

Right Hemothorax Due to Penetrating Cardiac Injury (What Should the Surgical Approach Be?)

Penetran Kardiyak Yaralanmaya Bağlı Sağ Hemotoraks (Cerrahi Yaklaşım Nasıl Olmalı?)

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Penetrating cardiac injuries are the most commonly observed clinical cases for which accurate medical intervention needs to be done in a timely manner. The type of the surgical incision, for these cases could be life saving. In this report, we tried to present and discuss the surgical approach in the patient undergone urgent operation due to right hemothorax after penetrating injury.

Key words: Cardiac injuries; heart injuries/surgery; pericardial effusion; penetrating surgical incision.

Penetran kardiyak yaralanmalar klinik olarak oldukça sık rastlanılan ve zamanında doğru müdahale yapılması gereken olgulardır. Cerrahi insizyon şekli bu vakalar için hayat kurtarıcı olabilir. Bu yazıda, penetran travma sonrası gelişen sağ hemotoraks nedeniyle acil ameliyata alınan olguya cerrahi yaklaşım şekli sunuldu ve tartışıldı.

Anahtar sözcükler: Cerrahi insizyon; kalp yaralanması/cerrahi; penetran cerrahi insizyon perikardiyal efüzyon.

Urgent and right interference, rapid transport, early diagnosis and early surgical attempt may be life saving in penetrating traumas of heart. However, discussions about what the surgical approach to be chosen in penetrating traumas of heart still continue.

CASE REPORT

A 31-year-old patient was seen in urgency department clinic 7 minutes after injury with a penetrating and incisive tool from processus xiphoideus. General condition was bad and the conscious was somnolent. Arterial tension was 60-40 mmHg, and pulse was 128/min. There was a 2 cm skin cut on the processus xiphoideus. Because of the tool probably being very thin, no cleavage line was seen in the examination of the injury. There was right hemothorax and intrapericardial air image at the chest roentgenogram (Fig. 1). No

additional diagnosis methods were used considering the general condition of the patient. Following proper urgent medical intervention, the patient was taken into operation in supine position. Right anterolateral thoracotomy was applied from the 6th intercostal space. Haematoma in right thorax was removed. No pathology except from 2 cm parenchyma damage in the medial border of right lung middle lobe. There was a 2 cm cut above the vena pulmonalis inferior dextra in the right interior part of pericardium. Pericardium was opened and the existing haematoma was removed. In the meantime, hemorrhage started from the upper part of atrium dextrum. It was tried to find the bleeding site, but failed. Upon this, left anterolateral thoracotomy was applied from the 6th intercostal space urgently and pericardium was opened longitudinally. An about 3 cm cut extending from upper- interior part of atrium dextrum to auricula dextra was

seen. The bleeding was taken under control by gentle finger pressure and the site was repaired primarily. On a comprehensive examination, no other bleeding district was found.

Pericardium was sutured primarily on the right but open on the left. Putting a drain to both thorax spaces, the layers were covered appropriately. Operation time was 45 minutes. There was no complication in the postoperative period. The patient recovered uneventfully and was discharged

after recovery on the 4th day of the postoperative period (Fig. 2).

DISCUSSION

Penetrating cardiac injuries have become an important social and medical problem parallel to the increase of violent events. The ratio of survival depends on the duration between injury and the beginning of resuscitation, clinical condition at the arrival time at urgency department, injury type and degree and the existence of cardiac tamponade.

The frequency of wounds to the heart chambers depends on anatomic location. Ventriculus dexter, because of the anterior position, is wounded most commonly (43%). Then, respectively ventriculus sinister (34%), atrium dextrum (16%), and atrium sinistrum (7%) are wounded.

Correctly chosen surgical incision method can be life saving in this type of patients. It was suggested that by Symbas and et al.,⁽¹⁾ it is necessary to perform the incision from the nearest point of entrance. The reports suggesting left thoracotomy as primary chosen incision are mostly.^(2,3) Anterolateral thoracotomy is the preferred incision method in critical cases as it can be done in emergency room. Besides, thoracotomy is an incision performed rapidly. In stable cases, median sternotomy allowing a perfect exposure to every part of heart is preferred.⁽⁴⁾

In our case, an injury that can cause a wound in heart or any vessel structure belonging to right lung or right lung tissue. Right thoracotomy was preferred as it was thought that the repair of possible wound in right lung would be difficult by sternotomy or left thoracotomy. Nevertheless, though there could not be found any bleeding district, a hemorrhage related to atrium dextrum was seen when pericardium was opened. When it was understood that the bleeding could not be taken under control with this incision, left thoracotomy was applied to the patient. The reason for not choosing median sternotomy as a second incision does not want to spend more time with sternotomy because of continuing active bleeding. Left thoracotomy was sufficient to control of bleeding in our patient.

There is controversy concerning the proper incision for cardiac wounds managed. Traditionally,

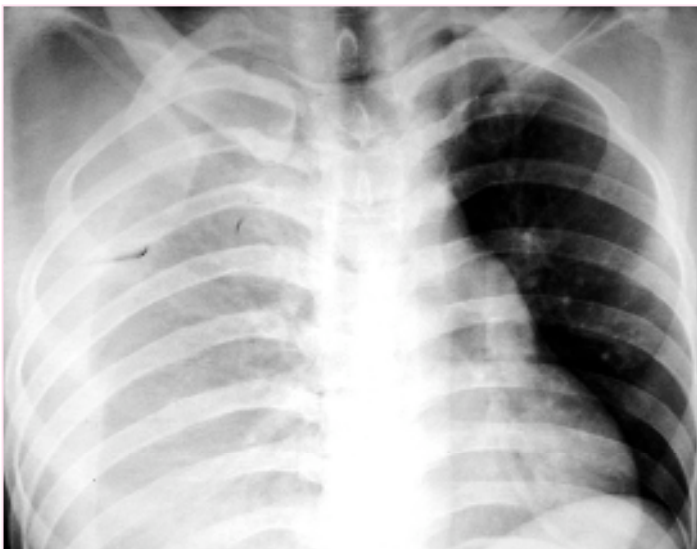


Fig. 1. A chest roentgenogram demonstrated hemothorax in right hemithorax.



Fig. 2. View to the patients incisions. (The arrow shows the entrance of tool)

a left anterior or anterolateral thoracotomy is used. As indicated, most wounds can be cared for by this approach. On the other hand, median sternotomy gives superb exposure of the heart and anterior great vessels, allows inspection and repair of the lungs and pulmonary vessel injury. Sternotomy is being utilized increasingly and now is the incision of choice.^(5,6)

However, as sternotomy process lasts long, it can lead to loss of time worth for urgent patients.

As a result, whatever the initial clinical presentation is median sternotomy or left anterolateral thoracotomy in penetrating cardiac traumas is the surgical incision of choice. Even when the incision place is on the right side, left thoracotomy should be preferred to right thoracotomy. The incision can be extended across the sternum with excision of costocartilage and ligation of the internal mammary vessels if wider access is needed. This type of incisions can care for pulmonary injuries existing at the same time.

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