Case Report

http://dx.doi.org/10.3349/ymj.2013.54.3.788
pISSN: 0513-5796, eISSN: 1976-2437

Yonsei Med J 54(3):788-790, 2013

YMJ

Cardiac Tamponade Complicated by Acupuncture: Hemopericardium due to Shredded Coronary Artery Injury

Ae-Young Her,[1] Yong Hoon Kim,[1] Se-Min Ryu,[2] and Jun Hwi Cho[3]

[1]Division of Cardiology, Department of Internal Medicine, Departments of [2]Thoracic and Cardiovascular Surgery, and [3]Emergency Medicine, School of Medicine, Kangwon National University, Chuncheon, Korea.

Received: May 25, 2012
Revised: June 7, 2012
Accepted: June 12, 2012
Corresponding author: Dr. Yong Hoon Kim,
Division of Cardiology,
Department of Internal Medicine,
School of Medicine,
Kangwon National University,
156 Baengnyeong-ro,
Chuncheon 200-722, Korea.
Tel: 82-33-258-9168, Fax: 82-33-258-2432
E-mail: yhkim02@kangwon.ac.kr

· The authors have no financial conflicts of interest.

We report a case of 62-year-old man with cardiac tamponade due to coronary artery injury after acupuncture into the substernum. After resuscitation of cardiac arrest, we performed emergent pericardiocentesis. Nevertheless, the cardiac arrest recurred, and the emergent operation on cardiopulmonary bypass was performed. We identified hemopericardium due to shredded acute marginal branch of right coronary artery, and it was ligated leading to termination of bleeding. The patient was discharged without any other complications.

Key Words: Cardiac tamponade, acupuncture, coronary artery

INTRODUCTION

Acupuncture therapy has been known as a clinically effective remedy, especially in the East. Unexpectedly, it is being used by 200 million people worldwide each year.[1] It is a relatively safe procedure, with rates of serious adverse effects estimated to be 0.05 per 10000 treatments, or about 0.55 per 10000 patients undergoing acupuncture.[2] However, tissue trauma and organ failure are possible complications when the acupuncture needle penetrates a vital organ.[3] Acupuncture-related cardiac tamponade is an extremely rare but serious life-threatening adverse event. We report a case of 62-year-old man with cardiac tamponade after acupuncture into the substernal area. To the best of our knowledge, this case is the first report that the acupuncture treatment developed coronary artery injury.

CASE REPORT

A 62-year-old man visited our hospital emergency room with dizziness and diaphoresis. He received an acupuncture treatment on the subxyphoid area (lower 2 cm and left 1 cm point from the lower xyphoid process border) directly an hour ago because of facial numbness. He had a history of cerebral infarction and permanent atrial fibrillation on warfarinization (2 mg warfarin per day). Surprisingly, the acupuncture needle (Fig. 1) was still sticking into his substernum. The initial vital signs were blood pressure of 80/50 mm Hg and heart rate of 110 beats/min. We in-

stantly removed the needle, but he went into cardiac arrest and was rescued within 10 minutes after cardiopulmonary resuscitation. At that time his prothrombin time international normalized ratio was 1.99, therefore, we administered 2 pints of fresh frozen plasma and 5 mg of vitamin K. The transthoracic echocardiography revealed pericardial effusion with early diastolic collapse of the right ventricle. We performed emergent pericardiocentesis using a subcostal approach. After drainage of 500 mL of sanguineous effusion, the patient stabilized hemodynamically. Two hours later, however, the drainage of pericardial effusion persisted up to the total amount of 1000 mL, and the cardiac arrest redeveloped. After resuscitation, an emergent operation was performed under cardiopulmonary bypass (CPB). A median sternotomy allowed visualization of huge hematomas over right atrium and ventricle (Fig. 2A). After we evacuated the hematomas, a pumping of acute marginal branch of the right coronary artery was identified. The vessel was torn into pieces, and it was ligated with 4-0 Prolene suture, thereby leading to termination of bleeding (Fig. 2B). The aortic cross clamp time was 25 minutes and CPB time was 45 minutes. Thereafter, the patient showed hemodynamically stable vital signs and uneventful condition. Finally he was discharged without any complications.

DISCUSSION

Acupuncture is the treatment of a patient's illness or pain by sticking of a needle into skin and underlying tissues at certain places.[4] It is known to the public as a safe and effective treatment. Even in western conuntries, the previous survey found that 12.1% of individuals had visited a complementary and alternative medicine practitioner in just one year and 44% had experienced complementary medicine treatment for all their life.[5] Acupuncture is generally thought to be a safe procedure, but recent systematic review revealed that many complications are caused by acupuncture and continue to increase more than generally appreciated.[6] Although the development of cardiac tamponade is considered to be a rare adverse event, the penetrating cardiac injury develops a life-threatening conditions, since elevated intrapericardial pressure compromises systemic venous return to the right atrium, leading to extreme cardiovascular shock.[7]

We reported herein a fatal cardiac tamponade in a 62-year-old man that occurred after acupuncture into the bottom of xyphoid process. To our best knowledge, this appears to be the first case of an acupuncture-related coronary artery injury. The important causes of this unfortunate adverse event are a lack of anatomic knowledge and an incorrect application of the procedure. It can be avoided that acupuncture leads to cardiac tamponade like most serious complications.[8] We conclude that every acupuncturist should be aware of the possible and life-threatening adverse events and be adequately trained to prevent them.

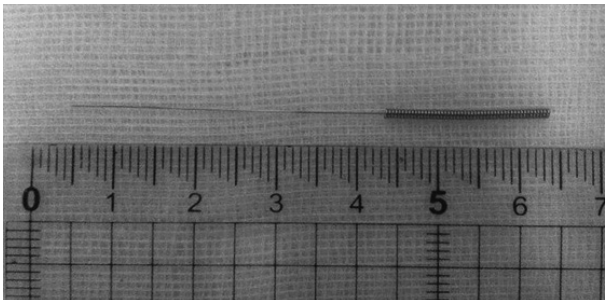

Fig. 1. This figure showed the acupuncture needle inserted into the bottom of xyphoid process. This was made of stainless steel and its size was about 6 cm long and 0.1 cm in diameter.

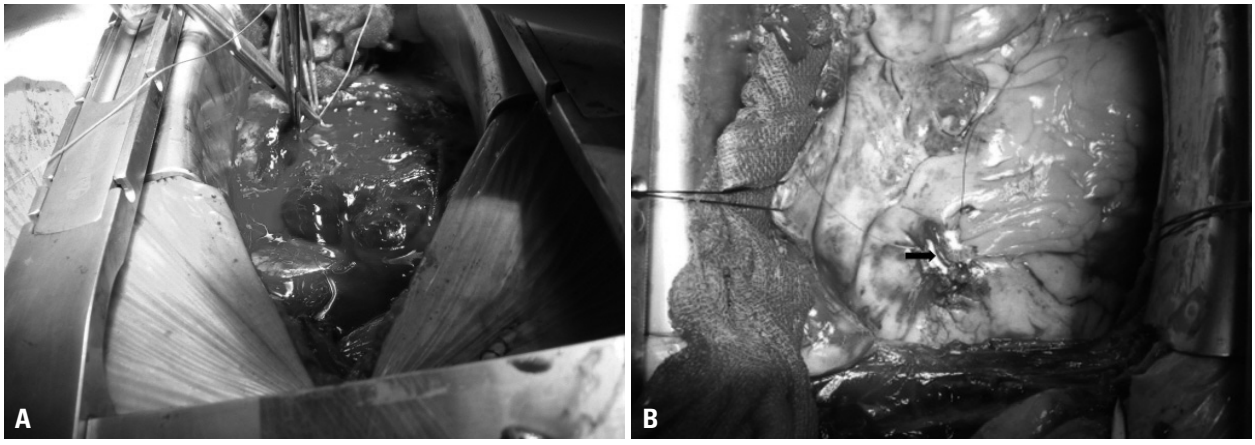

Fig. 2. (A) This figure showed huge hematomas surrounding right atrium and ventricle after median sternotomy. (B) The acute marginal branch of right coronary artery (black arrow) was torn into pieces, and it was ligated with suture leading to termination of bleeding.

REFERENCES

1. WHO. WHO traditional medicine strategy 2002-2005. Geneva: World Health Organisation; 2002. p.74.
2. White A. A cumulative review of the range and incidence of significant adverse events associated with acupuncture. Acupunct Med 2004;22:122-33.
3. Yamashita H, Tsukayama H, White AR, Tanno Y, Sugishita C, Ernst E. Systematic review of adverse events following acupuncture: the Japanese literature. Complement Ther Med 2001;9:98-104.
4. Ernst E, Pittler MH, Wider B, Boddy K. The desktop guide to complementary and alternative medicine. 2nd ed. Edinburgh: Elsevier Mosby; 2006.
5. Hunt KJ, Coelho HF, Wider B, Perry R, Hung SK, Terry R, et al. Complementary and alternative medicine use in England: results from a national survey. Int J Clin Pract 2010;64:1496-502.
6. Ernst E, Zhang J. Cardiac tamponade caused by acupuncture: a review of the literature. Int J Cardiol 2011;149:287-9.
7. LeWinter MM, Tischler MD. Pericardial disease. In: Braunwald E, editor. Heart disease: a textbook of cardiovascular medicine. Philadelphia, PA: W.B. Saunders; 2012. p.1651-61.
8. Leung PC, Zhang L, Cheng KF. Acupuncture: complications are preventable not adverse events. Chin J Integr Med 2009;15:229-32.