

Indications for CTA in lower extremity trauma, fractures or dislocations

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Background

Patients seen in the Emergency Department with lower extremity fractures and/or dislocations are currently initially assessed clinically with regard to vascular status, and often are additionally evaluated using ankle-brachial index (ABI) if clinical suspicion for possible vascular injury is high. However, often advanced vascular imaging is ordered reflexively, which most commonly consists of a CT angiogram of the lower extremities (CTA). Often these studies are ordered without clear clinical indication, or based on physician preference.

Study Design

A retrospective review of all patients who underwent CTA of the lower extremities for acute trauma was performed. Out of a total of 507 CTAs ordered at our institution in 2013, 30 involved acute traumatic injuries. These 30 cases were reviewed, and subsequent management was evaluated via chart review. A review of the physical exam documented before CTA was also performed to further elucidate the clinical rationale for the studies.

Results

Of the 30 cases in which CTA was performed for acute trauma, 1 case required operative vascular intervention, and 1 case required interventional radiology intervention. 1 case of complete arterial disruption associated with severe soft tissue trauma resulted in an acute amputation. The remaining 27 cases required no intervention with respect to limb vasculature, and had physical exams consistent with a perfused foot prior to CTA examination.

Conclusions

CTA is often used in the evaluation of lower extremity trauma. However, a change in management from that which would be anticipated based on physical exam alone is rare. In the absence of clear indications and a well perfused distal extremity, serial physical exams and non-invasive testing such as ABI should be maximized. In addition, emphasis should be placed on a detailed vascular exam after optimal closed reductions are performed. With further detailed review, we will propose alterations to the UVA trauma handbook algorithm to better guide management of these challenging cases.