



Reducing Blood Loss During Laparoscopic Myomectomy by Temporary Uterine Artery Clamping Using Bulldog Clamp

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Uterine myoma is the most common benign gynecologic tumor worldwide. Mini-invasive surgery has become popular for myomectomy, with advantages over laparotomy. However, reducing blood loss during laparoscopic myomectomy is a major concern for the surgeon because of the limitation in making a quick control bleeding during the operation. Several methods have proved to decrease blood flow, but are not always effective or available. We present a case of uterine myoma with the uterine arteries clamped by bulldog clamps during laparoscopic myomectomy. The myoma was removed successfully with minimal blood loss (<50 ml) during the operation. This is an effective, safe, and reliable method for reducing bleeding during laparoscopic myomectomy that does not require ligation of the uterine artery.

Key words: Bulldog clamp, laparoscopic myomectomy, uterine myoma, uterine artery clamping

INTRODUCTION

Uterine myoma is the most common benign gynecologic tumor, affecting 20-30% of women worldwide.¹ It usually presents without symptoms until the myoma enlarges or causes some problems. When patients suffer symptoms from the myoma, therapeutic interventions are indicated including medical or surgical methods.² But the medical interventions like gonadotropin-releasing hormone agonist or hormone therapy are usually less effective in completely reducing symptoms compared with surgical intervention. However, surgery usually involves myomectomy or hysterectomy, but may lead to complications such as severe bleeding or organ damage. An effective means of reducing bleeding during surgery is a major concern when performing a myomectomy.

Mini-invasive surgery has become a promising procedure for treating gynecologic disorders worldwide in recent decades. Laparoscopic surgery has many advantages over laparotomy, including a faster recovery for the patient, a shorter hospital stay, less postoperative pain, and reduced formation of adhesions.³ However, myomectomy by laparoscopic surgery can be

associated with several intraoperative problems such as severe bleeding, because of technical and instrumental restrictions. Blood loss in mini-invasive surgery can be reduced or even prevented by mechanical or pharmacologic methods including vasopressin injections or uterine artery ligation. However, none of these methods has proven completely effective and safe, and they might even damage the uterine vessels.

Here, we present an alternative method of reducing bleeding by clamping the uterine artery using a bulldog clamp, which reduced blood loss successfully during laparoscopic myomectomy.

CASE REPORT

A 38-year-old woman (gravida 1, para 1) complained of excessive frequency of urination that had lasted for several months. Her gynecologic, surgical, and medical histories were unremarkable except for a cesarean section and mitral valve prolapse. Laboratory tests, including a complete blood count, serum electrolytes, liver function, and coagulation studies showed results that were within the normal limits at admission. A pelvic examination revealed an enlarged uterus, and pelvic ultrasonography confirmed a solid 6 cm × 6 cm mass located at the fundus of the uterus [Figure 1].

The patient underwent laparoscopy for resecting the myoma. At first, to reduce blood loss, we opened the retroperitoneum through adnexal triangle. After open the pararectal space, the ureter was dissected carefully using a blunt dissector. As shown in Figure 2, bilateral uterine arteries were then identified and clamped by the bulldog clamp temporarily

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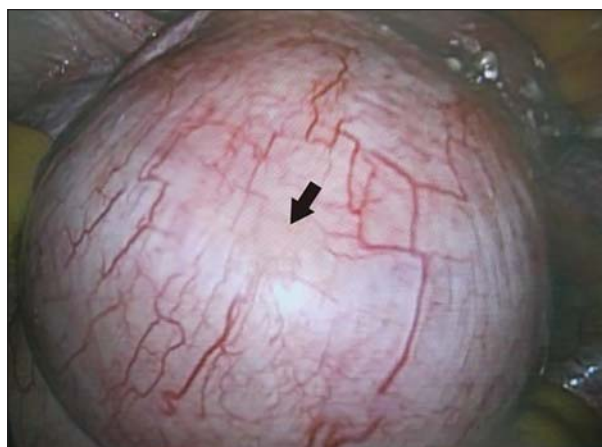


Figure 1. The myoma (black arrow) measured 6 cm × 6 cm in diameter with abundant blood vessels and was located in the fundus of the uterus

until the uterine incision had been sutured. After reducing the blood flow, the capsule of the myoma was incised and dissected using dissectors and scissors. The bleeding area of the myoma surface was coagulated using bipolar forceps. A screw was inserted into the myoma, and it was removed completely step by step. Finally, the edge of the uterine defect was sutured using V-locks. There was minimal blood loss (<50 ml) during the operation. After hemostasis, the trocar holes were closed. The patient recovered well postoperatively and was discharged on the 5th postoperative day.

DISCUSSION

Uterine myoma is the most common benign gynecologic tumor in the world.¹ Many methods have been used in attempts to remove this form of tumor including laparotomy, transvaginal resection, and laparoscopic- and robotic-assisted surgery. No method can achieve a completely safe and successful removal of myomas, and reducing intraoperative blood loss is the most important consideration for patient safety.

Blood loss during laparoscopic myomectomy is related with the size and numbers of myomas. There are several methods used to reduce blood loss during laparoscopic myomectomy, including pharmacological and mechanical methods. Pharmacological methods might provide benefits in decreasing blood flow during the operation, but they vary in effectiveness among individual patients. These agents include vasopressin injections and uterotonics.⁴

Mechanical methods provide another way of reducing blood flow during the operation. The uterine arteries provide the major blood supply to the uterus and its derived myomas.⁵ The average volume of blood loss is 200-800 ml during



Figure 2. The right uterine artery (black arrow) was clamped temporarily using a bulldog clamp during laparoscopically assisted surgery

abdominal myomectomy and 80-250 ml during laparoscopic myomectomy.^{6,7} Ligating the uterine artery can reduce bleeding during the operation, but this can damage the blood supply after the operation. Using a bulldog clip to stop uterine artery blood flow temporarily seems to be a convenient, safe, effective, and reliable method to reduce the blood loss. It implies that the surgeon does not need to ligate the uterine vessels and compromise the blood supply.

Laparoscopic myomectomy is still a challenging technical procedure and can be associated with surgical complications. This technique requires the surgeon to undergo a learning curve for laparoscopic skills such as opening the retroperitoneum and identifying the ureter and pelvic vessels. The surgeon must be qualified in the use of suitable laparoscopic instruments and must undergo advanced training before performing this technique. Our experience here shows that uterine artery clamping by bulldog clamp may be an effective, safe and reliable method for reducing bleeding during laparoscopic myomectomy and does not lead to persistent damage to the uterine artery.

DISCLOSURE

The authors declared this study has no conflicts of interest.

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