Nursing Compendium: Robotic-Assisted Laparoscopic Sacrocolpopexy in Supracervical

Hysterectomy Literature Review

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Healthcare is highly dynamic. Emerging healthcare trends and illnesses require innovative treatment methods to make medical interventions more efficient and effective in promoting patient safety and better health outcomes. Supracervical hysterectomy is a medical procedure for removing the uterus. Healthcare professionals have used laparoscopic assistance to facilitate a minimally invasive supracervical hysterectomy since 1989 (Carugno & Fatehi, 2020). However, since 2005, the healthcare system has approved the most current form of supracervical hysterectomy, robotic-assisted laparoscopic supracervical hysterectomy (Carugno & Fatehi, 2020). Supracervical hysterectomy involves the extraction of the uterus via an incision in the abdominal wall. Less-invasive techniques like the robotic-assisted laparoscopic have led to the decline of the rates of supracervical hysterectomy due to benefits like less postoperative pain and expedited recovery times. Various studies have examined robotic-assisted laparoscopic supracervical hysterectomy and provided extensive information regarding its effectiveness in minimizing the rates of supracervical hysterectomy.

Patient Description

Patient SS is a 69 years old female diagnosed with pelvic organ prolapse (POP) and requires a supraclavicular hysterectomy. Her medical history includes mild persistent Hernia. The patient has been given Midazolam injection 2 mg IV, Fentanyl 100 mcg IV, Dexamethasone injection 4 mg/Ml IV, Acetaminophen injection 1000mcg IV, and Cefazolin injection 1g IV. Patient SS indicates vital signs of body temperature of 98.4^0F and blood pressure of 145/64. The patient's pulse rate is 68, while the respiration rate is 15 O_2 9, with a pain scale of 5. I closely monitored patient SS blood pressure levels, nausea, vomiting, and respiration not less than 10.

The laboratory test results of patient SS indicate blood in the urine (trace), BUN / Creatinine 22.5, AST 30, ALT 22, Protein 7.1, WBC 6.2, RBC 4.5, Lymphocytes 14.8, PTT 10.7, and INR 29. The assessments of patient SS shows clear lungs, bilaterally, heart, sounds S1S2 regular and symmetrical , pedal pulse regular , and no edema on extremities. Her family history includes her father with bladder cancer and congestive heart failure (CHF), her sister having Type 2 Diabetes, and her mother having hypertension. The patient will undergo the procedure of Robotic-Assisted Laparoscopic Sacrocolpopexy for supracervical hysterectomy.

Literature Review

Carugno & Fatehi (2020) found that robotic-assisted laparoscopic supracervical hysterectomy facilities less invasive cystectomy. Ideally, less invasive medical procedures benefit the patients, the healthcare team, and the healthcare system because it leads to faster recovery and reduced length of hospital stay. Robotic-assisted laparoscopic supracervical hysterectomy is a technological advancement that gained approval in 2005 (Carugno & Fatehi, 2020). Carugno & Fatehi (2020) reports that robotic-assisted laparoscopic supracervical hysterectomy has led to a decrease in the rate of abdominal hysterectomy due to its less invasive approaches and offers benefits like the better short-term quality of life after surgery, expedited recovery time, and less postoperative pain (Carugno & Fatehi, 2020). Hence, robotic-assisted laparoscopic sacrocolpopexy is an effective approach for supracervical hysterectomy.

Culligan et al. (2022) state that the application and techniques of laparoscopic sacrocolpopexy with robotic assistance have undergone evolution to promote its use in treating all support defects among patients with post-hysterectomy or uterovaginal prolapse (Culligan et

al., 2022). Pelvic prolapse is a common, debilitating healthcare problem leading to surgical reconstruction among about 13% of women in the United States (Culligan et al., 2022). Most surgical reconstructions are conducted using less invasive ways, especially robotic-assisted laparoscopic sacrocolpopexy (Culligan et al., 2022). Culligan et al. (2022) report that during the surgical reconstruction of pelvic prolapse, healthcare professionals provide extensive patient education to gain the patient's informed consent. The process of seeking informed consent for robotic-assisted laparoscopic sacrocolpopexy involves discussing the patient experience, benefits, and risks.

During the robotic-assisted laparoscopic sacrocolpopexy procedure of supracervical hysterectomy, the patient is placed in a low lithotomy position in an adjustable boot stirrup with a knee-high pneumatic compression boot in place (Culligan et al., 2022). "The patient is placed with their buttocks hanging slightly off the end of the operating table" (Culligan et al., 2022). During the procedure, healthcare professionals use 28 degrees of Trendelenburg to ensure the safety of the intestines by keeping them outside the operating table (Culligan et al., 2022). Healthcare professionals also use disposable foam bags surrounding the patient's hands and arms on the operating table to prevent the patients from sliding (Culligan et al., 2022). Culligan et al. (2022) report that robotic-assisted laparoscopic sacrocolpopexy involving supracervical hysterectomy does not use any vaginal instrument due to traction on the cervix via the robotic single-tooth tenaculum, which provides excellent visualization of the surgical planes.

Culligan et al. (2020) conducted a study to explain the symptomatic and anatomic outcomes of robotic-assisted laparoscopic sacrocolpopexy via a lightweight polypropylene Y-mesh. The authors observed that pelvic organ prolapse (POP) is a highly common debilitating condition that results in the protrusion of the pelvic organs into the vagina (Culligan et al., 2020).

POP leads to discomfort and dysfunction of the bowel, bladder, and sexual dysfunction (Culligan et al., 2020). As a result, patients with POP require reconstructive surgery. About 300 000 females undergo reconstructive surgery annually in the United States (Culligan et al., 2020). According to Culligan et al. (2020), sacrocolpopexy is the most durable operation in treating advanced POP and is the gold standard against other methods of operation.

Sacrocolpopexy involves attaching one end of a polypropylene mesh to the posterior and anterior vaginal walls and fixation of the remaining end to the anterior longitudinal ligament of the sacrum (Culligan et al., 2020). The authors report that robotic-assisted laparoscopic sacrocolpopexy using a very lightweight Y-mesh leads to a high surgical success rate and no mesh-related complications for 12 or more months. Zhao & St. Martin (2020) report that abdominal sacrocolpopexy leads to a highly effective long-term outcome for apical POP. Robotic-assisted laparoscopic sacrocolpopexy (RALS) has significantly mitigated the risks of abdominal surgery (Zhao & St. Martin, 2020). The study by Zhao & St. Martin (2020) examines the intraoperative surgical parameters, preoperative patient characteristics, and postoperative outcomes of RALS.

Zhao & St. Martin (2020) report that abdominal sacrocolpopexy (ASC) is the gold standard for advanced apical prolapse repair due to its superior efficacy. Robotic assistance in laparoscopic sacrocolpopexy increases magnification alongside providing a three-dimensional vision, seven degrees of freedom, and physiologic tremor filtering to simplify complex tasks of vaginal dissection, enhance surgeon ergonomics, and simplify laparoscopic suturing (Zhao & St. Martin, 2020). RALS reduces blood loss, decreases care costs, and shorter hospital stays (Zhao & St. Martin, 2020). As a result, Zhao & St. Martin (2020) emphasize that RALS has rapidly

become the current gold standard for POP in robotic centers globally. Generally, RALS leads to increased patient satisfaction and reduced rates of complications after 60 weeks of the procedure.

Niu et al. (2022) conducted a study to evaluate the efficacy and outcomes of robotic-assisted sacrocolpopexy (RASC) in patients with POP. The authors report that approximately 40-60% of women have POP, which causes many symptoms alongside reducing the quality of life in older women (Niu et al., 2022). Robotic technology in laparoscopic sacrocolpopexy is vital in providing improved visualization and wristed instrumentations, which enable surgeons to conduct less invasive operations (Niu et al., 2022). Niu et al. (2022) state that RASC is a safe and highly effective method for treating advanced anterior and apical prolapse in women with POP. The authors also state that RASC has benefits like reduced intraoperative bleeding and hospitalization time.

Kadakia et al. (2021) report that robotic-assisted laparoscopic sacrocolpopexy (RA-SCP) has undergone evolution to become the gold standard of care for patients suffering from an advanced stage of POP. The authors report that the RA-SCP procedure is highly tolerable. Goueli et al. (2020) state that many countries worldwide consider abdominal sacrocolpopexy the gold standard for treating apical prolapse in women. Goueli et al. (2020) also report that the procedure is less invasive and provides many advantages as opposed to an open approach to treating apical prolapse. Th advantages of single-port robotic-assisted laparoscopic sacrocolpopexy with magnetic retraction include minimal blood loss, small incision size, and reduced postoperative pain alongside maintaining positive long-term outcomes.

Recommendation for Best Nursing Practice Based on Evidence

Kadakia et al. (2021) recommend that surgeons counsel their patients that advancing age does not increase the rate of complications or hospital readmissions during and after surgery. The authors also recommend that reducing operative time for advancing age groups due to the concern for anesthesia, patient frailty, and prolonged Trendelenburg positioning is vital for reducing the need for pain medication postoperatively Kadakia et al. (2021). Culligan et al. (2022) also recommend that healthcare professionals inform women considering surgical correction of POP about the potential benefits and limited risks of robotic-assisted laparoscopic sacrocolpopexy alongside the disappointing long-term results for native tissue POP repair. Niu et al. (2022) recommend RASC to be old or financially supported patients. Moreover, operators must have enough practice in laparoscopic surgery due to the complex manipulation (Niu et al., 2022). Niu et al. (2022) suggest a long-term follow-up to inform surgeons to establish a shared decision-making model. Another recommendation is the evaluation of the cost-efficiency as a result of the expensive cost of the surgery.

Conclusion

POP is a common debilitating condition among women. Women with POP usually undergo reconstructive surgery to alleviate discomfort and bowel, bladder, and sexual dysfunction. Robotic-assisted laparoscopic sacrocolpopexy is an effective approach for supracervical hysterectomy because it is less invasive. Moreover, robotic-assisted laparoscopic sacrocolpopexy has many advantages, like reducing care costs, minimizing hospital stay duration, minimal blood loss, less postoperative pain, and quick recovery. Robotic-assisted laparoscopic sacrocolpopexy is the gold standard procedure for treating POP. Many studies have demonstrated that robotic-assisted laparoscopic sacrocolpopexy is more effective in addressing

POP than other operative techniques. However, surgeons must educate patients about the

procedure, the benefits, and the risks involved to gain informed consent.

References

Carugno, J., & Fatehi, M. (2020). *Abdominal Hysterectomy*. PubMed; StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK564366/

Culligan, P. J., Lewis, C., Priestley, J., & Mushonga, N. (2020). Long-Term Outcomes of Robotic-Assisted Laparoscopic Sacrocolpopexy Using Lightweight Y-Mesh. *Female Pelvic Medicine & Reconstructive Surgery, 26*(3), 202–206. https://doi.org/10.1097/spv.0000000000000788

Culligan, P. J., Saiz, C. M., & Rosenblatt, P. L. (2022). Contemporary Use and Techniques of Laparoscopic Sacrocolpopexy With or Without Robotic Assistance for Pelvic Organ Prolapse. *Obstetrics & Gynecology, 139*(5), 922–932. https://doi.org/10.1097/aog.0000000000004761

Goueli, R., Rodriguez, D., Hess, D., Ganesan, V., & Carmel, M. (2020). Single-Port Robotic-Assisted Laparoscopic Sacrocolpopexy With Magnetic Retraction: A Video Demonstration. *Urology, 143*, 258–260. https://doi.org/10.1016/j.urology.2020.06.006

Kadakia, D., Shu, M. K. M., Lee, J. Y., Nassar, D. T., & Eddib, A. (2021). Robotic-Assisted Laparoscopic Sacrocolpopexy in the Extreme Elderly: Safety and Feasibility. *Journal of Minimally Invasive Gynecology, 28*(11), S138–S139. https://doi.org/10.1016/j.jmig.2021.09.258

Niu, K., Zhai, Q., Fan, W., Li, L., Yang, W., Ye, M., & Meng, Y. (2022). Robotic-Assisted Laparoscopic Sacrocolpopexy for Pelvic Organ Prolapse: A Single Center Experience in China. *Journal of Healthcare Engineering, 2022*, 6201098. https://doi.org/10.1155/2022/6201098

Zhao, Y., & St. Martin, B. (2020). Robotic-assisted laparoscopic sacrocolpopexy: Initial

Canadian experience. *Canadian Urological Association Journal, 14*(6).

https://doi.org/10.5489/cuaj.6121