

Primary Left Upper Quadrant (Palmer's Point) Access for Laparoscopic Radical Prostatectomy

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Purpose: Although Palmer's point approach is described for upper urinary tract laparoscopy, we use this technique routinely for robotic and standard laparoscopic radical prostatectomy and we describe our experience with this approach.

Materials and Methods: Since 2004, Palmer's point Veress entry has been used to create pneumoperitoneum in 126 robotic and 21 standard laparoscopic radical prostatectomies. On the left side, a 2-mm transverse skin incision was made 3 cm below the left costal margin on the midclavicular line. Through this incision, a Veress needle was inserted to create pneumoperitoneum.

Results: The mean patients' age and body mass index were 59.7 years (range, 37 to 73 years) and 27.92 kg/m² (range, 22 to 39 kg/m²), respectively. Thirty-eight patients had prior abdominal operations. The mean number of punctures performed was 1.08 per case. In 93 % of the subjects, Veress needle was inserted during the first attempt. The mean time to establish pneumoperitoneum was 5.63 minutes (range, 4 to 8 minutes). No major entrance injuries occurred.

Conclusion: Palmer's point upper quadrant Veress needle access may be a safe and effective method of establishing pneumoperitoneum in patients subjected to robotic and standard laparoscopic radical prostatectomy.

Keywords: laparoscopy, prostatectomy, prostatic neoplasms, robotics

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INTRODUCTION

Laparoscopic surgery is an important part of urologic practice. Establishing pneumoperitoneum is an important step in laparoscopic surgery; however, serious complications may occur during this part of the procedure. In a recent review, establishing initial pneumoperitoneum accounted for 6% to 57% of injuries occurring during laparoscopy.⁽¹⁾

Various techniques have been described to perform insufflation and place trocars. Classic closed pneumoperitoneum (Veress), open (Hasson) pneumoperitoneum,

direct trocar insertion through a small incision in the peritoneum, disposable shielded trocars, radially expanding trocars, and visual entry systems are used for laparoscopic entry.⁽²⁾ The most widely utilized techniques are the closed Veress technique, open Hasson technique, and direct trocar insertion without pre-existing pneumoperitoneum.⁽³⁾

To minimize entrance injuries, especially in those patients with prior abdominal operations and intraperitoneal adhesions, alternative entry sites to the closed insertion of a Veress needle at paraumbilical region

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Figure 1. Palmer's point.

have been advocated. Palmer described the use of the left subcostal pararectus region as the primary puncture site, known as Palmer's point (Figure 1).⁽⁴⁾ This technique has mainly been employed for procedures in the upper abdomen.

In this study, we describe our experience with using Palmer's point access for robotic and standard laparoscopic radical prostatectomy.

MATERIALS AND METHODS

Since 2004, Palmer's point Veress entry has been used to create pneumoperitoneum in 126 robotic and 21 standard laparoscopic radical prostatectomies. All operations were performed by the same team. Surgical team consisted of 4 surgeons who had significant open radical prostatectomy experience. After completing the learning curve for the upper tract laparoscopy, 21 transperitoneal laparoscopic radical prostatectomies were performed. The team completed 4-day da Vinci robotic laparoscopy training course in February, 2005. Our robot assisted radical prostatectomy program began in March, 2005. We used transperitoneal approach similar to Vattikuti Institute Prostatectomy technique with small modifications.

Under general anesthesia, the patients were prepped and draped from the nipples to the genitalia and the mid-thigh, including the perineum. In supine position, a nasogastric tube was placed. As described in the literature, on the left side, a 2-mm transverse skin incision was made 3 cm below the left costal margin on the

midclavicular line. Through this incision, a Veress needle was inserted to create pneumoperitoneum.

Prior to insufflation, appropriate positioning of Veress needle in the peritoneal cavity was confirmed. Initial return of blood, urine, or intestinal content is the indicator of inappropriate positioning. A 10-mL syringe containing 2 mL of saline was attached to stopcock of Veress needle and was aspirated. Proper positioning should result in air return; not blood, urine, or intestinal content. Thereafter, the saline in the syringe was pushed through Veress needle and the syringe was removed leaving a small droplet on the stopcock. Proper positioning should result in uninhibited leakage of the saline into the abdomen.

Initial CO₂ insufflation was done with low flow (1 L/min) and the intra-abdominal pressure was monitored. If the initial pressure did not exceed 8 mmHg, the flow rate was increased to 30 L/min. Intra-abdominal pressure was set to 20 mmHg. The time between Veress needle incision and achieving the intra-abdominal pressure of 20 mmHg was defined as pneumoperitoneum time. Once pneumoperitoneum was established, a 12-mm optic trocar was inserted around the umbilicus and the remaining trocars were placed under direct laparoscopic vision. In the patients with prior abdominal operations, the initial trocar was most remote from the old incision. Depending on the size of this trocar, often 4 mm 30° cystoscope was used for initial exploration. After exploring intraperitoneal cavity, other ports were placed under direct vision following necessary adhesiolysis.

RESULTS

The mean patients' age and body mass index (BMI) were 59.7 years (range, 37 to 73 years) and 27.92 kg/m² (range, 22 to 39 kg/m²), respectively. Thirty-eight patients had prior abdominal operations, including hernia repair, appendectomy, and cholecystectomy and 10 of them had more than 1 operation. Mean Veress puncture number was 1.08 (range, 1 to 3). In 93% of the patients, Veress needle was inserted successfully at the first attempt, while in 7%, more than 1 Veress needle insertion attempt was needed. This failure rate was not related with BMI

Demographic and operative characteristics.

Mean age (years)	59.7 (37 to 73)
Mean BMI (kg/m ²)	27.92 (22 to 39)
History of prior abdominal operations	38†
Open appendectomy	18
Open cholecystectomy	9
Inguinal hernia repair	15‡ (13 open, 2 lap)
Lap cholecystectomy	4
Lap umbilical hernia repair	2
Mean Veress puncture number	1.08 (1 to 3)
Mean pneumoperitoneum establishment time (min)	5.63 (4 to 8)

†10 patients had more than 1 abdominal operation.

‡5 with polypropylene mesh.

and prior abdominal operations.

Mean time to establish pneumoperitoneum was 5.63 minutes (range, 4 to 8 minutes). In 8 patients with prior abdominal operations and in 1 patient with virgin abdomen, there were significant intraperitoneal adhesions involving periumbilical Veress needle insertion site. During initial Palmer's point Veress insertion, the omentum was traversed in 6 patients, but there were no adverse sequelae. No major entrance injury was encountered. In addition to patients' demographics, prior abdominal operations, numbers of Veress puncture attempts, time to create pneumoperitoneum are shown in Table.

DISCUSSION

In recent years, laparoscopy has become a less invasive and acceptably safe surgical alternative to open surgery for treatment of urologic problems. Establishing pneumoperitoneum is the first and one of the most important steps for optimal surgical outcome. However, serious complications like visceral and vascular injuries may occur during this step. Veress needle insertion to establish pneumoperitoneum is thought to be one of the most difficult parts of the laparoscopy.⁽⁵⁾ About 50% of all laparoscopic complications occur during laparoscopic entry and can be related to the entry technique.⁽⁶⁻⁸⁾

The closed Veress technique, the open Hasson, and direct trocar insertion through a small peritoneal incision without pre-existing pneumoperitoneum techniques are most commonly employed for laparoscopic entry.⁽³⁾ The Veress needle was developed in 1938 by

Veress, a Hungarian internist, to insufflate the pleural space to create a pneumothorax. It is the most commonly used, and also a quick method for establishing pneumoperitoneum.^(9,10) The classic open technique was first described in 1971 by Hasson.⁽¹¹⁾ This approach is associated with minimal risks of gas embolism, pre-peritoneal insufflation, and bowel and vascular injury.⁽¹¹⁻¹³⁾ It is favored by many laparoscopic surgeons, especially general surgeons. Direct trocar insertion without pneumoperitoneum was first described by Dingfelder in 1978⁽¹⁴⁾ and is the least used entry technique. Potential benefits of the direct trocar insertion technique are shorter operation time, easy recognition of vascular/visceral injuries, and low probability of entry failure.⁽¹⁵⁻¹⁹⁾ This technique is claimed to reduce the number of blind steps from three with Veress needle (insertion, insufflation, and trocar insertion) to just one (trocar insertion).⁽³⁾

The traditional site of initial access for closed Veress entry is the periumbilical area. Previous laparotomy, history of generalized peritonitis, inflammatory bowel disease, obesity or anorexia, pregnancy (> 16 weeks gestation), or presence of large intra-abdominal mass are the risk factors for entrance injuries.⁽²⁰⁾ For patients with increased risk of entrance injuries, open entry or an alternative site for closed entry has to be preferred. Open entry does not eliminate the risk of the bowel injury. It has been shown that up to 50% of patients with midline incision and 20% with low transverse incision have some degree of periumbilical bowel adhesions.⁽²¹⁾ Also, good vision of the peritoneal cavity through a 10-mm incision is not always possible with open entry. This is especially an issue with obese patients.

Palmer, a gynecologist, described the left upper quadrant access as a safe alternative site for closed Veress entry, especially for patients with prior abdominal operations and intraperitoneal adhesions, to minimize entrance injuries.^(4,22) As Chung and colleagues suggested, we have been using Palmer's point Veress needle insertion routinely for upper urinary tract laparoscopy since 2001.⁽²³⁾ Palmer's point access is effective and safe when splenomegaly and gastric distention are not present, especially in obese patients.⁽²⁴⁻²⁸⁾

In gynecologic literature, Palmer's point Veress needle insertion has been restricted to small case series with no follow-up evaluations.^(24,25) In a relatively large series, left upper quadrant cannula insertion was performed in 60 patients for pelvic gynecologic surgery. In 51 (88%) of these patients, indications of left upper quadrant cannula insertion were prior laparotomy or laparoscopy with suspected adhesions. In this series, in 21% of women, primary umbilical cannula insertion could have been unsafe due to adhesions. No intra-operative complications have been reported.

Subcutaneous fat is less prominent in the upper abdomen compared with the umbilical area.⁽²⁸⁾ The costal margin tents the peritoneum anteriorly. Palmer's point is also rarely affected by adhesions in part due to presence of the liver and the stomach. Furthermore, major vascular structures are distant from Palmer's point with the interposition of other organs. In addition to these advantages, in our experience, Palmer's point Veress insertion is easy to learn.

To the best of our knowledge, routine Veress needle insertion through Palmer's point for robotic and standard laparoscopic radical prostatectomy has not been reported in the literature before. The extra 2-mm incision made for Palmer's point Veress insertion is not used as a trocar site for pelvic laparoscopy. We have not found it to cause gas leakage, postoperative pain, or bleeding (Figure 2).

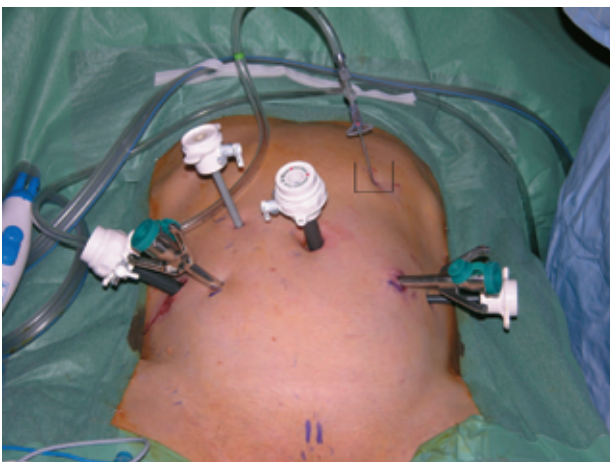


Figure 2. Port placement for robotic radical prostatectomy with a three arm da Vinci surgical system and Veress needle at Palmer's point.

In low-risk patients, entry complications are rare in both open Hasson and closed Veress techniques. In a review article by Molloy and associates, entry related bowel and vascular complications occurred in approximately 0.1% of the patients.⁽³⁾ There is no clear evidence for the optimal form of laparoscopic entry in the low-risk patients. On the basis of evidence investigated in a recent review, there appears to be no verification of benefit in terms of safety of one technique over another.⁽²⁹⁾ While a randomized trial might define which approach is the best, power calculations suggest that 800 000 laparoscopy procedures would be required for such a study.⁽²⁰⁾

CONCLUSION

Instead of using different entry techniques according to the patient's characteristics, using the same method for every patient seems to be more feasible and easy to learn. Palmer's point upper quadrant access can be routinely used for both upper and lower urinary tract laparoscopy in all patients.

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CONFLICT OF INTEREST

None declared.

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