation would be a tumor microinvasion at the liver that was undetectable by CT scan presented at the liver membrane and caused the pain. Namely, NMS with the patient in the supine position could have been an alarm of the pain of small-cell carcinoma. In conclusion, what we learned from this case would be that a careful malignancy survey is important when we see a rare case of autonomic neuropathy.

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