Accidental Extravasation of Mitomycin C Into the Subcutaneous Tissue

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Background

- Mitomycin C (MMC) is a powerful DNA-alkylating chemotherapeutic agent used to treat solid tumors (1) and is a potent vesicant.
- Vesicants are a category of chemotherapeutic agents that can cause tissue necrosis and blistering.
- MMC extravasation presents with a wide range of cutaneous manifestations, such as mild rash to fulminant tissue necrosis (2,3)

Case Presentation

- The patient is a 70-year-old woman with a past medical history of hypertension and anal cancer
- The patient had a totally implantable venous access device (port) placed for chemotherapy infusions. At the start of the infusion, she experienced sudden pain and burning tracking along the subcutaneous tissue of the right shoulder, neck, and chest.
- The infusion was stopped, and she had the port evaluated by interventional radiology. The port was found to be intact, without any signs of leakage or extravasation.
- She presented to the hospital a week later due to worsening redness, pain, and skin changes. (Figure 1)
- Vitals and laboratory analysis were unremarkable upon presentation.
- Computed tomography (CT) of the chest showed inflammation of soft tissues overlying the right breast, and a partially flipped port, lying at an oblique angle (Figure 2).
- The patient was admitted to closely monitor for possible progression to tissue necrosis. She underwent port removal on hospital day 3. Tissue debridement was not needed.
- The patient had a peripherally inserted central catheter placed for her remaining chemotherapy infusions. Patient was discharged on postoperative day 1 (hospital day 4).

Case Presentation cont'd

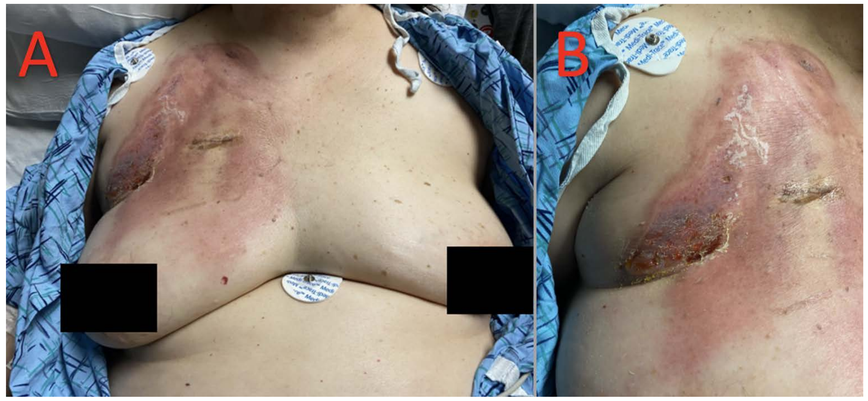

Figure 1. Gross examination shows (A) extensive erythema of the right chest wall surrounding the port site with (B) superficial ulceration and blistering noted at superior-lateral chest wall.

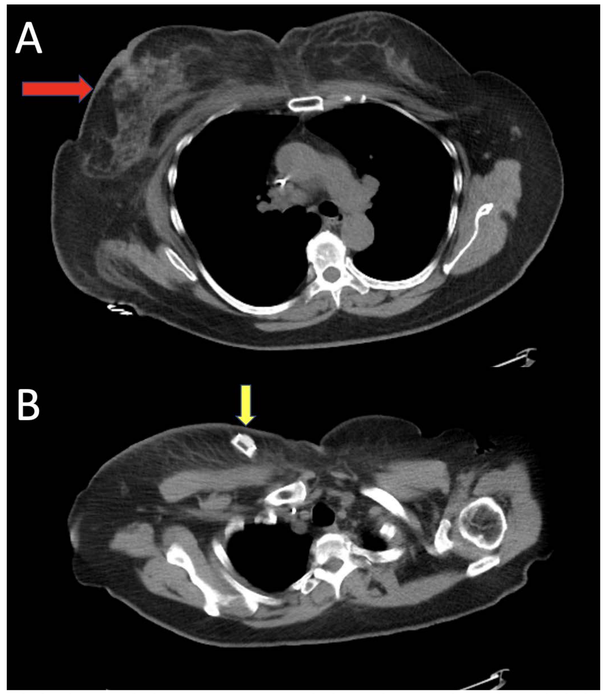

Figure 2. Axial view of the CT scan of the chest showing (A) inflammation of the soft tissue underlying the right breast and chest wall (red arrow) and (B) the port lying obliquely under the skin (yellow arrow).

Discussion

- DNA binding vesicants, like MMC, have the most severe risk profile of the intravenous chemotherapies as they can cause irreversible disability and disfigurement due to tissue necrosis (3).
- Extravasation is multi-factorial adverse risk event
- Patient related risk factors include age, vein fragility, lymphedema, and obese body habitus.
- Prolonged duration and increase rate, volume, and concentration of the drug all increase the risk of extravasation (4).
- Though central venous access devices reduce the risk of extravasation, there is still a reported risk of 0.26% to 0.47% due to malposition, thrombosis, fragmentation, or migration (5).
- The extravasation in our patient was presumed to be secondary to a misplaced needle due to the suboptimal port position.

Conclusion

- Prompt detection of extravasation is crucial in preventing extensive tissue damage.
- As the inflammatory response mounts, the cutaneous symptoms may appear similar to cellulitis or erysipelas.
- Patients receiving chemotherapy are at a higher risk of developing multi-drug resistant infections.
- Therefore, it is imperative that clinicians practice excellent antibiotic stewardship by correctly identifying the underlying etiology in order to initiate the proper treatment
- Definitive treatment may require debridement of necrotic tissue.

References

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