Laparoscopic extraperitoneal paraaortic lymphadenectomy in advanced cervical cancer

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Abstract. In order to determine the zone of radiotherapy, laparoscopic extraperitoneal paraaortic lymphadenectomy (LEPL) was performed in a patient with advanced (Stage IIIb) cervical cancer. The operation time was 148 minutes. The average blood loss was 40 ml. Eight lymph nodes were removed and all were free of tumor. The patient was discharged 2 days after operation without any complication. Pelvic chemo-radiation therapy was planned following the operation. The LEPL seemed to be an accurate procedure to decide the mode and the zone of radiotherapy. To our knowledge this is the first LEPL performed in our country.

Key words: cervical cancer, extraperitoneal paraaortic lymphadenectomy, laparoscopic surgery

Recently, chemoradiation has been used primarily in advanced cervical cancer therapy. The purpose of endoscopic surgery is to determine the paraaortic lymph nodes in advanced cervical cancer. Laparoscopic extraperitoneal and transperitoneal approaches have been used for this purpose. Transperitoneal route was defined by Querleu and Childers in 1992 and extraperitoneal technique was reported by Dargent [1-3]. At the moment, extraperitoneal approach is preferred in order to protect the postoperative adhesion formation which may be related to increased rate of radiotherapy complications [4]. In advanced cervical cancer, laparoscopic interventions may be used for two indications; first, to determine the zone of radiotherapy and second, to choose the patients for pelvic exenteration surgery. In this case study, our aim was to determine the zone of radiotherapy.

Case

The patient was 49 years old and admitted to our clinic with postcoital bleeding. She had 4 pregnancies and 2 normal deliveries. Rectovaginal examination under general anesthesia revealed a tumor which was about 5cm. The cervix was barrel shaped and the tumor was invading right parametrium up to the lateral pelvic wall. Left parametrium was tumor free.

Fractional probe curettage and cervical biopsy were performed. Pelvic MR indicated a mass lesion which was 55x40x40 mm, protruding through the vagina narrowing the endocervical channel, pressing the bladder from the posterior and infiltrating the anterior walls of the uterus and cervix totally.

Rectoscopic and cystoscopic examinations were performed as part of the routine evaluation. Cervical biopsy was resulted as squamous cell cervical carcinoma and the patient was staged as IIIB cervical cancer. After having the informed consent, Laparoscopic extraperitoneal paraaortic lymphadenectomy was performed in 148 minutes with an average blood loss of 40ml. The patient was discharged 48 hours after operation without any complications. Eight reactive lymph nodes were reported after postoperative histopathological diagnosis. Chemoradiotherapy with pelvic radiotherapy was planned.

The patient was operated at lithotomy position. In the first part of the operation, infraumbical diagnostic laparoscopy was performed for cytological examination, abdominal washing procedure was performed and pelvic structures were examined. A 4x5cm tumor was seen in the cervix. A 1.5 cm incision including the fascia was made to the left symmetrical region of Mc Burney. In this stage, the process was guided by the laparoscope which was in the abdominal cavity. The peritoneum was dissected by finger. The psoas muscle and iliac artery were identified. Then, pneumatic laparoscopic trocar was placed and fixed in the dissected area. Intraperitoneal gas was evacuated while the extraperitoneal laparoscopy was started. Carbondioxide (CO2) has been insufflated until the pressure reached 10mmHg. Over the iliac zone, by following mid-axillar line the entrance for the second trocar was found. For safety, a spinal needle was inserted into the extraperitoneal area. Through this entrance, a 5mm trocar was inserted. Laparoscopic forceps was placed and dissection was made along the medial line. First, psoas muscle and iliac artery were identified. Then, pneumatic laparoscopic trocar was placed and fixed in the dissected area. Intrapernitoneal gas was evacuated while the extraperitoneal laparoscopy was started. Carbondioxide (CO2) has been insufflated until the pressure reached 10mmHg. Over the iliac zone, by following mid-axillar line the entrance for the second trocar was found. For safety, a spinal needle was inserted into the extraperitoneal area. Through this entrance, a 5mm trocar was inserted. Laparoscopic forceps was placed and dissection until the subcostal zone was made. Then, a 10mm trocar was inserted into the infracostal area again on the midaxillar line.

Through the second trocar, laparoscopic dissector was inserted in and the dissection was made along the medial line. First, psoas muscle was found, then the iliac artery which was the second designation point and ureter was determined (Fig 1). The ovarian vein and artery which were the third designation point were separated very gently because of their fragile structure. Then the peritoneum was driven medially. Using the forceps, ureter and the ovarian vessels were placed upward and the dissection was progressed over the iliac artery through the aortic bifurcation.
The ureter and the ovarian vein were swept away from the operation area. The dissection was advanced through the right part of the aorta. In this stage, we reached to the parasympathetic plexus and inferior mesenteric artery. The plexus was dissected and the ventrolateral part of aorta became free (Fig 2).

Then the dissection was made until the left renal vein. When the dissection was over, lymphadenectomy was started (Fig 3). A 2x3cm sized suspicious lymph node was removed out using the endobag.

While we were waiting for frozen section a dissection on the other side was performed. At the level of bifurcation, first right ovarian artery and vein, then, right ureter were identified. Dissection was enlarged along the right common iliac artery on the inferior side and along vena cava inferior on the superior side.

The lymph nodes were reported as ‘malignancy negative’. Then left paraaortic and ili-ac, paracaval and right ili-ac lymph nodes were removed. At the end, retroaortic lymph nodes were dissected.

At the end of the operation, the all sites were irrigated and aspirated and parietal peritoneum left open in order to prevent lymphocele formation. Bipolar laparoscopic cautery was used to control bleeding. The patient was mobilized completely at the first day postoperatively. Blood loss was calculated as 40 ml.

Discussion

In advanced cervical cancer, the most important advantage of extraperitoneal laparoscopic procedure is prevention of unnecessary morbidity of the radical surgery [5-9]. Besides, intraoperative and postoperative complications, hospital stay and infection rates will be decreased [5,7-10].

Ouerleu and Dargent’s study including 53 patients had the largest series and the average operating time was 125.9±31.8 minutes. Our operating time was 148 minutes. One factor that may affect the operating time is surgical equipment. Using laparoscopic forceps which specially developed for this surgery may ease dissection. During lymphadenectomy using Dargent Extractor may not only shorten the operating time, but also may increase the number of lymph nodes which removed. Successful arrangement of the distance between the trocars may enhance the effective use of the forcepses [5-7,11]. Keeping the distance between the trocars as much as it could be supplies more comfort during the operation. Some authors suggest clipping and cutting lumbar arteries at this situation [1,4,7]. But Ouerleu and Leblanc who performed this technique successfully, suggest saving these arteries.

In Querleu and Dargent’s study, the technique was successful in 42 patients and 10-44 lymph nodes were removed in patients that Balloon used in extraperitoneal approach. In open surgery the average of lymph node removed is 9.8. In our case 81 lymph nodes were removed and they were all free of tumor.

The most important complication is vessel injury during the dissection [5,7,10-13]. The reason why the pressure in extraperitoneal laparascopy is kept approximately at 10 mm Hg is to decrease the risk of pulmonary obstruction when there is a vessel injury [1,5,11,12]. In Dargent’s series, a case of ureter injury was treated by placing stent [5,11,12]. One of the most important points for preventing the intraoperative complications is that both of the trocars including the pneumatic one must be inserted very carefully. We determined the best place for the trocar entry by a spinal catheter. To prevent lymphocele formation, parietal peritoneum must be opened by incision and intraperitoneal and extraperitoneal areas must be conducted at the end of the operation [1,5,11-14]. If the continuity of the peritoneum is spoiled, the extraperitoneal fixed pressure can not be reached and the operation will get more difficult but not impossible.

In this occasion, laparscope was placed through a third helper product and the peritoneum will be placed upper.

In conclusion, extraperitoneal paraaortic lymphadenectomy might be a reasonable method to prevent aggressive surgery
and also it may shorten the time period to begin a postoperative radiotherapy in patients with advanced cervical cancer.

References