Chest Port Fracture Caused by Power Injection

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Implantable chest ports provide reliable access for patients who require intermittent intravenous therapy. Recently, injectable ports designed to allow rapid contrast injection during computed tomography (CT) scanning have become the preferred port in many hospitals.¹ In general, these newer ports are rated for injections up to 5 mL/s with a maximum pressure of 300 psi. Older types of ports are limited in that they do not allow rapid injection rates due to the risk of malfunction.

CASE REPORT

A 69-year-old woman with a history of right metastatic breast cancer presented to the radiology department at our institution for follow-up imaging. The patient had an existing left chest port placed at an outside institution and prior contrast-enhanced imaging studies were performed by injection through a peripheral intravenous line. Prior to contrast injection for CT scanning, the protocol in our radiology department states that any patient must have an identification card that indicates the port is rated for power injection. In this case, the patient did not have a card; however, the ordering physician notified our department that the patient had a power injectable port rated for rapid contrast injection and insisted it be used for infusion. The technologist performed the scan in routine fashion; however, the patient complained of pain during contrast (120 mL of Omnipaque 350) injection.

Physical examination of the patient revealed localized swelling, tenderness, and erythema over the left chest. Upon review of the images, it appeared that all of the injected contrast extravasated into the sub-

cutaneous tissues of the left chest surrounding the port (Fig. 1). The patient was evaluated, admitted, and attempts to aspirate the contrast were performed. Chest CT was performed 24 hours after extravasation (Fig. 2). A plastic surgeon consultation was obtained and the port was removed ~48 hours after extravasation. At the time of removal, there was mild erythema, but no evidence of tissue necrosis or ulceration. The port was removed without event and confirmed to be a port not rated for power injection. The port septum was ruptured, but the catheter tubing was intact (Fig. 3). At the request of the plastic surgeon, a 6-French drain was placed in the port pocket at the time of removal and was subsequently removed 48 hours after placement. The patient returned the following week for power injectable port placement on the left chest, in the same pocket. There were no long-term complications related to this event.

DISCUSSION

Previous studies have shown that power-injectable ports have a complication rate similar to standard port systems and help reduce the need for additional peripheral venous access because they can be used safely for contrast-enhanced imaging. Ports rated for power injection typically have radiopaque markers labeled "CT." These markers are visible on radiographs, but can be difficult to visualize on a scout CT and technologists rely on the information provided by the patient and/or their referring physicians. In particular, an identification card documenting that it is rated for power injection should be given to any patient receiving a "power port." Typically, the patient receives a peripheral IV if there is no proof of power

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Figure 1 Axial computed tomography image of chest after contrast injected through medial septum of dual lumen chest port showing extravasation of contrast. Note the separated membrane of the medial injected reservoir.

Figure 2 Axial computed tomography image 24 hours after contrast extravasation.

Figure 3 Photo of port after removal. The membrane used during injection is separated from the port, corresponding with the computed tomography images.

port placement, although this was an unusual exception to the policy because the ordering physician documented that the patient had a power injectable port. At our institution, we exclusively place power injectable ports. This is documented on procedural reports. Additionally, the patient receives a packet of information, including an identification card, bracelet, and keychain ring identifying them as a patient with an implanted power port.

SUGGESTED READING

Teichgräber UKM, Nagel SN, Kausche S, Enzweiler C. Clinical benefit of power-injectable port systems: A prospective observational study. *Eur J Radiol* 2011; March 8 (Epub ahead of print)