Development of a Teaching Tool for Women With a Gynecologic Malignancy Undergoing Minimally Invasive Robotic-Assisted Surgery

Luisa Luciani Castiglia, N, MScA, CON(C), Nancy Drummond, N, MScA, CON(C), and Margaret A. Purden, RN, PhD

Women undergoing minimally invasive robotic-assisted surgery for a gynecologic malignancy have many questions and concerns related to the cancer diagnosis and surgery. The provision of information enhances coping with such illness-related challenges. A lack of print materials for these patients prompted the creation of a written teaching tool to improve informational support. A booklet was developed using guidelines for the design of effective patient education materials, including an iterative process of collaboration with healthcare providers and women who had undergone robotic-assisted surgery, as well as attention to readability. The 52-page booklet covers the trajectory of the woman’s experience and includes the physical, psychosocial, and sexual aspects of recovery.

The role of surgery in the management of gynecologic malignancies is well established, both as a primary treatment modality and for the purpose of staging (Langhorne, Fulton, & Otto, 2007). The laparoscopic approach was introduced as a minimally invasive technique that sought to reduce perioperative morbidity with improvements in pain and postoperative recovery (Malzoni et al., 2009).

Robotic-assisted surgery is an innovative laparoscopic procedure enhanced by the provision of a magnified three-dimensional view, the use of smaller surgical instruments, and more precise translation of the surgeon’s hand movements (Bandera & Magrina, 2009; Lin, Wakabayashi, & Han, 2009). Improved outcomes of robotic surgery include a shorter hospital stay, decreased blood loss (Boggess et al., 2008; DeNardis et al., 2008; Vaknin et al., 2010; Veljovich et al., 2008) and less wound complications than with laparotomy, which is particularly salient for obese patients (Gehrig et al., 2008). Minimally invasive robotic-assisted surgery appears to be a promising mainstay in the treatment of gynecologic malignancies (Bandera & Magrina, 2009; Lin et al., 2009).

Minimally invasive robotic-assisted surgery has been offered in the gynecologic oncology department of a Canadian university-affiliated teaching hospital since December 2007. A need existed to create an information tool to supplement patient teaching. The purpose of this article is to describe the booklet’s development.

At a Glance

- Minimally invasive robotic-assisted surgery is an innovative treatment option for women with gynecologic cancer.
- The provision of print educational materials complements verbal teaching done by healthcare professionals.
- Developing effective written information for patients requires the involvement of stakeholders as well as attention to readability.
The benefits of patient education are well recognized in terms of participation in decision making and management of illness-related challenges (Chelf et al., 2001; McPherson, Higginson, & Hear, 2001), including a reduction in anxiety, an increased sense of control, improved compliance, the creation of realistic expectations, and the promotion of participation in self-care (Mills & Sullivan, 1999). Accordingly, the provision of information is an integral part of patient care (Chelf et al., 2001; McPherson et al., 2001). An underlying assumption related to the success of this intervention is identifying informational needs. For women with gynecologic malignancies undergoing robotic surgery, these must reflect both aspects of the experience: a diagnosis of cancer and having surgery.

The most pressing informational needs of patients newly diagnosed with cancer are related to treatment, the disease, and rehabilitation (Rutten, Arora, Bakos, Aziz, & Rowland, 2005). Pertinent topics include a description of the treatment, which encompasses risks, benefits, side effects, and logistical details; the extent of the cancer and its prognosis; and information about rehabilitation, such as self-care during recovery and long-term side effects (Mills & Sullivan, 1999; Rutten et al., 2005). Although sexuality is not identified as an immediate informational need even in women diagnosed with gynecologic cancer (Beaver & Booth, 2007; Booth, Beaver, Kitchener, O’Neill, & Farrell, 2005), considering the nature of the organs involved and the potential for short and long-term effects, it is salient (Bourgeois-Law & Lotocki, 1999; Gamel, Hengeveld, & Davis, 2000; Juraskova et al., 2003).

For patients having surgery, Mordiffi, Tan, and Wong (2003) reported that information about anesthesia, the operative procedure, the operating room environment, postoperative expectations, and preoperative preparation is important. Preoperative teaching should speak to sensory (i.e., what the patient will feel), procedural (i.e., order of events) and behavioral (i.e., actions the patient must take) elements, as well as address psychological concerns. Discharge instructions should include such topics as pain management, incision care, and possible complications (Mitchell, 2007).

In the context of gynecologic surgery, more definitive learning needs have emerged. Women who have had a hysterectomy identify wanting to know more about the procedure in relation to pelvic anatomy and physiology and how this is affected by surgery, in particular surgical menopause and hormone-replacement therapy. In addition, sexuality and potential emotional distress or feelings of loss after hysterectomy should be addressed (Wade, Pletsch, Morgan, & Menting, 2000). Patients with a gynecologic malignancy also identified the physical, sexual, and psychological after-effects of surgery as types of information they would have wanted to know more about (Corney, Everet, Howells, & Crowther, 1992). Limited knowledge of the recovery phase, such as length of time to recover, also has been described (Williams & Clark, 2000). In the context of a shorter hospital stay, as is the case after minimally invasive surgery, the woman recuperates at home. Therefore, teaching about aspects of recovery such as fatigue and resumption of activities is particularly relevant (Horvath, 2003; Wagner, Carlslund, Sorensen, & Ottesen, 2005).

A variety of patient education methods exist, including verbal, written, and media formats (Langhorne et al., 2007). Oral information is the most commonly used and preferred medium by patients with cancer, followed by written information (Booth et al., 2005; Piredda et al., 2008; Rutten et al., 2005). However, an important drawback of discussion is the patient’s limited ability to retain information (Kessels, 2003; Langhorne et al., 2007). Print materials offer the significant advantage of enhancing recall (Watson & McKinstry, 2009) because the patient can refer back to them at any time and they also can inform family members and other care providers. Written information is desired by the patient, increases knowledge and satisfaction (Johnson, Sandford, & Tyndall, 2003; McPherson et al., 2001), and is an accreditation requirement in Canada (Accreditation Canada, 2008). It should not preclude verbal information, but be used in conjunction with it (Johnson et al., 2003; Kessels, 2003; Langhorne et al., 2007; McPherson et al., 2001; Mills & Sullivan, 1999).

The theoretical orientation underlying the development of the booklet is self-regulation theory, which posits that people cope with events based on cognitive representation they construct. Preparatory information that targets this representation and makes it less ambiguous can enhance the ability to cope (Johnson, 1999). Educational interventions based on self-regulation theory have been used successfully in managing cancer-related fatigue (Reuille, 2002) and side effects of radiotherapy (Johnson, Fieler, Wlasowicz, Mitchell, & Jones, 1997).

With a lack of available written patient educational material, information currently provided to women undergoing robotic surgery at the participating hospital is limited to discussion. The purpose of the initiative was to develop a teaching tool that would complement the information that was provided verbally, enhancing the provision of informational support.

Methods

The booklet was developed from January 2010 to April 2010. The process used was based on guidelines for the development of educational materials: stakeholders were identified, a needs assessment was conducted, preexisting teaching tools were sought, the literature was reviewed, content was developed, and feedback was obtained (JGH Patient Education Network Working Group, 2008; National Cancer Institute [NCI], 2003). Although these steps appear linear, the process actually is iterative (see Figure 1).

Identification of Stakeholders

Stakeholders who should be involved in the development of written patient education materials include both healthcare professionals and patients (Hoffmann & Worrall, 2004; JGH Patient Education Network Working Group, 2008). Soliciting clinicians’ input about elements to be included in a teaching tool helps to ensure its relevance, thus promoting support for the project (Hoffmann & Worrall, 2004; JGH Patient Education Network Working Group, 2008). In addition, their tacit knowledge and clinical experience provide important information to include in the booklet, as does the unique insight of women who have had the surgery.
Key healthcare professionals identified were the gynecologic oncology clinical nurse specialist (CNS), the gynecologic oncologists, the operating room (OR) nursing team leader for the robotic system, the head nurse and several staff nurses from the surgical inpatient unit, and the librarian affiliated with the gynecologic oncology service. Seven women who had minimally invasive gynecologic surgery also were approached in the hospital or during a follow-up clinic visit.

Needs Assessment

The CNS and the physicians have the unique perspective of working with this population throughout the illness trajectory, which was reflected in their concern that the booklet not only prepare women for their surgery, but also address the significance of the cancer experience in their lives. Given the short hospital stay, consensus existed about the need to highlight information that would help women to manage at home after the operation, including explaining activity restrictions and when and how to contact the healthcare team. Health professionals were concerned that many patients tended to strain themselves because they did not perceive the surgery to be major. In addition, stakeholders felt that the benefits of reduced morbidity as well as potential complications should be reflected in the booklet to assist with the informed consent process.

Nurses in the operating room and surgical unit contributed to the description of what to expect from admission to discharge. Specifics pertaining to where support people could stay also were described, as well as sensory aspects of the experience such as the cold temperature in the operating suite and the potential for sore throat in the Post Anesthesia Care Unit. The unit nurses also identified patients’ concerns at discharge and the teaching that occurred.

Patients and family members, when present, were informally asked what they thought would have been helpful information to receive in a booklet before the operation. In these conversations, they generally described two types of information needs. The first focused on how to manage at home after the operation. The second involved coping with emotions; they articulated fear and worry related to both the need for surgery and a new cancer diagnosis, as well the difficult periods of waiting for surgery and pathology results. In addition, they expressed concern for the effects their illness might have on family members. They also noted that most people use open surgery as a point of reference, which highlighted the need to distinguish robotic surgery from traditional laparotomy.

Preexisting Teaching Tools

Prior to developing patient information materials, researchers should search for preexisting teaching tools (JGH Patient Education Network Working Group, 2008). If any are found and deemed adequate, a new tool may not be necessary. Alternately, they can be used as a reference in the elaboration of a booklet. Health-related computer databases such as CINAHL®, MEDLINE®, and PsycINFO failed to generate patient print materials for women undergoing gynecologic robotic surgery. An Internet search yielded several pamphlets about other types of hysterectomy procedures or minimally invasive urologic surgery but, other than the pamphlet produced by the company that makes the robotic system (Intuitive Surgical, 2008), no written information specific to gynecologic robotic surgery was found. The company pamphlet is limited to a description of the procedure and its benefits and was not considered to be adequate by the team.

Scientific Literature

Three areas were explored in the scientific literature. First, the informational needs of the target population as described in the literature review guided the selection of broad topics to include in the booklet, such as a description of the surgery, after-effects, and recovery, as well as psychological concerns and sexuality. Although the desire to know more about the cancer was acknowledged as a learning need, a decision was made to focus the booklet exclusively on the surgical treatment, as women with different gynecologic malignancies could be candidates for robotic surgery. Second, the literature was searched for information about robotic surgery and related nursing care. That information provided the content for the booklet, as teaching materials must be evidence-based (JGH Patient Education Network Working Group, 2008). A third area of review focused on developing effective patient teaching tools.

Developing Content

Ongoing consultation with stakeholders and review of the literature were the main strategies that were used to develop the first draft of the booklet. The principles for the creation of patient print resources also guided the design of the booklet. These include readability, layout, graphics, and attention to

When designing print materials for patients, health professionals need to consider readability issues and take into account low literacy levels. Targeting a reading grade-level between six and eight is considered adequate (Doak et al., 1996; JGH Patient Education Network Working Group, 2008). That is important not only for comprehension, but also for patient satisfaction with written materials (Butow, Brindle, McConnell, Boakes, & Tattersall, 1998). As calculated by the Flesch-Kincaid Microsoft Office tool, a reading grade-level of six was achieved for the booklet as a whole, although individual sections of the text varied from grades five to seven. That was achieved by favoring the use of one- or two-syllable words and keeping sentences to about 10 words. Common words were used as often as possible, but when medical terminology could not be avoided, the terms were defined in the text rather than in a glossary (NCI, 2003). Clarity was enhanced with the use of headings and subheadings, bolding or underlining for emphasis, bulleted steps or lists, adequate white space, and a size 14 font. The booklet was written in a conversational style using the active voice. A question-and-answer format was used throughout to increase interaction with the text (Doak et al., 1996; Hoffmann & Worrall, 2004; JGH Patient Education Network Working Group, 2008; NCI, 2003).

Feedback

A preliminary version of the booklet was developed and reviewed by the first and second author to establish the tone and content. A subsequent draft then was distributed to involved team members and two patients to review. One patient organized an informal focus group of close friends to assist with the review. The first author met with the patient to discuss the group's comments and suggestions. The process of seeking and incorporating feedback and revising the draft was ongoing until the final version of the booklet was produced.

Some stakeholders, rather than commenting on content, re-worded portions of the text and inadvertently raised the literacy level of the booklet. That could have been avoided if clearer directions about the nature of feedback sought and a rationale for the wording of the text had been provided at the outset. Specific information pertaining to readability was included in subsequent communications and more focused feedback was solicited.

The Patient Education Booklet

The final product is a 52-page booklet entitled “What You Need to Know About Your Robotic Surgery” (see Table 1). An introduction and table of contents precede the main contents of the booklet. The introduction prepares the reader for what to expect. It conveys that the booklet is not simply instructional preparation for surgery, but also about the emotional reaction of the patient and family to a cancer diagnosis. Individual variations in reactions are normalized. The table of contents orients the reader to the main sections of the booklet, which are organized chronologically to follow the trajectory of the woman’s experience. Suggestions on how to use the booklet follow; for example, that it may be shared with significant others.

The first section, “Female Reproductive Organs and Surgery,” attends to informational needs related to the surgery itself. Pelvic anatomy and physiology are described, as well as which organs are removed in different surgeries for gynecologic cancers. A distinction is made between laparotomy and laparoscopy. A small possibility exists that minimally invasive surgery could require conversion to a minilaparotomy, so women need to be aware of what both types of incisions would look like. Several visuals are used in this section to enhance understanding.

Next, minimally invasive robotic-assisted surgery is explained, along with related benefits and potential complications. This segment is factual and is meant to reinforce the description of the surgery, thus enhancing the informed consent process.

The next segment, “Preparing for Your Surgery,” addresses the period between the decision to have surgery and the actual surgery. Practical ways of preparing the household in advance of the surgery attend to potential challenges related to traditional female role function. Preoperative instructions include which medications to avoid, preoperative showers, bowel preparation, and the need to fast after midnight. This is a time of waiting that patients described as difficult. Informing women of the logistics of scheduling (e.g., who will call and when, providing a contact person) addresses some of the temporal uncertainty. Potential psychological distress is acknowledged and a section on practical suggestions of how to manage emotions follows, along with options for support services if needed.

The section titled, “The Operation and Being in the Hospital” offers information specific to the procedure at the hospital. Detailed information about the pathway is given, such as what time to come to the hospital and where to go. Sensory information, such as what symptoms to expect after the surgery, also is provided. In response to patients’ concerns, the needs of the family are addressed in terms of where they can wait, the expected length of the wait, and when they can visit.

The “Recovery at Home” section is the longest at 11 pages. It begins with a reminder that despite a faster recovery, minimally invasive surgery still is major surgery. That provides the rationale for many of the activity restrictions. Practical information focusing on behaviors is directed to helping the woman manage self-care at home. Topics range from limitations of certain activities to their resumption (e.g., lifting, sexual intercourse), pain management, hygiene, and incision care. Value judgments are clarified, as well (e.g., a fever is defined as a temperature higher than 38°C). In addition, signs and symptoms are reviewed in terms of what is normal and what is abnormal, which assists women in interpreting their symptoms and guides decision making around their management. A clear list of situations that require medical attention and who to contact also is provided.

The last section, “The Future,” addresses questions women may have related to long-term effects of the surgery. Recovery is described in terms of physical, sexual, and emotional healing. The topic of menopause is covered briefly, but women are asked to direct questions related to menopause or hormone-replacement therapy to their healthcare providers. Sexual effects are described with the aim of not only providing basic information, but also giving women permission to raise the topic with healthcare professionals should they have concerns. In terms of emotional recovery, the significance of the event and the ongoing nature of the experience are acknowledged.
Table 1. Description of the Patient Booklet About Robotic Surgery

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>KEY MESSAGES</th>
</tr>
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<tbody>
<tr>
<td>Female Reproductive Organs and Surgery</td>
<td>Overview of pelvic anatomy and physiology and aspects of gynecologic surgery, with images to enhance understanding</td>
<td>Minimally invasive robotic-assisted surgery is an innovative type of surgery for gynecologic cancer. The benefits include a faster recovery with less pain, a shorter hospital stay, and a decreased risk of bleeding, infection, and scarring.</td>
</tr>
<tr>
<td>Preparing for Your Surgery</td>
<td>Includes the physical preparation for surgery, as well as how to cope with emotions during the waiting period</td>
<td>General preparation may include gentle exercise, smoking cessation, and anticipating needs after the surgery. More specific instructions relate to medications, skin cleansing, and bowel preparation. Suggestions on how to cope with worry include talking with others, spending time with family or friends, doing enjoyable activities, expressing emotions, and seeking information. Available resources include members of the healthcare team and volunteer organizations.</td>
</tr>
<tr>
<td>The Operation and Being in the Hospital</td>
<td>Contains information ranging from where to go on admission to a step-by-step description about what will happen until discharge, including the role of the family</td>
<td>Admitted on the same day of the surgery. The total time in the operating room is four to five hours, which actually is longer than for a laparotomy. Can get out of bed on the same day after the surgery. Pain usually is mild. Most women go home the day after surgery.</td>
</tr>
<tr>
<td>Recovery at Home</td>
<td>Provides a clear description of activity restrictions, self-care strategies, what is normal or not normal, and situations which would require medical attention</td>
<td>A reminder that minimally invasive surgery still is a major surgery helps to provide the rationale for activity restrictions. Walking is encouraged. Heavy lifting or straining should be avoided for six weeks, and vaginal intercourse should be avoided for eight weeks. A small amount of vaginal spotting is normal. Some anxiety with regard to pathology results is normal.</td>
</tr>
<tr>
<td>The Future</td>
<td>Long-term recovery is described along three dimensions: physical, emotional, and sexual.</td>
<td>Physical effects include cessation of menstruation, the inability to become pregnant, and the potential for menopause. Most women return to their usual sexual functioning; the libido and ability to reach orgasm are not affected. Vaginal dryness can make intercourse uncomfortable but can be managed. Having cancer is a significant life event and women may need some time to make sense of the experience.</td>
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The final pages of the booklet provide a list of contact people and their phone numbers, reliable Web sites for additional information or support, and contact information for support services. The booklet also includes a page for writing notes or questions, as well as a checklist that women can personalize with dates and reminders related to their surgery. These last two items are a way to personalize the booklet and engage the readers (Doak et al., 1996; Hoffmann & Worrall, 2004). Reliability of the contents of the booklet is conveyed by a reference list on the last page.

How to Use the Patient Education Booklet

The booklet should be offered to all women in the gynecologic oncology clinic scheduled to undergo minimally invasive robotic-assisted surgery so that they have time to review it prior to their hospitalization, which is consistent with the literature (Butow et al., 1998). The booklet is not intended to replace one-on-one teaching with healthcare professionals; in fact, it may be used as a supplement to verbal teaching. Women can peruse it at their leisure at home while they are waiting for their surgery date; they control which sections to review, when to read it, and whether they even want to consult it. It can also be shared with support people, which can be helpful. Women should be asked to bring the booklet with them to the hospital so that it also can be used to reinforce discharge teaching.

Discussion

Clinical Implications

The introduction of the booklet is intended to positively impact patient outcomes. As the combination of verbal and written instruction is superior to verbal teaching alone (Johnson et al., 2003), women should be better informed about what to expect. As per self-regulation theory (Johnson, 1999), improved knowledge is expected to enhance coping. Including suggestions and strategies for coping with the emotional aspects of the experience can empower women to manage this area. In addition, an awareness of available resources that may be used if needed enhances access to these services and promotes autonomy in seeking help. The booklet provides information about many questions or concerns that women otherwise would be contacting health professionals about. Anticipating needs and meeting them in advance may result in better long-term use of resources.
Secondary benefits from the development of the teaching tool relate to clinical practice. The process of developing the booklet provided an opportunity to make decisions concerning harmonization of practice. For example, it prompted the selection of one type of bowel preparation to be used with all patients. With respect to discharge teaching, the booklet can act as a guide for nurses when preparing women to return home, promoting thoroughness and consistency of information provided. It also can be used as a teaching tool for new nursing staff. In addition, involving healthcare professionals in the revision process promoted awareness of the need to attend to literacy in the development of patient educational materials.

**Strengths and Limitations**

The most important strength of the booklet is related to the methodology of its development. A review of the scientific literature, patient-intended print materials, and consultation with stakeholders informed the contents of the booklet. Moreover, an iterative process allowed for the ongoing refinement of the tool such that it meets the needs of patients and health professionals. Because team members participated in its conception and development, they are more likely to adopt the booklet. In addition, the booklet incorporates features that enhance its readability. A second strength of the tool is its comprehensiveness. It covers the trajectory of women having robotic surgery and includes not only physical but psychosocial and sexual aspects, as well.

One possible limitation of the booklet is its length. The inclusion of adequate white space and large font contributes to its length, but are important criteria for readability. However, some patients may be overwhelmed by the size of the booklet and be reluctant to use it. A second limitation of the tool is related to the very nature of print materials. Information cannot be tailored to the individual, either in terms of type or quantity, although the patient can make choices about what and how much to read.

**Recommendations for Development**

Several steps in the development of the booklet remain to be completed. A final important stage before publication is piloting the booklet with a small group of patients. This would provide important feedback and revisions could be made to address any issues (Hoffmann & Worrall, 2004; JGH Patient Education Network Working Group, 2008; NCI, 2003). When the booklet is finalized, the intention is to have it available as a hard copy and also through the gynecologic oncology Web site of the hospital.

Consideration should be given to evaluating patient outcomes after implementation of the tool. These can be evaluated informally by asking patients about its usefulness and by seeking feedback from healthcare professionals. Outcomes also can be evaluated more formally with the use of a patient satisfaction questionnaire.

**Conclusion**

The development of a teaching booklet for women with gynecologic cancer undergoing minimally invasive robotic-assisted surgery addresses a gap in the provision of informational support. Respecting the guidelines for developing effective patient education materials is essential in promoting patients’ understanding about their health problem and providing them with useful tools to manage their recovery.

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**Author Contact:** Luisa Luciani Castiglia, N, MSca, CON(C), can be reached at luisa.luciani.castiglia@muhc.mcgill.ca, with copy to editor at CJONEditor@ons.org.

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