

Laparoscopic findings, histopathologic evaluation, and clinical outcomes in women with chronic pelvic pain after hysterectomy and bilateral salpingo-oophorectomy

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KEYWORDS:

Chronic pelvic pain;
Endometriosis;
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Laparoscopy

Abstract

STUDY OBJECTIVE: To laparoscopically evaluate the pelvis of patients with chronic pelvic pain after hysterectomy and bilateral salpingo-oophorectomy, to determine any associated factors to the pain.

DESIGN: Retrospective cohort of patients with chronic pelvic pain after hysterectomy and bilateral salpingo-oophorectomy (Canadian Task Force Classification II-2).

SETTING: University-affiliated teaching hospital.

PATIENTS: From January 1990 through May 2002, 124 women with chronic pelvic pain after hysterectomy and bilateral salpingo-oophorectomy underwent laparoscopic and histopathologic evaluation of the pelvis.

INTERVENTION: Diagnostic laparoscopy was performed to inspect the pelvis for any signs of pathology. If any abnormalities were visualized, they were treated with CO₂ laser resection and sent for histopathologic evaluation.

MAIN OUTCOME MEASURES: Laparoscopic and histopathologic findings of the pelvis, as well as subjective pain improvement after laparoscopy.

CONCLUSION: The most common histopathologic findings at laparoscopy in women with chronic pelvic pain after hysterectomy and bilateral salpingo-oophorectomy included adhesions, adnexal remnants, and endometriosis. Laparoscopic treatment of any pelvic pathologic condition improved pain symptoms in these women.

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Chronic pelvic pain in women is a relatively common condition. It accounts for approximately 1 in 10 outpatient gynecologic visits, 15% to 40% of listed indications for diagnostic laparoscopy, and 10% to 20% of hysterectomies

in the United States and Canada.^{1–7} The true incidence and prevalence of chronic pelvic pain, as well as the socioeconomic impact, remains unknown.¹ Many definitions of chronic pelvic pain have been used, but most investigators accept a minimum duration of 6 months, whereas others use at least 3 months' duration.¹ The causes of chronic pelvic pain are diverse and multiple, including the genitourinary, gastrointestinal, and musculoskeletal systems. Many women who report chronic pelvic pain have no demonstra-

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Table 1 Indications for hysterectomy and bilateral salpingo-oophorectomy

Indication	Number
Endometriosis	56
Chronic pelvic pain	25
Multiple	18
Unknown	13
Menorrhagia	8
Malignancy (large bowel)	2
Leiomyoma	1
Pelvic inflammatory disease	1

ble pelvic disorder. Previous laparoscopic studies on chronic pelvic pain have found that 15% to 30% of women have a normal-appearing pelvis.^{8,9} Management can be a diagnostic and therapeutic challenge. The most effective approach to these patients is a multidisciplinary approach.

The most common gynecologic conditions that may contribute to chronic pelvic pain include adenomyosis, endometriosis, chronic pelvic inflammatory disease, pelvic congestion syndrome, endosalpingiosis, and adhesions. Management usually includes both medical and conservative surgical therapy. When symptoms do not resolve with conservative measures and a thorough workup excludes a non-gynecologic cause of the pelvic pain, a total hysterectomy and bilateral salpingo-oophorectomy is considered as definitive management. However, the persistence of pelvic pain after hysterectomy for chronic pelvic pain has been found in up to 20% of patients after operation.¹⁰

The purpose of our study was to evaluate the pelvis of patients with chronic pelvic pain after hysterectomy and bilateral salpingo-oophorectomy. Laparoscopic and histopathologic findings, as well as clinical outcome after laparoscopy were evaluated in this patient population.

Materials and methods

One hundred twenty-four women underwent laparoscopic evaluation between 1990 and 2002 at St. Joseph's Health Care, London, Ontario, Canada. The same surgeon performed all the procedures (G.A.V.). The presenting complaint of these patients was persistent cyclic or chronic pelvic pain, present for at least 6 months, after hysterectomy and bilateral salpingo-oophorectomy (single or staged procedures) performed by various gynecologists in Ontario. The most common indications for hysterectomy (**Table 1**) were endometriosis (n = 56) and chronic pelvic pain (n = 25) in the absence of any definitive disease. Information on presenting complaint was obtained from reviewing charts from the primary surgeon. Patients were contacted by telephone interviews to obtain consent, as well as information on pain and any subsequent surgeries after the laparoscopic procedure. Patients were asked to report their pain symptoms before and at 12 months after operation, with a visual

analog scale from 1 to 10 (1–3 mild pain, 4–7 moderate pain, 8–10 severe pain). Improvement in pelvic pain was defined as a decrease of at least three points with the visual analog scale, whereas worsening of pain was defined as an increase of at least three points. Pain was denoted as being unchanged if the visual analog score did not change by more than two points.

Surgery was performed in the operating room with the patient under general anesthesia. Appropriate pneumoperitoneum was established with a Veres needle inserted at the umbilicus or the left upper quadrant as previously described by Vilos.¹¹ A 10-mm diagnostic laparoscope was introduced through a subumbilical or left upper quadrant incision, and 5-mm ancillary ports were inserted in the left or right lower quadrants as required. The abdomen and pelvis were inspected for any pathologic condition including adhesions, endometriosis, abnormal appendix, adnexal remnants or cysts, peritoneal defects, and any signs of metastases of cancer. If abnormalities were visualized, they were treated by CO₂ laser resection and sent for histopathologic evaluation. If no abnormalities could be detected, the patient was classified as having a normal pelvis.

Results

The median age of women was 40 years (range 24–67 years), and at least 70% of the women were parous (median, 2; range, 0–5). Findings at the time of laparoscopy are listed in **Table 2**. The most common finding was adhesions (94%), followed by adnexal remnants (26%) and endometriosis (15%). All adhesions were lysed with a CO₂ laser at time of laparoscopy. All women with a laparoscopic finding of endometriosis had a previous diagnosis of endometriosis at hysterectomy and bilateral salpingo-oophorectomy. Many women were found to have more than one abnormality at time of laparoscopy. The most common combination was endometriosis and adnexal remnants (n = 10/124).

Table 2 Findings at time of laparoscopy

Laparoscopic findings	Number (%)
Adhesions	116 (93.5)
AR	32 (25.8)
Endometriosis	18 (14.5)
Abnormal appendix	17 (13.7)
Adnexal remnants & endometriosis	10 (8.1)
Adnexal cysts	4 (3.2)
AR and abnormal appendix	3 (2.4)
Endometriosis and abnormal appendix	3 (2.4)
Peritoneal defects	2 (1.6)
Malignancy (bowel)	2 (1.6)
AR and peritoneal defects and abnormal appendix	1 (<1)
Nodular liver	1 (<1)
AR and adnexal cysts	1 (<1)
Normal pelvis/no identifiable abnormality	2 (1.6)

AR = adnexal remnants.

Table 3 Time elapsed since initial laparoscopy

Time (years)	Number
<1	31
1	19
2	34
3	12
4	11
5	12
6	5

Excisional biopsy specimens taken at time of laparoscopy were sent for histopathologic examination. Biopsy specimens of adhesions were not sent for examination. Any suspected lesions of endometriosis or adnexal remnants were excised and sent for histopathologic examination. Only histologically confirmed cases of endometriosis and adnexal remnants were included in our data analysis. Furthermore, there were two cases of malignancy diagnosed, both bowel carcinoma. One of these patients had a recurrence of a previously resected rectosigmoid carcinoma at the level of the ascending colon. The second case was a primary occurring rectosigmoid cancer. In both cases, there was a 3- to 4-cm mass arising from the bowel, which was vascular and friable. In the recurrent carcinoma, the ascending bowel was adhered to the right pelvic sidewall, whereas the rectosigmoid primary carcinoma was adhered to the cul-de-sac. An intraoperative consult was made to general surgery where carcinoma was histologically confirmed. Both patients later went on to have resections of these lesions where carcinoma was histologically confirmed. The appendix was removed if the patient complained of right lower quadrant pain before surgery, and the appendix appeared inflamed, indurated, or edematous or was involved in adhesions. A total of 17 appendices were removed, and 41% showed either an obliterated lumen ($n = 5$) or endometriosis ($n = 2$) on pathologic evaluation. The remaining 10 appendices did not have any histologic abnormality.

Follow-up ranged from less than 1 to 6 years after laparoscopy (Table 3). Overall, subjective pain improvement after laparoscopy was found in 58.9% of patients (Table 4). Of the women who did not experience an improvement in pain, 17 reported having a repeat laparoscopic procedure.

Discussion

Pelvic pain may persist after hysterectomy and bilateral salpingo-oophorectomy. One study reported on a prospective cohort of 308 women having hysterectomy for chronic pelvic pain of at least 6 months duration.⁷ The data showed a 74% resolution of pain, 21% improvement but persistent pain, whereas 5% reported unchanged or increased pain after hysterectomy. The probability of persistent pain was higher in women who were younger (<30 years), lower socioeconomic status, had no identifiable pelvic disease,

had a history of pelvic inflammatory disease, or had a history of at least two pregnancies. Up to 40% of women in these specific subgroups continued to experience long-term pain. Another study evaluated 99 women who underwent hysterectomy for chronic pelvic pain of unknown cause, having excluded both endometriosis and adhesions.¹⁰ Histopathologic analysis of hysterectomy specimens revealed adenomyosis (20.2%), leiomyomata (12.1%), or both adenomyosis and leiomyomata (2.02%). After hysterectomy, 77.8% of women showed significant improvement in pain, with only 22.2% having persistent pelvic pain. Previously, we reported on an abstract of the first 115 women, aged 33 to 68 years, with chronic pelvic pain after hysterectomy and bilateral salpingo-oophorectomy.¹² Findings at laparoscopy included adhesions (107/115), adnexal remnants (32/115), abnormal appendix (19/115), and abnormal peritoneum (14/115). After laparoscopic surgery, 58% of patients had an improvement in pelvic pain symptoms, with the ovarian remnant group experiencing a 70% improvement in symptoms. In this study, the most common histopathologic findings at laparoscopy were adhesions, adnexal remnants, and endometriosis. Overall, 59% of women had improvement in pain symptoms after laparoscopy.

Most studies show that adhesiolysis itself does not offer significant improvement in women with chronic pelvic pain.^{1,13} Dense, vascularized intraabdominal adhesions that involve bowel are more likely to cause pelvic pain.¹⁴ These adhesions may cause impaired motility or stretching and pulling of pelvic organs resulting in pelvic pain. One study histologically confirmed the presence of sensory nerve fibers in peritoneal adhesions, which suggests adhesions may be capable of pain conduction.¹⁵

Endometriosis-associated pain may be found in up to 60% of women with dysmenorrhea and 40% to 50% of women with pelvic pain and dyspareunia.¹⁶ Initial treatment of symptomatic patients involves medical and conservative surgical therapy. If a woman has completed childbearing and fails to respond to conservative therapy, hysterectomy and bilateral salpingo-oophorectomy is generally considered the most effective and definitive treatment of endometriosis-related chronic pelvic pain.¹ One study evaluated the recurrence of symptoms and reoperation rate after hysterectomy with ovarian conservation for endometriosis.¹⁷ Recurrent pain was found in 62% of women with ovarian preservation with 31% requiring reoperation. Those women who underwent bilateral salpingo-oophorectomy only had 10% symptom recurrence and 3.7% reoperation rates. It has

Table 4 Clinical outcome after laparoscopy for chronic pelvic pain

Outcome	Number (%)
Improved	73 (58.9)
Unchanged	28 (22.6)
Worsened	5 (4)
Lost to follow-up	18 (14.5)

been reported that in women who have hysterectomies, those under 30 years of age are more likely to have persistent symptoms of endometriosis than older women.¹⁸ Furthermore, persistence of endometriosis after surgical castration has been seen in patients with severe disease, often involving the gastrointestinal tract or obliteration of the cul-de-sac.¹⁹ Among women with chronic pelvic pain after previous total hysterectomy with bilateral salpingo-oophorectomy, up to 34% were found to have endometriosis at the time of laparoscopy when endometriosis had not been observed at time of initial operation.²⁰ Another study evaluated endometriosis recurrence risk after bilateral salpingo-oophorectomy among women who received hormone replacement therapy.²¹ Women not receiving hormone replacement therapy did not have recurrence, whereas only 3.5% of women receiving hormone replacement therapy had recurrence of endometriosis. Risk factors for recurrence included peritoneal involvement greater than 3 cm (2.4%) and incomplete excision of the ovaries (22.2%). In women who did not have risk factors for recurrence, hormone replacement therapy appears to be a reasonable option.

Ovarian remnant syndrome is defined as the presence of ovarian tissue in a woman with a history of previous bilateral salpingo-oophorectomy, with or without hysterectomy.²² It is the result of unintentional incomplete excision of ovarian tissue in the setting of severe adhesions, endometriosis, chronic pelvic inflammatory disease, inflammatory bowel disease, multiple previous surgeries, or neoplasms. Ovarian remnants can also develop from unintentional autotransplantation of ovarian tissue on peritoneal surfaces.²³ Ovarian remnants can be found in up to 18% of women with persistent pelvic pain after bilateral salpingo-oophorectomy.²³ One study reported that 76.5% of women with chronic pelvic pain, having an adnexal mass and a history of previous salpingo-oophorectomy, were found to have an ovarian remnant at time of laparotomy or laparoscopy.²⁴ Removal of the ovarian remnant involves difficult surgical dissection, with either an open or laparoscopic approach.^{23–25} In our study, 26% of women with chronic pelvic pain were found to have persistent ovarian tissue.

The use of prophylactic appendectomy in the treatment of chronic pelvic pain has been found to have some merit.^{26,27} It has not been associated with an increase in surgical morbidity, and most patients have reported relief or an improvement in pain symptoms. One study reported an 85% subjective improvement in women who underwent laparoscopic appendectomy for chronic pelvic pain.²⁸ In addition, up to 20% of women with endometriosis have been found to have appendiceal disease.²⁹

Before considering surgery, women with chronic pelvic pain should be thoroughly investigated with a careful gynecologic examination, pelvic imaging, and evaluation of the urinary, gastrointestinal, and musculoskeletal systems as a possible source of pelvic pain. A multidisciplinary approach should always be undertaken.¹ There have been

reports of an association between psychosomatic diseases and a history of sexual abuse.^{30–32} If suspected, a psychiatric evaluation should be offered.

Conclusion

Chronic pelvic pain in women after hysterectomy and bilateral salpingo-oophorectomy is a complex and frustrating gynecologic issue. Laparoscopy as a diagnostic and therapeutic tool is both safe and effective, with most women experiencing a significant improvement in pain symptoms after laparoscopic therapy. Common pelvic disease reported in these women includes adhesions, adnexal remnants, and endometriosis.

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