A 73-year-old man presented to our emergency department with sudden marked asymmetrical oedema of the left lower limb. He had a known abdominal aortic aneurysm as the only precedent of interest.

Imaging Findings:
A CT angiography (CTA) was performed and revealed an infrarenal fusiform aortic aneurysm, associated with saccular aneurysm of the right common iliac artery and saccular aneurysm of the left common iliac artery (Figure 1). CTA also showed premature enhancement of the left common iliac vein (Figure 1 and 2), with a fistulous track between the right common iliac artery aneurysm and the left common iliac vein (Figure 3 and 4). The imaging findings were compatible with rupture of the iliac aneurysm with ilioiliac arteriovenous fistula. Since this complication of aortoiliac aneurysms has a high mortality rate if left untreated due to congestive heart failure and shock, an urgent endovascular treatment with stent grafting was performed. It allowed both the exclusion of the aortic and iliac aneurysms and the arteriovenous fistula occlusion (Figure 5).

Discussion:
Iliac artery aneurysms are present in 10-20% of the patients with aortic infrarenal aneurysms [1]. Arteriovenous fistula (AVF) is a rare complication, present in about 0.2 to 2.22% of all infrarenal aortiliac aneurysms [2], and less than 1% of iliac aneurysms [3]. This complication most commonly occurs in the presence of atherosclerotic aneurysms. Other causes include syphilitic and mycotic aneurysms, connective tissue disorders such as Marfan syndrome and Ehlers-Danlos syndrome, abdominal trauma (usually penetrating trauma) and iatrogenic trauma (e.g. lumbar disc surgery and late complication of endovascular aneurysm repair) [4, 5].
In the case of AVF secondary to aorto-iliac aneurysm, it is believed that the pressure from aneurysms leads to necrosis of arterial adjacent wall, with progressive adventitial inflammation and recruitment of nearby veins. The inflammatory process grows until it causes rupture of the arterial wall to the adjacent vein [2], leading to a fistulous tract. Presenting symptoms include classically pulsatile abdominal mass with sudden abdominal pain, congestive heart
failure with dyspnoea, and, rarely, shock [2]. AVFs also may present with swelling of the lower extremities, haematuria, renal insufficiency, scrotal oedema, and rectal bleeding due to elevation of peripheral venous pressures and impairment of venous return [2]. Symptoms usually are less evident with ruptured iliac aneurysms into the iliac-caval system when compared with aorto-caval fistulas [3].

Computed tomography angiography (CTA) is the diagnostic modality of choice, since it can non-invasively confirm the presence of the aneurysm and the exact location of the AVF. CTA also shows premature inferior vena cava fill, prior to the enhancement of hepatic and renal parenchyma [6].

Endovascular stent grafting has been increasingly applied in treatment of elective and ruptured aneurysms, with improved morbidity and mortality rates. Open surgery can be an option when ACF is an unexpected finding during emergency open repair of ruptured aneurysm [5].

It is of paramount importance that the radiologist promptly recognizes this condition, since an early and accurate preoperative diagnosis allows an urgent repair, with proper bypass technique, minimal the blood loss and good outcomes [2].

Written informed patient consent for publication has been obtained. 

Differential Diagnosis List: Ilioiliac arteriovenous fistula, Deep vein thrombosis, Enlarged inguinal lymph nodes compressing the femoral vein

Final Diagnosis: Ilioiliac arteriovenous fistula

References:


Pinto D, et al. (2007) Iliac aneurysm associated with arteriovenous fistula. J. vasc. bras vol.6 no.3


Description: Axial CT images obtained in the early arterial phase display fistulous track between a right common iliac artery aneurism and left common iliac vein. Origin: Madaleno R, Department of Radiology, CHUC, Coimbra, Portugal.
**Description:** Coronal CT images show exclusion of the aortic and iliac aneurisms and arteriovenous fistula occlusion with endovascular stent grafting. **Origin:** Madaleno R, Department of Radiology, CHUC, Coimbra, Portugal.
Figure 3

Description: Axial CT images demonstrate early venous opacification (red arrow) and asymmetrical subcutaneous oedema (red asterisk). Origin: Madaleno R, Department of Radiology, CHUC, Coimbra, Portugal
Description: Coronal MIP CT images obtained in the early arterial phase show aortic fusiform infrarenal aneurysm and iliac bilateral saccular aneurysms. It also shows left external iliac vein with premature enhancement. Origin: Madaleno R, Department of Radiology, CHUC, Coimbra, Portugal
Description: Sagital MPR CT images also reveal the fistulous track (red arrow) between right common iliac artery aneurysm and left common iliac vein. Origin: Madaleno R, Department of Radiology, CHUC, Coimbra Portugal