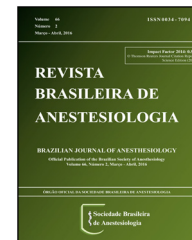




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CLINICAL INFORMATION

Cardiac tamponade: a rare complication of central venous catheter – a clinical case report

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KEYWORDS

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Abstract The extensive use of central venous catheters (CVC) in a hospital environment leads to increased iatrogenic complications, as more catheters are used enclosed and its maintenance is prolonged. Several complications are known to be related to central venous catheter, of which the uncommon cardiac tamponade (CT), hardly recognized and associated with high mortality.

We present a clinical case, with favorable outcome, of a patient who developed a CT 17 days after CVC placement, and try to reflect on the measures that can be taken to reduce its incidence, as well as the therapeutic approaches to practice in the presence of a suspected CT.
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PALAVRAS-CHAVE

Tamponamento
cardíaco;
Cateter venoso
central;
latrogenia

Tamponamento cardíaco: uma complicação rara da cateterização venosa central – Relato de um caso clínico

Resumo O vasto uso dos cateteres venosos centrais (cvc) em meio hospitalar incita a um aumento da iatrogenia, uma vez que são colocados mais cateteres e a sua manutenção é mais prolongada. São conhecidas as complicações relacionadas com a cateterização venosa central, uma das quais o tamponamento cardíaco (TC), raro, dificilmente reconhecido e associado a grande mortalidade.

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Os autores apresentam um caso clínico, com desfecho favorável, de uma doente que desenvolveu um TC 17 dias após a colocação de um CVC e procuram refletir sobre as medidas que podem ser adotadas para reduzir a sua incidência, bem como as atitudes terapêuticas na suspeita de TC.

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Introduction

Central venous catheter (CVC) is widely used in hospitals for central monitoring; placement of temporary pacemakers; administration of fluids, blood products, parenteral nutrition or drugs (antibiotics, vasopressors, chemotherapy, and others). This extensive use of CVC prompts an increase in iatrogenic conditions associated with this technique, as more catheter are being placed and kept longer.^{1,2}

Complications of central venous catheterization are known and cardiac tamponade (CT) is a rare and hardly recognized complication associated with high mortality.^{3,4} Based primarily on case reports, its incidence ranges from 0.0001% to 1.4% and its associated mortality from 65% to 100% in adults; in children, the incidence is higher (1–3%) and mortality is lower (30–50%).^{5,6}

The signs and symptoms of CT, in addition to being unspecific, may arise within few minutes after CVC insertion or up to five months after placement,^{3,5,7} which explains the missed or late diagnosis and the fate of many of the described cases.

We present a case with a favorable outcome in a patient who developed a CT 17 days after CVC placement in the right internal jugular vein.

In this article, we will discuss the factors that increase the risk of this complication, the measures that can be adopted in our protocols to reduce the incidence, and the therapeutic approaches to use when faced with a suspected CT.

Clinical case

Female patient, 26 years old, 150 cm tall, 55 kg, ASA IV, admitted for elective left nephrectomy due to pyonephrosis refractory to antibiotic therapy. The patient relevant clinical history included polymalformative syndrome (hydrocephalus, spina bifida, interventricular communication, vesicoureteral reflux, neurogenic bladder, dysfunctional colon, and imperforate anus), with various surgical repair interventions, epilepsy, and chronic renal failure on hemodialysis (renal transplantation in 2001). Laboratory tests showed hemoglobin – 102 gL⁻¹; hematocrit – 0.311 LL⁻¹; platelets – 193 × 10⁹ L⁻¹; prothrombin rate – 60%; aPTT – 45.4 s; INR – 1.45; creatinine – 9.8 mg dL⁻¹. Electrocardiogram (ECG) showed sinus tachycardia with a frequency of 106 beats per minute.

The patient had no peripheral venous access, reason why a CVC was placed before the induction of general anesthesia.

The right internal jugular vein was punctured at first attempt by an experienced anesthesiologist. A 3-lumen catheter, 15 cm long (Certofix® Trio; BJBRAUN) was inserted using the Seldinger technique, without any changes in ECG. The correct insertion into the venous system was confirmed by ultrasound visualization of the needle, guidewire and catheter and free aspiration of dark red blood through the three lumens. During surgery, the patient required vasopressor support with norepinephrine, blood transfusions (two units of fresh frozen plasma and seven units of cryoprecipitate), in addition to fluid maintenance/blood loss replacement, an estimated 1000 mL of infused fluids through the CVC.

A chest X-ray was performed at the Post-Anesthesia Care Unit (PACU) immediately after surgery (Fig. 1), with intracardiac view of the catheter tip. Due to the poor technical conditions of radiography, the finding was neglected and the catheter was not externalized.

The patient returned to the operating room seven days later due to a retroperitoneal hematoma, in the nephrectomy bed, without active bleeding focus. During surgery, the patient required vasopressor support with norepinephrine and, through the same CVC, two units of packed red blood cells and isosmolar fluid were infused, with a volume of 1200 mL, uneventfully.

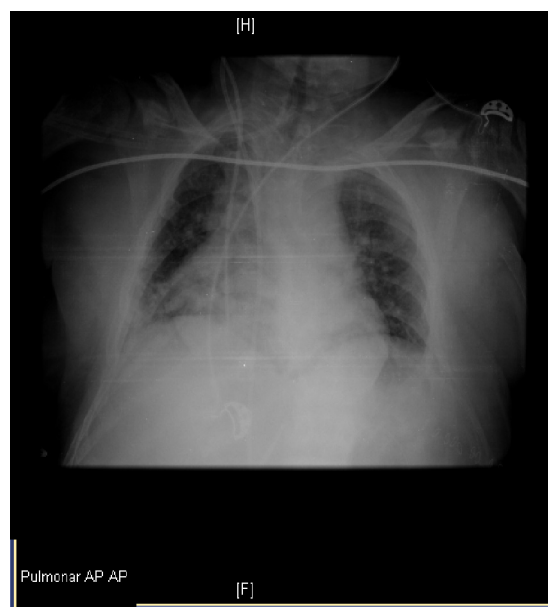


Figure 1 Postoperative chest X-ray performed after CVC placement in the right internal jugular vein.

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