

**EMERGENCY CASEBOOK**

# Delayed presentation of internal mammary artery rupture after blunt chest trauma: characteristic CT and plain x ray findings

O Y Kwon, S P Chung, I S Yoo, C J Song, I B Kim, S W Kim

*Emerg Med J* 2005;22:664–665. doi: 10.1136/emj.2003.013607

Internal mammary artery rupture is one of the uncommon complications after blunt chest trauma. In general, internal mammary artery rupture after chest trauma is associated with other injuries, including fractures, dislocation, lung contusions, and neurological impairment due to hypovolaemia. Characteristic computed tomography (CT) and plain chest x ray findings might suggest the diagnosis of internal mammary artery rupture earlier, if it is suspected. We report a case in which the patient had relatively minor chest wall injury with isolated internal mammary artery rupture.

## CASE REPORT

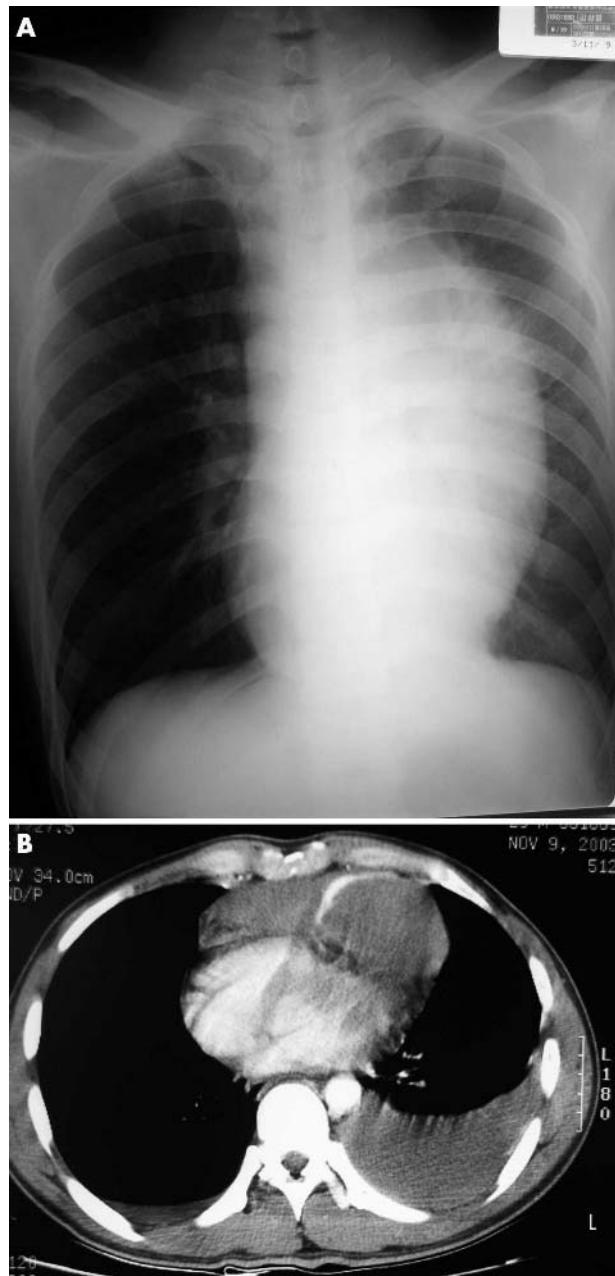
A 30 year old man was transferred to our emergency department (ED) complaining of dizziness, anterior chest pain, and chest tightness. He had come into a collision with a player while playing in a recreational soccer game as a goalkeeper. On initial presentation at another hospital, because his blood pressure was 120/80 mm Hg, pulse rate 72/min, and plain chest x ray (CXR) showed no definite abnormality, he was discharged without any specific treatments. But, 2 hours later he revisited that hospital for crescendo anterior chest pain and chest discomfort, while his blood pressure was measured as 90/60 mm Hg and electrocardiography (ECG) showed Mobitz type I AV block.

On arrival at our hospital, blood pressure was 110/70 mm Hg, pulse rate 62/min, and respiration rate 24/min. He was alert. No external wound was noted on physical examination but slight neck vein engorgement was noticed. We started fluid resuscitation and blood transfusion. Chest CT was taken to further evaluate an abnormal anteroposterior chest radiograph, which showed minimally widened mediastinum and abnormal cardiac shadow (fig 1). No definite rib fractures and lung injuries were identified. The CT showed active anterior mediastinal bleeding, a haemothorax, and cardiac compression. Repeated ECG in our ED showed normal sinus rhythm. Left tube thoracostomy was performed immediately and the drainage volume was measured as 2300 cc over 6 hours.

After stabilisation with blood transfusion, he was moved to the operating room for repair of the active bleeding site and to detect any other intrathoracic injuries. He had an uneventful postoperative course and was discharged after 8 days.

## DISCUSSION

Internal mammary artery rupture by blunt chest trauma is capable of causing massive intrathoracic bleeding and life-threatening events like cardiac compression, and may be associated with great vessel injury.<sup>1</sup> Although the patient may sustain relatively minor trauma, a serious injury may occur. Changes in vital signs and diagnostic tests such as hypotension, an increased respiratory rate, neck vein engorgement, a change in the ECG, and abnormal CXR, which were observed in our patient on second presentation, should be monitored cautiously.



**Figure 1** Widened mediastinum suggesting anterior mediastinal haematoma in plain chest x ray: (a) chest CT scan showing massive anterior mediastinal haematoma compressing left ventricle, active bleeding of left internal mammary artery, left haemothorax, and minimal right haemothorax (b).

To evaluate these warning clues with greater accuracy a chest CT scan should be performed as the first choice.

Recently because of rapid image acquisition and exact recognition of an actively bleeding vessel, CT scan has become the most popular diagnostic tool, although its findings are not always definite.<sup>2</sup> It is also important to detect and diagnose injury to the thoracic aorta and its major branches early for prompt surgical intervention.<sup>3</sup> Plain CXR may show mediastinal widening in the case of internal thoracic artery rupture, but a chest CT scan may provide information about both the site and the amount of intrathoracic hemorrhage. Thus a chest CT scan should be performed in the case of a blunt chest trauma patient showing mediastinal abnormalities on plain CXR.

The rapid and exact diagnosis of internal mammary artery injury will often be difficult preoperatively. Therefore, we describe a patient with isolated internal mammary artery rupture after relatively minor blunt chest trauma, showing characteristic plain CXR and CT findings.

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Accepted for publication 15 January 2004

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# PostScript

## CORRECTIONS

doi: 10.1136/emj.2003.13607corr1

In the Emergency casebook titled, Delayed presentation of internal mammary artery rupture after blunt chest trauma: characteristic CT and plain x-ray findings (*Emerg Med J* 2005;22:664-5), the author affiliations were incorrect. The correct affiliations are as follows:

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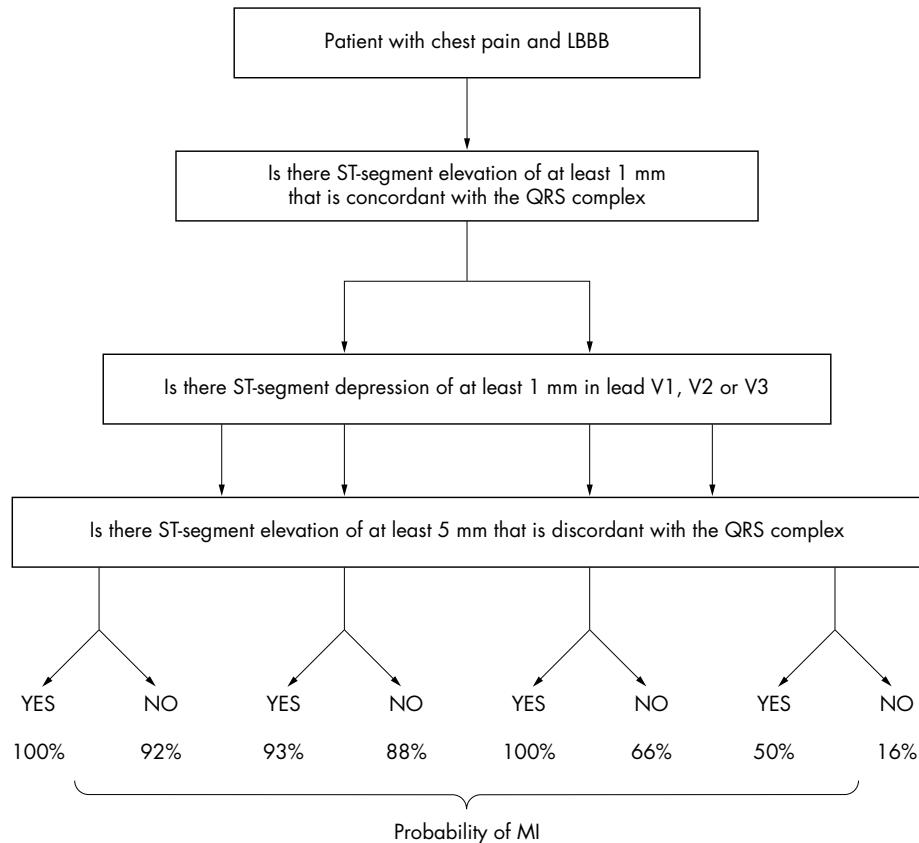
doi: 10.1136/emj.2003.12914corr1

In the letter titled, Difficult adherent nail bed dressings: An escape route (*Emerg Med J* 2005;22:312), the lead authors name is

incorrectly cited as M S Ul Hassan. The correct citation is M S U Hassan. The journal apologises for this error.

doi: 10.1136/emj.2003.13987corr1

**A**n error has occurred in figure 3 of the paper titled, Simplifying thrombolysis decisions in patients with left bundle branch block (*Emerg Med J* 2005;22:617-20). The third box from the left should read ST depression > 1mm instead of ST elevation > 1mm. Please see correct figure 3 below.





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