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Case Report

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Bilateral neck hematoma a complication of central venous catheterization: A case report

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Abstract

Mechanical complications of central venous catheterization include arterial puncture, vascular injuries, catheter malposition, pneumothorax, hemothorax, air embolism, subcutaneous hematoma, and arrhythmias. In this text; we report a case of bilateral neck hematoma due to catheter malposition after venous perforation which was not noticed during central venous catheterization. A 68-year-old female patient was admitted to the emergency department with diarrhea, vomiting and low oral intake for the last week. With complaints, the patient is diagnosed as acute renal failure in another center. Jugular catheter placement two attempts one is left, and one is right, did not yield a result. Then we placed to right femoral vein. The patient was intubated to secure the airway after bilateral cervical hematoma was observed in the cervical ultrasound. The bilateral hematoma was dissolved, and she was extubated on the fifth day of hospitalization and discharged without any sequelae. Complications that may affect the airway can be seen during central vein catheterization. Early intubation may be lifesaving if respiratory tract risk is seen.

Keywords: bilateral neck hematoma, central venous catheterization, complication, case reports

1. Introduction

Central venous catheterization is used for diagnosis and treatment especially in the operating theaters, intensive care units, dialysis units, emergency services and other services (1). Subclavian, internal jugular and femoral veins are frequently preferred for venous catheterization. Femoral vein is not usually preferred because of its short-term applicability and the risk of infection. Similarly, subclavian vein is not generally preferable due to its risk of stenosis; and the arteriovenous fistula that can be opened later is not preferred because it may create venous circulatory problems.

Complications due to central venous catheterization during the process, early complications may occur as hematoma, pneumothorax, peripheral nerve damage, air embolism, pericardial tamponade, and arrhythmias (2). In this report, we present a case of bilateral cervical hematoma due to central venous catheter placement.

2. Case Report

A 68-year-old female patient was admitted to the emergency department with diarrhea, vomiting and low oral intake for the last week. she has diarrhea for three days. In the anamnesis of the patient, it is seen that there is diabetes mellistus, hypertension. On her physical examination, the vital signs of the patient were recorded as follows: pulse: 87 beats/min, rhythmic, blood pressure: 100/61 mmHg, respiratory rate: 17 breaths/min, room air oxygen saturation: 98% and body temperature: 36.1°C. The physical examination revealed that the general status was moderate, and skin turgor was decreased.

The other system examinations were within normal limits. Electrocardiography was normal except for sinus tachycardia. When the laboratory values are examined; hemoglobin: 12.5 g/dL, hematocrit: 38%, platelet count: 112,500/mm3, blood glucose:87 mg/dL, urea: 124 mg/dL, creatinine: 6.4 mg/dL, aspartate aminotransferase (AST): 13 U/L, alanine aminotransferase (ALT):7 U/L, sodium: 139 mmol/L, potassium: 6.07 mmol/L. The patient's arterial blood gas had; Ph:7,20, pCO_2:58, pO_2:53. Urine output has never occurred in the last 24 hours. The patient was started on intravenous 0.9% saline infusion at 300 mL/h flow rate.

With these complaints, the patient is diagnosed as acute renal failure in another center. Double-lumened, 14 French catheters were decided to be placed in firstly left internal jugular vein and then right if it fails for hemodialysis. Bilateral jugular catheter placement attempts did not yield a result. Then it placed to right femoral vein. Patient lost consciousness and her Glasgow Coma Score was 14. She had tachypnea and stridor, half an hour after placement of femoral catheter. Two large hematomas on each side of the neck were noted (Fig. 1). The patient was intubated to secure the airway after bilateral neck hematoma was observed in the cervical ultrasound. After the intubation, neck computed tomography was performed (Fig. 2). It showed hyperdense areas in keeping with hematoma is noted in both sides of the neck. No free air observed. The patient was admitted to the intensive

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care unit. She had undergone dialysis three times during hospitalization. The bilateral hematoma was dissolved in five days. she was extubated on the fifth day of hospitalization and discharged without any sequelae on the seventh day of hospitalization.

Fig. 1. The appearance of the patient's neck after the attemption of central venous catheterization. Significant edema and gauzes in the places where catheterization attempts are performed on both sides of the neck are observed

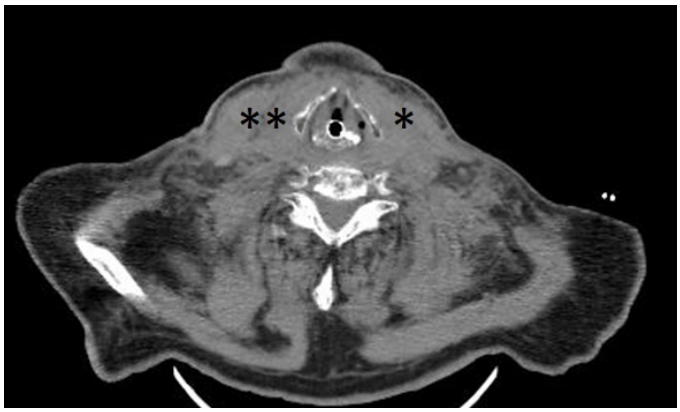

Fig. 2. The transverse section of the neck CT of the patient is demonstrated. Hyperdense areas in keeping with hematoma is noted in both sides of the neck (asterisks). Besides, heterogeneous dense in the subcutaneous and deep fat planes in the neck are noted due to edema

3. Discussion

Catheters such as nasogastric catheter, central venous catheter and bladder catheter are placed in the human body for the application of medical treatments. Placement of these catheters, although rare, causes life-threatening complications (3).

Central venous catheters are one of them placed for hemodynamic monitoring, administration of drugs likely to induce phlebitis, peripheral venous access when it lacks, and hemodialysis. They should be placed in the correct position for effective use and to avoid complications. In order to increase the success rate and decrease the incidence of complications, it is necessary to know the anatomical neighborhoods well (4). Central venous catheter application via internal jugular vein, which is one of the most suitable veins for access to large thoracic veins, has a low complication rate and a high success rate. Vascular and cardiac injuries are most mortal complications. Left-sided catheters have a higher incidence of vascular injury (5). Complications such as hemothorax, pneumothorax, cardiac arrhythmia, endocarditis, thromboembolism, vascular perforations, air embolism or nerve injuries may be seen due to malposition. Factors involved in complications are the inexperience of the person who performed the central venous catheter procedure, prior surgical operation and history of radiotherapy on the area where catheter will be placed, advanced age and obesity (6). It should be noticed that the use of ultrasound increases the rate of success significantly and when it is possible, the procedure must be applied with the aid of ultrasound (7).

In our case, traditional catheter application was preferred to the patient who needed hemodialysis. Bilateral neck hematoma was observed in the cervical ultrasound due to venous injury. It is thought that the patient developed unconsciousness because of the decrease in venous circulation and compression to the trachea. After placement of central venous catheter if soft tissues injury signs as swelling and ecchymosis or subcutaneous emphysema were seen further imaging should be performed to diagnose complications (8, 9). In our case we performed ultrasonography and computed tomography.

Complications that may affect the airway can be seen during central vein catheterization. Early intubation may be lifesaving if respiratory tract risk is seen. It is imperative that nurses and physician follow up patient for possible complications.

Conflict of interest

None to declare.

Acknowledgments

We asked the patient to help us to publish the case report in an international journal for discussion, including disease symptoms, diagnosis, and image related content. The patient agreed us to use his medical records and signed the consent form.

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