

# Celiac Plexus Block

## Management of abdominal pain in patients with late-stage cancer

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**BACKGROUND:** A majority of patients with abdominal cancer report intractable abdominal pain as their disease progresses. For intractable abdominal pain related to malignancy, celiac plexus block can provide relief and reduce the use of oral opioids, helping to improve quality of life.

**OBJECTIVES:** The aim of this article is to explore the feasibility and effectiveness of celiac plexus block as a pain management option for patients with late-stage abdominal cancer.

**METHODS:** A literature review of articles about pain in late-stage patients with cancer, with a focus on abdominal pain, pain management techniques, and quality of life, was undertaken.

**FINDINGS:** Celiac plexus block is an effective non-traditional pain management strategy that treats intractable abdominal pain and improves patients' quality of life.

### KEYWORDS

pain management; quality of life;  
abdominal cancer; celiac plexus block

### DIGITAL OBJECT IDENTIFIER

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**PAIN IS ONE OF THE MOST REPORTED SYMPTOMS** among those with late-stage cancer and affects more than 90% of these patients (Matthie & McMillan, 2014). This side effect has a negative impact on patients' quality of life (Färkkilä et al., 2014). However, patients are reluctant to discuss how pain affects their quality of life; just 8% of patients with late-stage cancer reported discussing symptom management with their physician (Tang et al., 2014).

Maintaining quality of life among patients with advanced cancer requires nurses to manage cancer symptoms and minimize debilitating side effects of cancer treatment. The traditional approach to pain management for patients with cancer has centered on oral analgesics, including opioids, which have many side effects (e.g., nausea, somnolence, dry mouth, constipation). Improved pain management has the potential to enhance the quality of life for patients at the end of life (Zhong et al., 2014), but this is often compromised because of these side effects. Patients need to be aware of and have access to all pain management approaches to improve quality of life during their cancer journey.

Options for controlling persistent cancer-related abdominal pain with minimal side effects is the focus of this review of the pain management literature. If such pain cannot be effectively managed by opioids, a celiac plexus block may be an alternative (Nitschke & Ray, 2013). Patients who have pain that is resistant to high doses of oral opioids, which may cause side effects that affect quality of life, need a targeted option for pain control (Vissers et al., 2011). For these patients, the celiac plexus block procedure may help to provide the needed balance of pain relief and quality of life.

### Patient Selection

Patients with hard-to-manage abdominal pain related to a malignancy typically have stomach, esophageal, colorectal, liver, gallbladder, pancreatic, or bile duct cancer (cholangiocarcinoma) (Yondonjamts, Davaasuren, & Ganbold, 2016). Among all patients with cancer, pain assessment is a routine part of the evaluation process. When patients with late-stage cancer report pain and its increasing intensity, they should discuss all options for pain management, as well as who can best manage it, with their oncologist. Celiac plexus block, also known as celiac plexus neurolysis, is one option for patients with chronic abdominal pain.

The extent of disease and the origin of pain must be carefully evaluated to ensure that the patient will get relief from celiac plexus block. To determine whether the patient is a good candidate for celiac plexus block, workup should include a physical examination, a complete blood count, a coagulation panel, and a computed tomography scan of the abdomen to exclude contraindications (e.g., severe coagulopathy, thrombocytopenia, abdominal aortic aneurysm) (Nitschke & Ray, 2013).

Patient education about celiac plexus block should include information about the procedure itself and its potential side effects; this information should also be reviewed by healthcare teams. The challenge of maintaining quality of life and managing complex pain without the addition of intolerable pharmacologic side effects is best undertaken by a pain management specialist (Vissers et al., 2011). Consultation with such a specialist would increase the likelihood that all options (oral and invasive) are offered.

**Celiac Plexus Block**

The celiac plexus is located near the celiac artery and the root of the mesenteric artery, near the aorta, in the retroperitoneal space; it is a network of dense ganglia of sympathetic, parasympathetic, and visceral sensory fibers (Nagels, Pease, Bekkering, Cools, & Dobbels, 2013). The sensation of pain is intensified as the abdominal malignancy presses against these sensory fibers because of the location of the celiac plexus (see Figure 1).

**Procedure and Nursing Care**

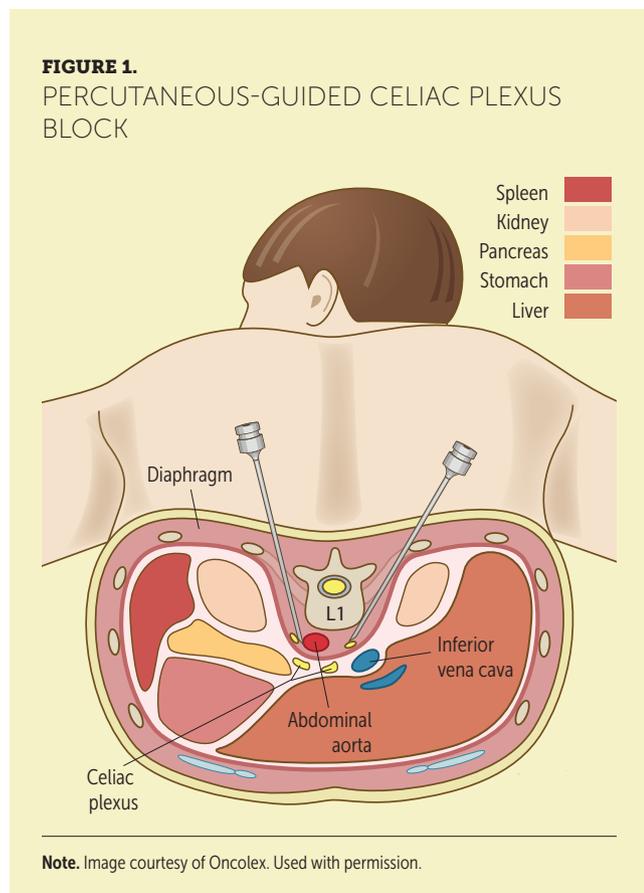
Celiac plexus block is a procedure in which a 50%–100% alcohol solution is injected into this specific area of nerves to block

**“Celiac plexus block may help to provide the needed balance of pain relief and quality of life.”**

the sensation of pain (Nagels et al., 2013). Several techniques may be used to perform celiac plexus block. For example, percutaneous-guided celiac plexus block can be aided by ultrasound, computerized axial tomography scan, or fluoroscopy, with an anterior or posterior approach; alternatively, the procedure may be guided by endoscopic ultrasound (Nagels et al., 2013). A needle is inserted and guided by imaging (ultrasound, computed tomography, or fluoroscopy) to the area of the celiac plexus; the solution is then administered to deaden the nerves and stop the pain signal. This procedure should be performed by an anesthesiologist working with a radiologist and should be coordinated by a pain management or palliative care specialist (Yondonjamts et al., 2016).

Postprocedure recovery is typically quick, with patients usually recovering in the outpatient setting unless already admitted. Directly after the procedure, patients are transferred to the postprocedural care unit for one or two hours to recover; during that time, they are monitored for signs of peritonitis and hypotension, as well as for pain and bleeding at the site of needle insertion and nausea or gastrointestinal upset (Nitschke & Ray, 2013). Vital signs are also monitored. Common side effects include diarrhea, constipation, and nausea and vomiting. In rare cases, complications include hypotension, pneumothorax, neurological events, and peritonitis; these vary by the approach and technique used during the procedure (Nagels et al., 2013). If the patient becomes hypotensive, orthostatic pressures should be obtained prior to discharge; if hypotension persists, it typically resolves with bedrest, further monitoring, and IV fluids (Nitschke & Ray, 2013).

Less data are available regarding the endoscopic ultrasound-guided approach, but diarrhea was the most commonly reported side effect of the procedure; transient abdominal pain was also noted, as was the formation of a peripancreatic abscess in one patient (Nagels et al., 2013). With the percutaneous-guided approach, a small percentage of patients reported temporary paralysis, foot drop, and hematuria (Nagels et al., 2013). One patient in the studies reviewed reported feelings of drunkenness (Nagels et al., 2013).



## Celiac Plexus Block Effect

Abdominal pain control was achieved in most patients in a study by Zhong et al. (2014) using celiac plexus block in combination with nonsteroidal anti-inflammatory drugs and opioids but with a significant decrease in opioid dosage. A study by Tewari et al. (2016) of 64 patients with late-stage cancer found that patients who underwent celiac plexus block reported a significant decrease in overall pain and morphine consumption.

Pain scores measured by a visual analog scale and a numeric pain scale at one to two weeks and at four weeks postprocedure among patients who received percutaneous-guided celiac plexus block with computerized axial tomography scan or fluoroscopy were significantly lower than those reported preprocedure; the use of oral opioids also decreased postprocedure (Nagels et al., 2013). Patients who underwent endoscopic ultrasound-guided celiac plexus block had significant decreases in pain at 1, 2, 4, 8, and 12 weeks postprocedure, with a decrease in morphine usage from baseline (Nagels et al., 2013). Among both groups (those who underwent the percutaneous-guided approach and those who underwent the endoscopic ultrasound-guided approach), quality of life improved from baseline, according to the findings from diverse quality-of-life scales; no significant differences were noted between groups (Nagels et al., 2013). Patients in a study by Erdek, Halpert, González Fernández, and Cohen (2010) who underwent celiac plexus block had a lower overall pain score, based on the results of a visual analog scale, in the first four weeks postprocedure, with decreases noted in opioid administration and feelings of sedation. In another study, morphine decreased significantly postprocedure, declining from an average of 78 mg (SD = 11.5) to an average of 18 mg (SD = 9.2) during an eight-week period (Yondonjams et al., 2016). A need still exists for opioid use in most patients. However, celiac plexus block offers an opportunity to significantly decrease opioid dosage, provide better pain relief, and increase overall quality of life.

## Conclusion

Nurses should be advocates for patients with late-stage cancer who have complex pain, helping them to gain access to all pain management options. Quality of life should be a significant consideration in the care of these patients, and celiac plexus block offers an abdominal pain management option that not only addresses this pain but also limits opioid use and the accompanying side effects, increasing patient quality of life. Offering all options to patients and educating the healthcare team about them, with the goal of better promoting pain control with fewer side effects, allows oncology nurses to help to improve quality of life among patients with cancer.

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## IMPLICATIONS FOR PRACTICE

- Suggest celiac plexus block as an option for pain management among patients with late-stage abdominal cancer.
- Promote celiac plexus block as a pain management strategy that may decrease opioid requirements.
- Understand that nursing care of patients who undergo celiac plexus block can focus on quality of life rather than the systemic effects of opioid-based pain management.

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