

SPONTANEOUS AORTO-CAVAL FISTULA FROM RUPTURED ABDOMINAL AORTIC ANEURYSMS

FISTULE AORTO-CAVE SPONTANEE DUE A LA RUPTURE D'UN ANEURISME DE L'AORTE ABDOMINALE

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Abstract

Aorto-caval fistula (ACF) is uncommon, occurring in 2-4% of cases of ruptured abdominal aortic aneurysm (AAA). It is generally spontaneous (80 to 90 %) due to the rupture of an atherosclerotic abdominal aortic aneurysm (AAA) into the vena cava. The aim of our article is to enumerate clinical findings, to present the radiological appearance of ACF mainly on Computed Tomography and surgical modalities. In conclusion, spontaneous aorto-caval fistula due to the rupture of abdominal aortic aneurysm is a serious complication in vascular surgery with a high mortality rate. Therefore, both underdiagnosis and misdiagnosis should be avoided at all costs.

Key - words: Aortocaval fistula; Abdominal aortic aneurysm ; Imaging

Résumé

La fistule aorto-cave (FAC) est rare, se produisant dans 2 à 4% des cas d'anévrisme de l'aorte abdominale rompu (AAA). Elle est généralement spontanée (80 à 90%) en raison de la rupture d'un anévrisme athéroscléreux de l'aorte abdominale (AAA) dans la veine cave. Le but de notre article est d'énumérer les signes cliniques, les signes radiologiques de la FAC notamment en tomographie et les modalités chirurgicales. En conclusion, une fistule aorto-cave spontanée due à la rupture d'un anévrisme de l'aorte abdominale est une complication grave, avec un taux de mortalité élevé. Par conséquent, le sous-diagnostic et le diagnostic erroné doivent être évités à tout prix.

Mots - clés : Fistule aorto-cave ; Anévrisme de l'aorte abdominale ; Imagerie

ملخص

إن ناسور بين الشريان الأورطي و الوريد الأجوف غير شائع ، يحدث في 2 الى 4 ٪ من الحالات .وهو بشكل عام عفوي (80 إلى 90 ٪) بسبب تمزق الشريان الأورطي البطني المتصلب في الوريد الأجوف .كان الهدف من دراستنا هو تعداد النتائج السريري تقديم نتائج الفحص الإشعاعي خاصة في التصوير المقطعي للأوعية والطرق الجراحية. في الختام ، الناسور بين الشريان الأورطي و الوريد الأجوف العفوي بسبب تمزق الشريان الأورطي البطني المتمدد هي مشكلة خطيرة في جراحة الأوعية الدموية مع ارتفاع معدل الوفيات .لذلك ، ينبغي تجنب كل تشخيص خاطيء بأي ثمن.

الكلمات المفاتيح : ناسور بين الشريان الأورطي و الوريد الأجوف ؛ الشريان الأورطي البطني ؛ الفحص الإشعاعي

BACKGROUND

Described for the first time in 1831 by James Syme [1], Aorto-caval fistula (ACF) is uncommon, occurring in 2-4% of cases of ruptured abdominal aortic aneurysm (AAA) [2] with an intraoperative mortality between 6% and 36% [3]. Until 1995, 159 cases of aortic fistulas to the inferior vena cava (IVC) have been reported [2]. Patients often present with abdominal pain. In some cases, arterio-venous shunting can cause cardiac decompensation. A Computed Tomography (CT) angiogram can confirm the diagnosis. Conventional surgical repair has a high mortality of 20-60% [4]. Endovascular Aneurysm repair (EVAR) is an alternative treatment option.

Here, we report a case of spontaneous Aorto-caval fistulas from ruptured abdominal aortic aneurysms that was diagnosed by an urgent computed tomography angiography.

CASE REPORT

A 65 years old male with a history of hypertension, hyperlipidemia, tobacco abuse and diabetes,

was admitted to the cardiology department for an acute typical anginal pain which occurred at rest and continued for several hours. During the hospitalization, he suffers from abdominal pain and his consciousness was clear. His physical examination revealed blood pressure of 74/44mmHg, heart rate of 120 beats/min, regular respiratory rate of 24/min and body temperature of 37.0 °C. Physical examination was unremarkable except a pulsatile abdominal mass with epigastric defense and cold extremities.

Urgent computed tomography angiography with three-dimensional reconstruction demonstrated a ruptured infrarenal aortic aneurysm with a maximum diameter of 5 cm. During the arterial phase, there was a rapid contrast filling of the inferior vena cava vein (figure 1) indicating the presence of a large aortocaval fistula. The patient's condition notably worsened during transfer, and on arrival, he was in a state of shock and he could not be saved.

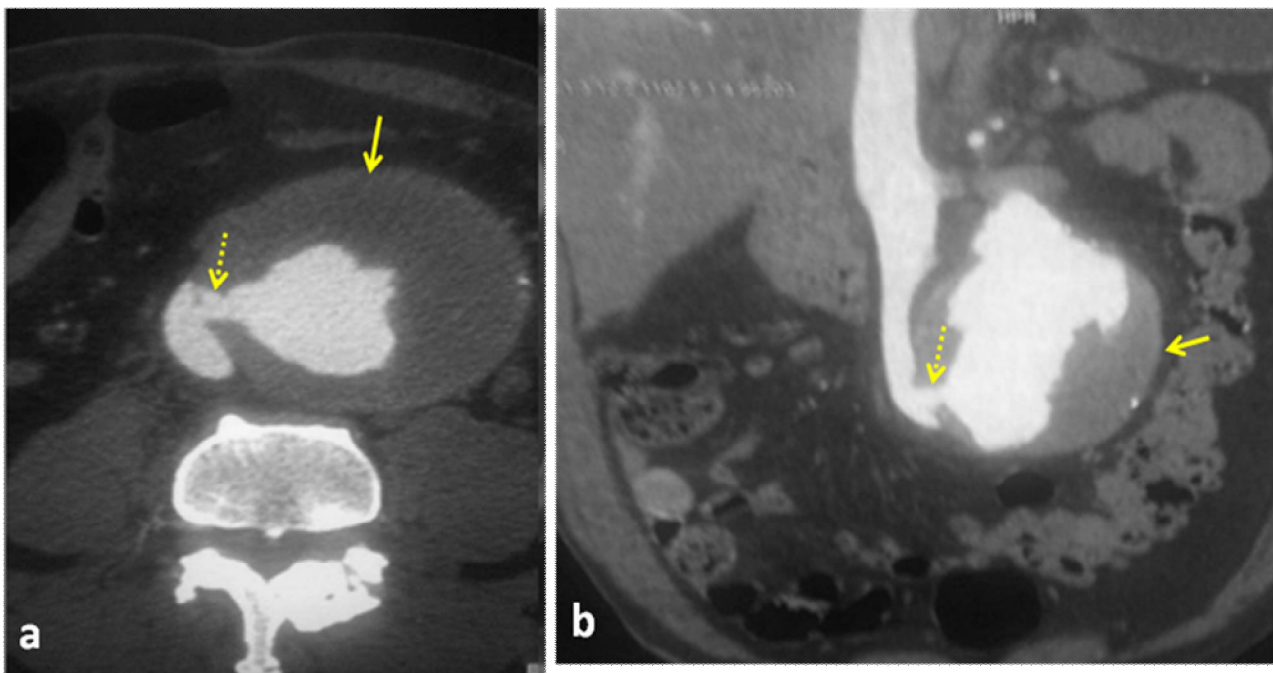


Figure 1: Abdominal computed tomography with axial (a) and frontal (b) reconstruction during the arterial phase of contrast enhancement demonstrating abdominal aortic aneurysm (continuous arrow) with Aorto-caval fistula (discontinuous arrow), compression of the inferior vena cava, simultaneous enhancement of the aorta and vena cava.

DISCUSSION

The aortocaval fistulas can be spontaneous or traumatic. It is spontaneous in 80 to 90 % of all cases [5], generally due to the rupture of an atherosclerotic abdominal aortic aneurysm (AAA) into the vena cava.

The rupture can be done exceptionally into the left renal vein or iliac vein.

ACF should be suspected if high cardiac output with progressive cardiac decompensation associated to low systemic vascular resistance, and high venous oxygen saturation were found in patient suffering from abdominal aortic aneurysm [5]. Transmission of such venous hypertension to the pelvic venous system may also lead to hematuria, that has been reported in 17% to 24% of patients with an aortocaval fistula [6].

The association of pulsatile mass, with a continuous harsh abdominal bruit and the finding of a palpable thrill, are almost pathognomic symptoms of an aorto-caval fistula [3].

Dynamic computed tomography can confirm the diagnosis and also show the large aneurysm (over 8 cm in 75% of cases), compression of the inferior vena cava with pelvic venous dilatation and simultaneous enhancement of the aorta and vena cava during the arterial phase of contrast enhancement [7].

The abdominal aortic aneurysms and the fistula can be detected on Doppler sonography. Thus, identifying a ruptured AAA with ACF by means of ultrasonography in an emergency case still remains unreliable and should be used only as an auxiliary approach.

If there is a suspicion of abdominal aortic aneurysm rupture, the best decision is to operate on the patient immediately.

Open surgical treatment of a AAA rupture with aorto-caval fistula has a mortality rate between 34 and 60% [4].

It calls for direct closure of the ACF from within the aneurysmal sac. Endovascular Aneurysm repair (EVAR) under local anesthesia is an alternative treatment option. The aorto-uni iliac graft is frequently chosen to allow rapid exclusion of the aneurysmal rupture.

Survival of AAA patients with ACF depends mainly on a correct preoperative diagnosis and early surgical repair [4].

CONCLUSION

In conclusion, spontaneous aorto-caval fistula due to the rupture of abdominal aortic aneurysm is an unusual and serious problem in vascular surgery with a high mortality rate. But in a certain sense therefore, it should be considered a less catastrophic event because the aneurysm ruptures intravascularly and no bleeding outside of the vascular space occurs. Therefore, both underdiagnosis and misdiagnosis should be avoided at all costs.

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