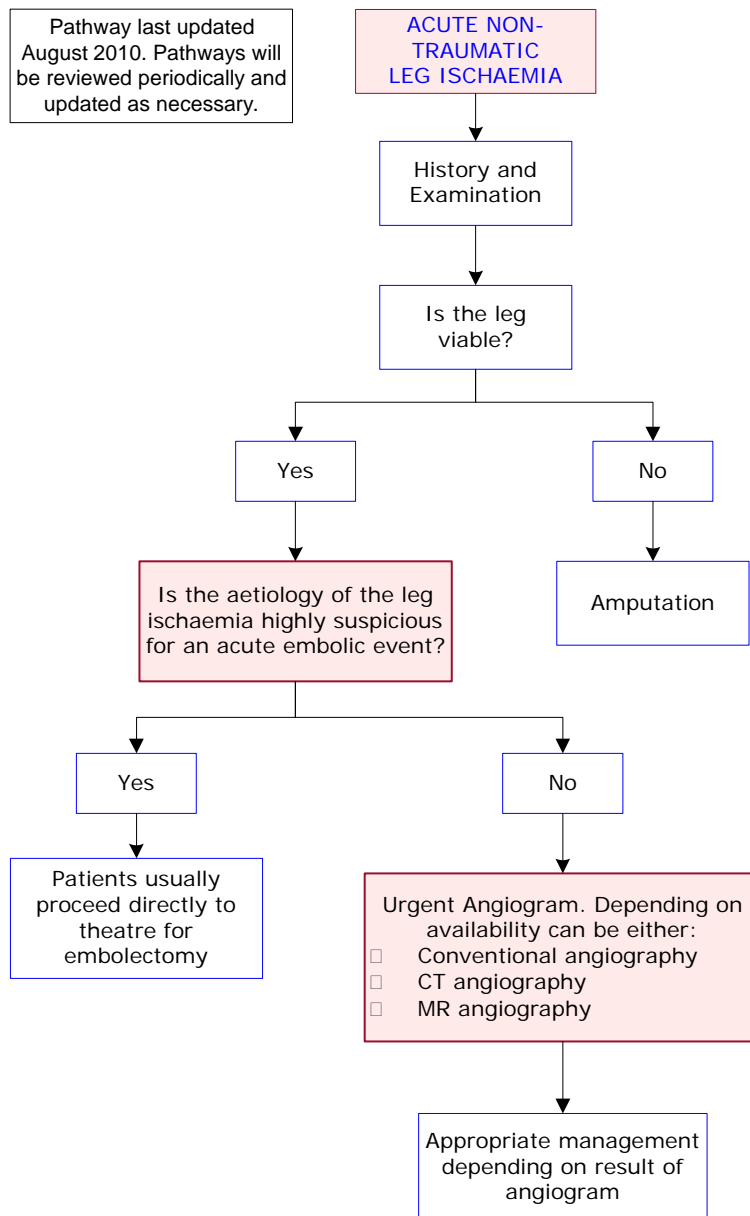




DIAGNOSTIC IMAGING PATHWAYS  
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## FEATURES SUGGESTIVE FOR AN EMBOLIC EVENT

- Clinical features suggestive for an acute embolic event include: [1](#)
  - New onset atrial fibrillation
  - No history of claudication
  - Normal pulses on the contralateral side

## CONVENTIONAL ANGIOGRAPHY

- Considered the gold standard for the evaluation of peripheral vascular disease. [2,5](#)
- Is usually the most appropriate initial investigation for patients with acute leg ischaemia. Patients who have a classic presentation for an embolic source for their ischaemia may proceed directly to operative embolectomy. [3](#)
- Angiography is most commonly performed using a digital subtraction angiography (DSA) technique. This involves the computer subtraction of an image without contrast from each subsequent image taken after the administration of contrast. The resultant images show only the contrast filled vessels without underlying bone or soft tissue structures. [4](#)
- The angiogram is commonly performed through a site distant to the suspected arterial occlusion, usually the contralateral common femoral artery. This reduces the risk of bleeding if a thrombolytic agent is used.
- Angiography can provide diagnostic information as well as therapeutic options such as intra-arterial thrombolysis and balloon angioplasty.
- Carbon dioxide has been used as an alternative to standard contrast agents for patients with renal failure and those with allergies to standard agents. [6](#)
- Potential complications of angiography include: [7](#)
  - arterial dissections,
  - thromboses,
  - groin haematomas,
  - puncture site bleeding in addition to
  - contrast allergies and
  - contrast induced renal failure.

## MULTIDETECTOR COMPUTED TOMOGRAPHY (MDCT) ANGIOGRAPHY

- Although DSA is considered the gold standard for evaluating peripheral vascular disease, MDCT has been shown to be an accurate and non invasive way of evaluating (chronic) peripheral vascular disease. [2,8,9](#)

- A meta-analysis of recent studies has shown that MDCT angiography has a pooled sensitivity of 92% and specificity of 93% when compared with DSA for detecting stenoses greater than 50%. [11](#)
- However, MDCT angiography has not been well studied in *acute* limb ischaemia.
- The use of MDCT is limited in the setting of the acute ischaemic leg because of the frequent use of catheter directed therapy.
- The main disadvantage of MDCT angiography is its reliance on a large amount of contrast media. In patients who may also require catheter angiography and intervention, the added load of contrast increases the risk of renal failure. [12](#)

## MAGNETIC RESONANCE ANGIOGRAPHY (MRA)

- The use of gadolinium enhanced MRA has been described as an alternative to contrast angiography in those patients at high risk for contrast angiography complications. [10](#)
- As with MDCT, MRA has not been well studied in acute limb ischaemia, but has been validated in studies looking at preoperative assessment of peripheral vascular disease.
- In a review of 14 studies, gadolinium enhanced MRA has a pooled sensitivity of 96% and specificity of 96% when compared with conventional angiography for detecting lesions greater than 50%. [13](#)
- The disadvantage of MRA is that it can be time consuming, which may delay treatment.

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