

# Benefits of Minimally Invasive Surgery for Patients With Cancer: Nursing Implications

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Since the 1970s, the use of minimally invasive surgery (MIS) has increased. In oncology care, robotic and laparoscopic surgery are used in many procedures involving solid tumors. MIS may be less painful for the patient and is associated with lower wound infection rates, improved pulmonary function, and shorter lengths of hospital stay than traditional laparotomy.

The aims of this article are to describe laparoscopic and robot-assisted surgery in patients with cancer, as well as the surgical oncology nursing care of these patients. PubMed®, CINAHL®, and Cochrane Library were searched. Primary studies published from January 2017 to January 2022 in peer-reviewed journals, written in English, and related to robot-assisted oncologic surgery and care of patients with cancer undergoing MIS, were included.

## AT A GLANCE

- MIS is associated with decreased patient post-operative pain, lower wound infection rates, improved pulmonary function, and shorter lengths of hospital stay.
- The use of MIS in oncology has improved visualization and access to solid tumors.
- Nurses must be aware of enhanced surgical recovery protocols, patient-centered care, and the patient's support system.

## KEYWORDS

robot-assisted surgery; minimally invasive surgery; surgical nursing care; oncology

## DIGITAL OBJECT IDENTIFIER

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**H**istorically, radical oncologic surgery has been used to improve cure rates of cancer. Since the 1970s, advances in minimally invasive surgery (MIS) techniques have reduced the need for radical surgical resections (Chang & Rattner, 2019; George et al., 2018). Surgical oncologists now focus on preservation of body image, function, and quality of life without compromising oncologic outcomes. Surgical oncology nurses need to begin the discharge planning process at the time of admission because the length of stay is reduced in patients undergoing MIS (Sun & Fong, 2017).

## Methods

This article describes laparoscopic and robot-assisted surgery as treatment for patients with cancer, as well as the surgical oncology nursing care of patients undergoing such surgeries. The databases PubMed®, CINAHL®, and Cochrane Library were searched, with the inclusion criteria of primary studies related to MIS and care of patients with cancer undergoing MIS, published from January 2017 to January 2022, in peer-reviewed journals, and written in English. Seventeen articles were reviewed (see Table 1).

## History of MIS

### Laparoscopy

In 1971, Devita and associates reported performing diagnostic peritoneoscopy on patients with Hodgkin disease to stage patients prior to beginning radiation therapy (Chang & Rattner, 2019). Not long after, in 1978, Cuschieri and associates reported on the use of laparoscopy to obtain tissue for histopathologic diagnosis, allowing patients to be diagnosed with a metastatic cancer without unnecessary surgery (Chang & Rattner, 2019). Since 1993, laparoscopic ultrasound examination, combined with diagnostic laparoscopy, has increased cancer staging accuracy. Laparoscopic surgery was the first widely used MIS. The limitations of laparoscopic surgery include decreased visualization and inability to access deep structures (see Figure 1). Initial concerns about use of the laparoscope in oncology included the potential development of port-site metastases, adequacy of surgical resection, and effect of the pneumoperitoneum on tumor spread.

### Robot-Assisted Surgery

The first robot-assisted surgery was performed in 1985 to obtain stereotaxic brain biopsies, and for resection, using the Programmable Universal Machine