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Acute Superficial Femoral Artery Thrombosis Diagnosed by Bedside Ultrasound

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ABSTRACT

A 66-year-old male patient with a history of peripheral artery disease presented with left lower extremity pain of 5 days duration exacerbated few hours ago. Bedside ultrasound, performed by the emergency physician, showed a patent left common femoral artery and an echogenicity obturating the lumen of the left superficial femoral artery with almost complete absence of flow on Doppler flow meter at this level. Computed tomography angiography confirmed the diagnosis and the patient was admitted for anticoagulation and surgical repair. Bedside ultrasound can help in the diagnosis of arterial thrombosis and prompt faster management and disposition.

Authors' affiliation:

Correspondent author: Chady El Tawil, MD
Department of Emergency Medicine, American University of Beirut Medical Center,
Beirut, Lebanon
eltawil.chady@gmail.com

El Tawil Ch, MD[1], Jreige R, MD[2], Sebbane M, MD[2]
1. Department of Emergency Medicine, American University of Beirut Medical Center, Beirut, Lebanon
2. Department of Emergency Medicine, CHRU Montpellier, Hôpital Lapeyronie, Montpellier, France

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INTRODUCTION

Acute limb ischemia (ALI) is defined as a sudden decrease in perfusion that can be limb and/or life threatening [1]. Non traumatic acute limb ischemia can be either embolic (15%) or thrombotic (85%) [2]. Thrombotic ischemia has a milder course of events as the atherosclerotic plaques formation will lead to collateral arterioles formation and progressive claudication. That being said, an acute deterioration in the symptoms over hours or days (less than 14 days) of the peripheral artery disease can be due to complete obstruction of the artery with the collaterals not being able to compensate, causing a real vascular emergency [3]. The signs and symptoms of acute ischemia are referred to as "the 6 Ps": pain, pallor, pulselessness, paresthesia, paralysis and poikilothermia with pain being the first symptom [4].

Bedside ultrasound (BU) is gaining a lot of interest in emergency medicine and is now a basic tool for diagnosis of multiple serious conditions. Although BU is widely used for suspected deep venous thrombosis, its use for arterial events remains very rare among emergency physicians.

CASE PRESENTATION

A 66-year-old male patient with a history of peripheral artery disease (PAD) presented with left lower extremity pain of five days duration and decreased in the Absolute Claudication Distant (ACD) (was 50 meters and is now 15 meters). The patient was diagnosed with PAD by a computed tomography

angiography (CTA) done six months prior to presentation for intermittent claudication, and showing diffuse lower extremity atherosclerosis, with 50% obstruction of the left common femoral artery, treated medically by clopidogrel (compliant to treatment). Upon presentation, Blood pressure was 152/83, heart rate 84 and saturation 99%, he was afebrile and complaining of mild pain in the left leg mainly when walking or sleeping, the pain startsin the mid posterior leg before becoming generalized and is relieved by restor sitting in bed. On physical exam, his left lower extremity was mildly paler and cooler than the right one with palpable femoral pulses but absent pedial pulses with normal skin tone. An ultrasound was readily available and the exam performed by the emergency physician, showed a patent left common femoral artery and an echogenicity obturating the lumen of the left superficial femoral artery with almost complete absence of flow on Doppler flow meter at this level (**Figure 1**). Bedside Ultrasound of the left popliteal artery showed a patent lumen.

Pertinent labs showed hemoglobin = 14.6 $g.dL^{-1}$, platelets = 337 x $10^{9}.L^{-1}$, partial thromboplastin time (PTT) = 29.4 seconds and international normalized ratio (INR) = 1.01. An emergent vascular surgery consult was placed and the patient had an urgent CT-angiography that showed a 25 cm thrombosis in the left superficial femoral artery completely occluding the lumen with small collaterals from the deep femoral artery distally, and confirmed the diagnosis. The patient was admitted to vascular surgery for anticoagulation and surgical repair.

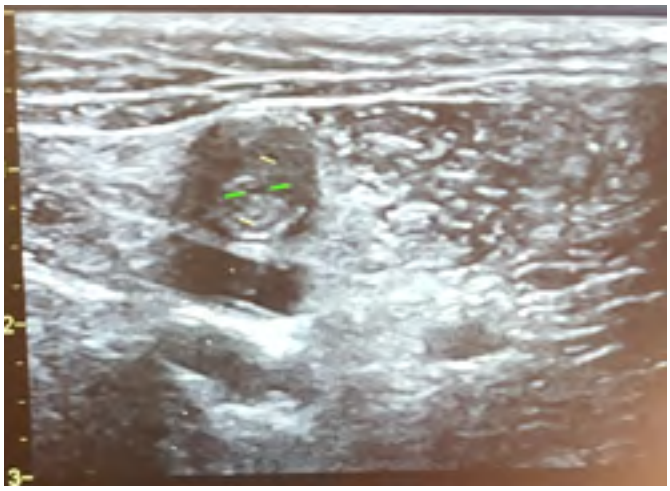
DISCUSSION

While duplex ultrasound is being largely used for diagnosis and follow-up of chronic limb ischemia and is replacing the preoperative invasive angiography, its use in the emergency department by emergency physicians to diagnose ALI remains not well established [5].

Rolston DM, et al described a case of ALI caused by an embolus and diagnosed solely by BU. The patient had directly an embolectomy in the operating room with excellent outcomes [6]. This case and our case show that BU can be used as a diagnostic tool for ALI as it is readily available and non invasive.

On the other hand, BU for vascular diseases is highly operator dependent and emergency physicians need to practice it more and implement it in the curriculum of basic ultrasound knowledge [7]. While ALI is a relatively rare presentation to the ED with around15 cases per 100,000 in comparison to the FAST for abdominal trauma with around 3000 cases per 100,000 ED admissions, the use of BU for ALI remains an easy and practical tool to use by the emergency physicians [8;9].

Also, as time is a critical factor in the prognosis of ALI, BU can point to the diagnosis and prompt starting the medical treatment early before a definitive diagnosis can be made by CTA or angiogram leading to an increased chance of limb saving [10].



CONCLUSION

Acute limb ischemia is a limb and life threatening diagnosis and this case shows that an early diagnosis can be made by BU. Emergency physician should master the technique of vascular BU and practice it when they is a doubt of ALI. However, a prospective non-inferiority study comparing BU by emergency physicians and CTA for the diagnosis of ALI is needed to validate its use.

REFERENCES

1. Norgren L, Hiatt WR, Dormandy JA, Nehler MR, Harris KA, Fowkes FG, et al. Inter-Society Consensus for the Management of Peripheral Arterial Disease (TASC II). J Vasc Surg 2007; 45:S5-67.
2. Ouriel K, Veith FJ, Sasahara AA. A comparison of recombinant urokinase with vascular surgery as initial treatment for acute arterial occlusion of the legs. Thrombolysis or peripheral arterial surgery (TOPAS) investigators. N Engl J Med 1998; 338:1105-11.
3. Callum K, Bradbury A. Acute limb ischaemia. BMJ 2000; 320:764-7.
4. Largiadèr J, Schneider E. Therapy of acute peripheral arterial occlusion. Herz 1991; 16:456-62.
5. Luja´n S, Criado E, Puras E, Izquierdo LM. Duplex scanning or arteriography for preoperative planning of lower limb revascularisation. Eur J Vasc Endovasc Surg 2002; 24:31–6.
6. Rolston DM, Saul T, Wong T, Lewiss RE. Bedside ultrasound diagnosis of acute embolic femoral artery occlusion. J Emerg Med 2013; 45:897-900.
7. Lewiss RE, Kaban NL, Saul T. Point-of-Care Ultrasound for a Deep Venous Thrombosis. Glob Heart 2013; 8:329-33.
8. Knowles M, Timaran CH. Epidemiology of Acute Critical Limb Ischemia. In: Dieter R, Dieter Jr R, Dieter R, Nanjundappa A (eds) Critical Limb Ischemia. Springer, Cham.
9. Costa G, Tierno SM, Tomassini F, Venturini L, Frezza B, Cancrini G, et al. The epidemiology and clinical evaluation of abdominal trauma. An analysis of amultidisciplinary trauma registry. Ann Ital Chir. 2010; 81:95-102.
10. Shishehbor MH. Acute and critical limb ischemia: when time is limb. Cleve Clin J Med 2014; 81:209-16.