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These is a summary of contrast extravasation section as described in the *ACR Manual on Contrast Media 2017.* This is NOT an official BWH policy and should be approached only as a guideline.

Contrast extravasation:

Occurs in 0.1% to 0.9% of patients. Peak effect in 24-48 hours. Only rarely administration of low osmolarity contrast material leads to a severe adverse effect.

Clinical symptoms: swelling, tightness, stinging and burning at the site of injection.

There is NO Institutionally approved number of extravasated contrast to guide management of extravasation as the sequela of extravasation depends on the site of injection i.e wrist vs elbow, weight distribution of the patient, and other factors. ACR in the past suggested consult for extravasation of more than 100 ml of contrast but now advises to guide management based on symptoms and signs only.

Thus, the management is solely guided based on CLINICAL ASSESSMENT. **Compartment syndrome** secondary to mechanical compression of tissues by contrast is the feared complication. **Skin ulceration and tissue necrosis** is less common and can be encountered as early as 6 hours following extravasation

Key elements in comprehensive clinical assessment and documentation in case of extravasation:

1) Mark site of extravasation
2) Estimate extravasated volume. Sometimes it also helps to look at the study to approximate the amount of contrast that has been delivered intravenously as opposed to extravasation
3) Document exam:
    a. Capillary refill
    b. Allen test
    c. Sensation in affected limb. According to ACR initial symptoms of a compartment syndrome may be relatively mild, sometimes manifesting themselves only as focal paresthesia.
    d. Physical appearance of the skin. Determine if there is skin ulceration/blistering
    e. Swelling and pain at the affected site
    f. Per ACR monitoring of the patient should occur over several hours if there is any concern, as it is hard to determine the severity of extravasation on initial evaluation
4) If there is no concern for severe extravasation injury (normal capillary refill, normal sensation in the limb, no skin ulceration, minimal swelling and pain), can safely send patient home with appropriate discharge instructions. Note that according to ACR

"outpatients who have suffered contrast media extravasation should be released from the radiology department only after the radiologist is satisfied that any signs and symptoms that were present initially have improved or that new symptoms have not developed during the observation period."

5) Document in the study report what exactly happened and how patient was managed.

6) If there is concern for severe extravasation injury (decreased capillary refill and/or abnormal sensation in limb and/or skin ulceration and/or progressive swelling and pain), proceed with Plastic Surgery consult.

Treatment of contrast extravasation:

There is NO clear consensus regarding its treatment. No evidence that aspiration of extravasated medium or local injection of corticosteroids or hyaluronidase is helpful

General recommendations:

1) Elevate affected extremity above the level of the heart
   a. To reduce hydrostatic pressure and promote resorption of extravasated contrast
2) Apply cold or hot compresses
   a. Cold to relieve pain at the injection site
   b. Hot to improve reabsorption
3) Plastics consult if concern for severe extravasation injury i.e compartment syndrome