Short Communication

Reconsideration of Sharp Dissection in Gynecological Surgery

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Abstract

In surgical fields, sharp dissection is a basic surgical technique, and the prognosis and oncological outcomes are known to be affected by the technique of dissection. Even in gynecologic surgery, we believe that the basic surgical technique is sharp dissection. We herein present our technique and discuss its significance. Sharp dissection should entail the removal of a single thin line between the residual tissue and the excised tissue. If this line becomes multiple or thicker, it is not sharp dissection but blunt dissection. The accumulation of this thin line of sharp dissection can form surgical layers. What is important is moderate tissue tension and how to use monopolar. One can sharply cut the loose connective tissue assisted by moderate tissue tension. With regard to the use of monopolar, it is essential that it not be applied directly to the tissue, but rather be used with or without touching the tissue. Inadvertent blunt dissection should be minimized, as most surgical procedures can be performed with sharp dissection. We usually perform sharp dissection for open surgery as well as minimally invasive surgery. We obstetricians and gynecologists should reconsider the significance of sharp dissection and practice it in gynecological surgery.

Keywords: Dissection, gynecology, surgical procedures

Introduction

Sharp dissection is widely accepted as a basic and indispensable surgical technique, whereas obstetricians and gynecologists often perform blunt dissection. We have employed sharp dissection in accordance with the basic surgical procedures. We have also reported the importance of sharp dissection for ureterolysis in minimally invasive hysterectomy.[1] In fact, we also perform sharp dissection without using unnecessary blunt dissection for dissection of the bladder, rectum, and retroperitoneal space. Care must be taken that blunt dissection can crush the surgical layers, prevent anatomically accurate dissection, and cause unexpected bleeding. We believe that the basic surgical technique is sharp dissection, and perform this for open surgery as well as minimally invasive surgery (MIS). Here, we present our surgical technique for open surgery and MIS and discuss the significance of sharp dissection.

Subjects and Methods

Figure 1 shows an excerpt from an old Japanese textbook in the field of colorectal surgery.[2] According to the author, sharp dissection should entail the removal of a single thin line between the residual tissue and the excised tissue. If this line becomes multiple or thicker, it is not sharp dissection but blunt dissection. Accumulation of this thin line of sharp dissection can form surgical layers. Furthermore, the author indicated that lymphadenectomy must be a series of thin line dissections, otherwise it should not be called lymphadenectomy. We consider this concept as a basic and important surgical technique and usually perform sharp dissection not only in laparotomy but also in MIS.

From the perspective of surgical technique, we mainly perform dissections using a monopolar device, which enables sharp dissection. Needless to say, moderate tissue traction

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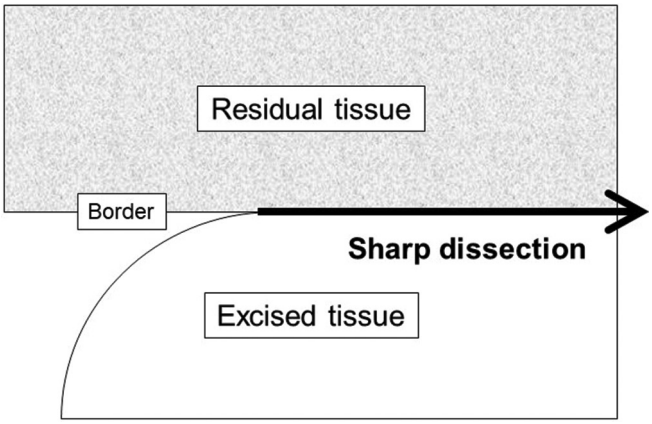

Figure 1: Modified from Takahashi.[2] The surgeon should distinguish the boundary between the excised tissue and the residual tissue, and strictly perform the removal along this boundary. In sharp dissection, the strictly defined boundary is represented by a single thin line. If this line becomes multiple or thicker, it should not be called sharp dissection. Furthermore, lymphadenectomy must be a series of thin line dissections, otherwise it should not be called lymphadenectomy. http://www.apagemit.com/page/video/show.aspx?num=303

is important for sharp dissection, but it is, actually, more important to expose the areolar connective tissue using this tissue traction. Since the areolar tissue connects tissue to tissue, massive bleeding, and tissue damage will not occur as long as the areolar tissue is cut. Rather, we should be more concerned about unnecessary bleeding due to careless blunt dissection. Regarding the use of the monopolar device, the low-voltage mode ("Cut" or "Blend") with a lower thermal effect would be important. Surgeons should adjust the mode and the wattage of the monopolar device depending on the individual patient. In any tissue dissection, moderate tissue tension is applied, areolar connective tissue is exposed and then sharply cut with monopolar device. The same surgical principles of sharp dissection are employed for open, laparoscopic, or even robotic approach. We demonstrate our surgical method of surgical dissection using Videos 1-3 (http://www.apagemit.com/page/video/show.aspx?num=303). This retrospective study was approved by the institutional review board of our institution (approval no. 2018-120). Due to retrospective nature of the study, the ethics committee had waived the requirement of informed consent from the patients.

Discussion

Sharp dissection is an unfamiliar technique in gynecology. In practice, it is up to the surgeon to decide which type of dissection to perform. During blunt dissection, in addition to the possibility of inadvertent bleeding, there are concerns about crushing the areolar tissues and obscuring the exact boundaries between tissues. The problem with sharp dissection is the steep learning curve. It takes time to attain proficiency in sharp dissection, which may sometimes result in bleeding. However, if we hone our technical skills by gaining experience, the technique of dissection can be refined, time can be reduced, and unnecessary blood loss can be avoided. We gynecologists should know that the basic surgical principle of dissection is sharp dissection.

In surgical fields, the prognosis and oncological outcomes are known to be affected by the technique of dissection. The total mesorectal excision (TME) has been advocated as the appropriate operation for patients with carcinoma of the rectum. TME is accomplished using meticulous sharp dissection of the avascular plane between the mesorectum and the parietes under direct vision.[3-5] TME for colorectal cancer has been shown to improve local recurrence, reduce the development of metastatic disease subsequent to local failure, and to improve survival rates. Precise and meticulous sharp dissection is not limited to TME but is widely accepted in various surgical specialties. Indeed, many surgeons perform their surgeries using sharp dissection. In addition, the protocol of the Japan clinical oncology group 0212 trial, a multicenter, randomized controlled, noninferiority trial for clinical Stage II/III lower rectal cancer, explicitly states that resection of mesorectum and lateral lymph node dissection should be done by sharp resection under direct vision, not by manual blunt dissection.[6] These facts suggest that surgical technique such as sharp dissection may directly affect tumor prognosis.

On the other hand, in gynecology, there are few reports or clinical trials associated with sharp dissection to my knowledge other than the TeLinde's textbook that recommends that bladder dissection should be performed by sharp dissection.[7] I suppose that many obstetricians and gynecologists first learn to perform cesarean section and benign surgeries and prioritize surgical time over surgical techniques, such as the technique of dissection. In addition, not many obstetricians and gynecologists are engaged in gynecologic oncology. Therefore, this basic surgical concept might not have been followed. With the widespread adoption of MIS, surgical procedures are now more clearly visualized and the differences from gynecologic fields have become clear. We obstetricians and gynecologists, who have mainly practiced blunt dissection, should reconsider the significance of sharp dissection and practice it in the field of gynecological surgery, especially in gynecological malignancy. We provide surgical videos of various organ dissections in each modality without inadvertent blunt dissection.

Even in this era of robot-assisted surgery and introduction of artificial intelligence technology in the surgical field, we believe it is necessary to go back to the basics of surgical techniques that are the achievements of our predecessors in the surgical field and properly pass these on. Inadvertent blunt dissection should be minimized, as most surgical procedures can be performed with sharp dissection. What is important is moderate

tissue tension and how to use monopolar. One can sharply cut the loose connective tissue assisted by moderate tissue tension. With regard to the use of monopolar, it is essential that it not be applied directly to the tissue, but rather be used with or without touching the tissue (desiccation or vaporization).

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Conflicts of interest

There are no conflicts of interest.

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