CASE REPORT

Bullet embolisation from injured inferior cava vein to the right ventricle

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ABSTRACT

Gunshot injuries of the human body challenge surgical teams in the emergency department. Since such injuries do not follow any rule, every patient should be considered a special case. Our case, of bullet embolism from injured inferior cava vein to the right heart ventricle is a rare one. Such cases make us be more alert for diagnosis and treatment of this kind of injury. Well equipped hospitals and experienced medical teams are necessary for successful outcome.

Keywords: embolism, bullet, injured vessel.

INTRODUCTION

Foreign body embolism from an injured vein to the right ventricle has been reported by several authors (1,4-7). We report the case of embolism of a bullet from injured inferior cava vein (ICV) in a young man.

CASE REPORT

A 32 years old patient was admitted in the emergency department after a right side gunshot abdominal injury. The patient was transferred from a second level hospital to the National Trauma Centre 6 hours after the event. On admission the patient complained only for a mild abdominal pain. He was active and denied the transport by a patient chair. His blood pressure was 120/80 mmHg, heart rate 90 beats per minute and respiratory rate 18 breaths /minutes. Physical examination revealed a gunshot wound at the right side of the abdomen, and no exit point. Standing plain x-ray revealed the presence of a metallic foreign body at the level of the 12th thoracic vertebra. Lung fields and phrenico-costal angles were normal (Figure 1).

Computed tomography revealed free air in

Figure 1 - Chest x-ray with evidence of the bullet in the thorax.
ing Prolen 5-0 of the inferior cava vein and resection of 15 cm of terminal ileum with primary end to end anastomosis. During abdominal exploration we found adhesions due to a previous operation the patient had undergone for another abdominal trauma. With the abdominal phase completion we noticed no point of injury of the diaphragm. A left thoracotomy has been carried out in order to explore the thorax. No injury either of the diaphragm, or pericardium was revealed. After pericardiotomy and precise localisation of the bullet in the right ventricle, extraction by direct cardiotomy without cardiopulmonary bypass was completed (Figures 4, 5). Abdomen and thorax were drained in the end of operation (Figure 6).

Figure 2 - CT of the bullet in the right ventricle.

Figure 3 - CT showing right retroperitoneal haematoma.

Figure 4 - Bullet extraction.

Figure 5 - Bullet after removal.
DISCUSSION

Bullet embolism from injured blood vessels can happen in cases of low kinetic energy and appropriate calibre (4-7). The kinetic energy is a product of velocity and missile mass. Adhesions in abdomen due to previous operation were the cause of contained hematoma around lacerated inferior cava vein. That was the reason of almost normal healthy condition of the patient on admission (2).

Extraction of the foreign body from the heart under cardiopulmonary bypass was previously reported (6). On top of that our emergency department lacked the necessary equipments for the cardiopulmonary bypass.

Of outmost importance is the precise diagnosis in cases where foreign body embolism in the heart from an injured vein, is suspected (7). In our case, partly due to the lack of the equipments for a more accurate bullet localisation, and partly due to the limited experience in interpreting chest computer tomography in such cases, we performed the above described surgical approach. If not explored the expansion (1) or infection (3) of the retroperitoneal hematoma was a probable complication, as well as complications related to intracardiac foreign body presence, the most frequent being bacterial endocarditis (4, 7).

The patient had to be operated as soon as possible for the presence of free air in abdomen and the first signs of peritonitis.

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