Although uncommon, 5-fluorouracil (5-FU) infiltrations do occur. Two case studies involving 5-FU infiltration from totally implanted venous access devices identified at the conclusion of a 46-hour continuous infusion via an ambulatory infusion pump are presented. These cases highlight the importance of patient and caregiver education, considerations for preventing infiltrations, and challenges associated with managing these cases.

AT A GLANCE

- 5-FU has irritant properties and it is recommended that the agent be consistently classified as such.
- Patients receiving continuous 5-FU infusions require education on identifying infiltration, managing ambulatory infusion pumps, and promptly contacting the clinic when signs or symptoms of complications occur.
- Challenges associated with management include a lack of consensus classification, differentiating infiltration from other complications, and patient ability for self-management.

KEYWORDS
5-fluorouracil; infiltration; classification; ambulatory pumps; self-management

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5-Fluorouracil Infiltrations and Ambulatory Pumps

Education, prevention, and management considerations

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This article presents two case studies of 5-fluorouracil (5-FU) infiltration resulting in the removal of totally implanted venous access devices (TIVADs). Recommendations are made to prevent infiltrations of this nature, improve patient education, and overcome management challenges.

Case Study 1

Patient A returned to the clinic to complete his second cycle of oxaliplatin, leucovorin, and 5-FU (FOLFOX), which he is receiving to treat metastatic gastric cancer. The patient's TIVAD was accessed per institutional policy and was patent upon initiating the continuous infusion 46 hours prior. The nurse noted erythema on the skin around the portal body and along the catheter. The patient stated that, unlike previous cycles, he could feel the medication infusing at the port site. Because the infusion was not painful, the patient did not report it initially.

The nurse identified no resistance when flushing the TIVAD, but blood return was sluggish. After notifying the oncologist, blood cultures were collected, the TIVAD was de-accessed, antibiotics were prescribed, and a 48-hour follow-up was scheduled. At follow-up, blood cultures were negative, the erythema had increased, and induration was noted along the catheter. The TIVAD flushed without resistance and no blood return was noted.

Case Study 2

Patient B returned to the clinic to complete her seventh cycle of irinotecan, leucovorin, and 5-FU (FOLFIRI) as a treatment for metastatic rectal cancer. When the patient returned to the clinic at the end of her 46-hour continuous 5-FU infusion, the nurse noted new erythema on the skin around the portal catheter. When the nurse accessed the TIVAD to flush the port, there was mild resistance and no blood return. The patient stated that she had observed skin redness at the port site during previous cycles that resolved prior to discontinuing the infusion at the clinic. Blood cultures were collected, antibiotics were prescribed, and she was scheduled for 48-hour follow-up. At follow-up, cultures were negative, the erythema had increased, and induration was noted. Resistance with flushing and absent blood return remained.

5-Fluorouracil

Both of these case studies involved a continuous infusion of 5-FU, an antimetabolite usually continuously administered for 24–96 hours as a treatment for gastrointestinal cancers (Brutcher et al., 2018; Muehlbauer, Shelburne, & Shields, 2014). 5-FU has a short half-life; therefore, continuous administration maximizes tumor cell exposure and subsequent tumor cell death (Lexicomp, 2019).

Infiltration and extravasation are terms often used interchangeably. Generally,