UAB MEDICINE
RADIOLOGY

UAB Radiology CT Intraosseous Iodinated Contrast Injection Policy

A. CT Intraosseous (IO) lines can be used for administration of contrast ***ONLY*** for emergency situations and critical ill patients. IOs are placed when other vascular access can't be obtained for emergent resuscitation.

B. IOs are typically placed in the medullary cavity of long bones, with their tips placed in the bone matrix. This region has a rich supply of blood vessels, which run both vertically and horizontally. The highly vascular marrow allows rapid transport of medications and fluids into the central vascular system.

C. Because some of the IOs are performed by first responders, it's imperative to confirm device positioning before scanning. This is especially important because patients are moved multiple times during an emergency situation.

D. In an emergency situation, potential benefits of intraosseous contrast media administration in reducing the time required for emergent imaging evaluation outweighs the potential risks.

Protocol:

1. Flush the device with 20 mL of normal saline. If line does not flush easily, do not use.

2. Obtain a short low radiation dose CT scan of the appropriate extremity to confirm device placement and positioning. Notify ED Radiologist and have them confirm IO line placement prior to contrast administration.

3. Hook power injector tubing directly to IO line hub.

4. Inject contrast through IO line. No guidelines exist on rates for injection so use lowest injection rate possible (up to 5cc/sec) for the study and do not exceed 300 psi.

5. Disconnect power injector tubing from the IO line hub and flush with 20 mL of normal saline and then immediately perform scan.

Dr. Samuel Galgano- Vice Chair of Quality and Patient Experience 9/8/2023
Dr. Andrew Smith- CT Modality Chief 9/13/2023
Ashley Thomas- Senior Quality Management Analyst/Educator-Radiologist 9/28/2023

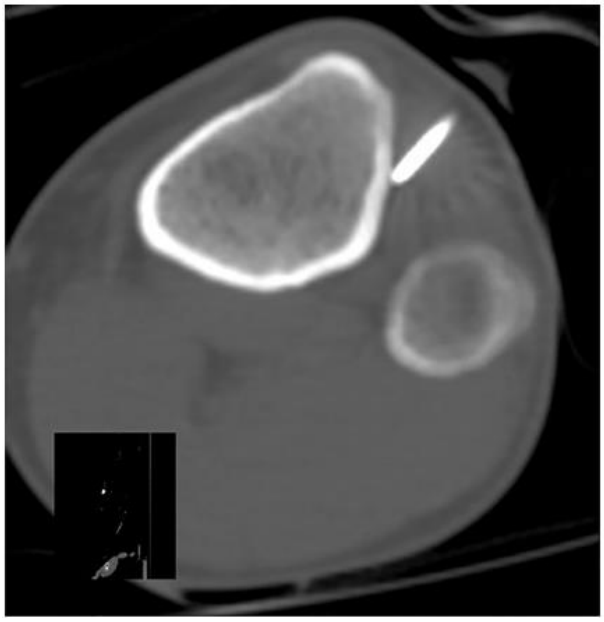

Fig. 5A –Axial bone-window CT images from short-volume tibial scans obtained in three different patients as part of posttrauma imaging.

A, 33-year-old man. Image shows tip of intraosseous device positioned in overlying soft tissues.

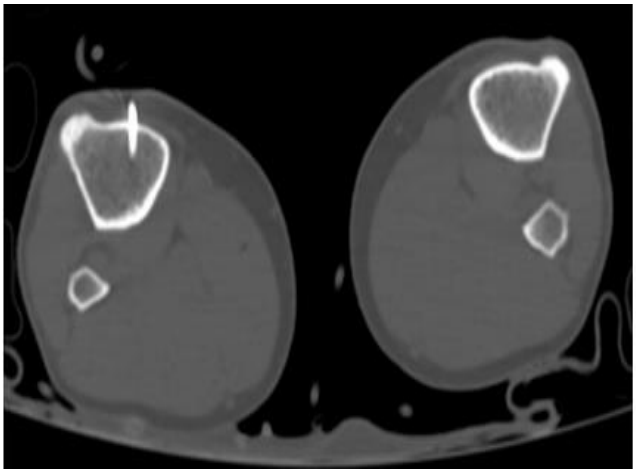

Fig. 5C –Axial bone-window CT images from short-volume tibial scans obtained in three different patients as part of posttrauma imaging.

C, 29-year-old man. Image shows tip of intraosseous device positioned in intramedullary cavity. Only device within intramedullary cavity is appropriately positioned for contrast agent injection. This method allows quick and precise confirmation of intraosseous device location before scanning.

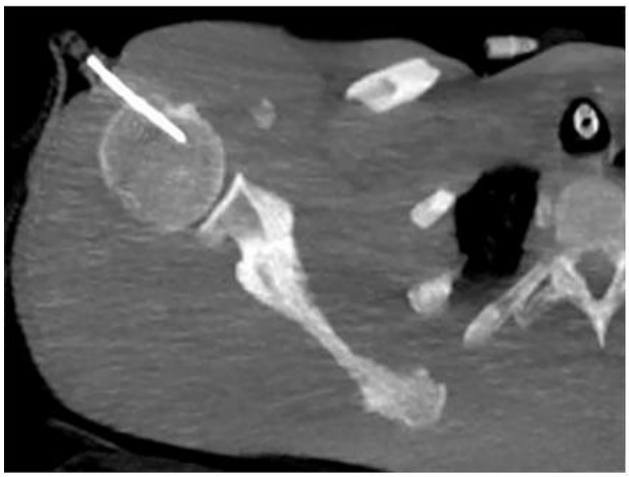

Fig. 6B –31-year-old man with polytrauma, with multiple intraosseous devices placed emergently by paramedics.

B, Short-volume axial bone-window CT images show tips of right humeral device (**B**) and sternal intraosseous device (**C**) within intramedullary cavity.

Dr. Samuel Galgano- Vice Chair of Quality and Patient Experience 9/8/2023
Dr. Andrew Smith- CT Modality Chief 9/13/2023
Ashley Thomas- Senior Quality Management Analyst/Educator-Radiologist 9/28/2023

Fig. 6C –31-year-old man with polytrauma, with multiple intraosseous devices placed emergently by paramedics.

C, Short-volume axial bone-window CT images show tips of right humeral device (**B**) and sternal intraosseous device (**C**) within intramedullary cavity.