

Prospective Randomized Trial of Right-Sided Paracolic Adhesiolysis for Chronic Pelvic Pain

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ABSTRACT

Background: Prior study has shown that right paracolic adhesions are found in 90% of patients with chronic pelvic pain and less frequently in pain-free patients. We set out to determine whether paracolic adhesiolysis will reduce site-specific pain.

Methods: This was a prospective, randomized trial of right paracolic adhesiolysis at the time of diagnostic and operative laparoscopy for chronic pelvic pain. Twenty-five patients with a diagnosis of chronic pelvic pain were randomized to either undergo or withhold lysis of right paracolic adhesions at the time of operative laparoscopy.

Results: Right paracolic adhesions were found in 100% of our patients. For all subjects, there was a significant reduction of right and left lower quadrant pain ($P < 0.001$) following the operative laparoscopy. Those who underwent right paracolic adhesiolysis had significantly greater right pelvic pain reduction than those who did not ($P = 0.014$). There was no difference in the reduction of left or mid pelvic pain between the treatment and control groups.

Conclusions: Right paracolic adhesiolysis reduces short-term site-specific tenderness in patients with chronic pelvic pain. Patients who would benefit from diagnostic or operative laparoscopy are likely to benefit further from paracolic adhesiolysis.

Key Words: Chronic pelvic pain, Paracolic adhesions, Laparoscopy, Adhesiolysis.

INTRODUCTION

The role of adhesiolysis in the treatment of chronic pelvic pain has long been controversial. Abdomino-pelvic adhesions are the most common laparoscopic finding in patients with chronic pelvic pain, ranging in frequency from 30% to 50%^{1,2} in some studies to as high as 90%³ when paracolic adhesions are included. Some investigators have questioned whether adhesions are causal in pelvic pain because they can often be found in patients without pelvic pain.^{4,5} Furthermore, it is uncertain whether cutting adhesions will resolve pain, because these adhesions may reform or the inflammation that induced them may still be present after adhesiolysis.

One randomized trial⁶ of adhesiolysis at laparotomy for pain has been conducted, which suggests a benefit for severe intestinal adhesions, and several prospective non-randomized trials suggest that laparoscopic adhesiolysis may be beneficial for chronic pain. Chan et al⁷ found that the majority of their patients reported that their pain was cured or improved following laparoscopic adhesiolysis. Steege et al⁸ found the majority of their patients improved following laparoscopic adhesiolysis, especially those without the psychological and social dysfunction associated with chronic pain syndrome.

In a previous prospective diagnostic study,³ we have shown that right paracolic adhesions are found in nearly 90% of patients with chronic pelvic pain, significantly more than the 10% to 20% rate found in the pain-free population undergoing tubal sterilization. We postulated that these adhesions are secondary to inflammatory peritoneal fluid tracking up the right lateral gutter in association with pelvic infection or endometriosis. We initiated a prospective study to determine whether lysis of these adhesions will improve site-specific pain in patients with chronic pelvic pain.

METHODS

Between June 1996 and July 1997, 25 subjects undergoing diagnostic and possibly operative laparoscopy for chronic pelvic pain were randomized to either undergo or withhold lysis of right paracolic adhesions in addition to any other necessary procedures at the time of laparoscopy.

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Informed consent was obtained before surgery, and the Institutional Review Board of our institution approved the protocol.

Preoperatively, a detailed history and pain mapping was performed with a verbal pain scale of 0 to 10 utilized at 9 locations on the anterior abdominal wall. Subjects were instructed to provide a numerical assessment of tenderness to palpation, ranging from no pain (0) to the worst pain they have ever experienced.¹⁰ At the time of surgery, subjects were randomized to undergo lysis of paracolic adhesions or no lysis of these adhesions. All other indicated procedures were performed including lysis of adnexal adhesions or resection or ablation of endometriosis. Lysis of paracolic adhesions was performed with an endoscopic scissors, while a second instrument was used to grasp the base of the adhesion off the bowel, pulling the colon away from the sidewall. In addition to lysing the adhesion at the site of attachment to the peritoneum, electro-surgical coagulation was applied.

At 4 to 8 weeks postoperatively, patients underwent a repeat examination with pain mapping and a verbal pain scale, by a blinded examiner, as had been performed preoperatively (Figures 1 and 2). The nonparametric Kruskal-Wallis rank sum test was used to compare the site-specific change between controls and treatment. A nonparametric Friedman paired rank sum test was used to compare pain reduction following the surgery for both groups combined, and Fisher's exact test was used to compare rates of endometriosis and pelvic inflammatory disease in the control and treatment groups.

RESULTS

At laparoscopy, 15/25 (60%) subjects had endometriosis, 8/25 (32.0%) had evidence of prior pelvic infection, and 12/25 (48.0%) had pelvic adhesions. Right-sided paracolic adhesions were found in 100% of our subjects. Among patients randomized to lysis of paracolic adhesions (13/25), there was no difference in age, preoperative report of right-sided pain, or preoperative pain scale when compared with those randomized to no lysis (Table 1). Additionally, the 2 groups had no differences in the rates or location of endometriosis, pelvic inflammatory disease

0	1	2	3	4	5	6	7	8	9	10
No Pain	Mild Pain	Mod Pain	Severe Pain	Very Severe Pain	Worst Possible Pain					

Figure 1. Verbal Pain Scale of 0 to 10 used for pain mapping.

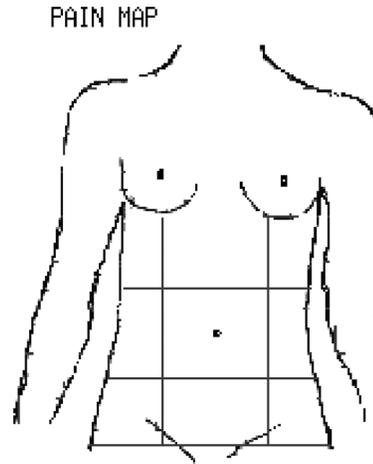


Figure 2. Pain map used to perform pain mapping at 9 locations on the anterior abdominal wall.

Table 1.
General Patient Characteristics

	Paracolic Adhesions Lysed (n=13)	Paracolic Adhesions Not Lysed (n=12)	P Value
Age (years)	33.5±6.7	35.5±8.9	0.51*
Previous surgery	6/13	5/12	1.0*
Body mass index	<25	<25	NS*

*Not significant (NS).

(PID), or pelvic adhesions found at the time of laparoscopy.

Following laparoscopic surgery, all subjects experienced a significant reduction in right lower quadrant tenderness on the 0 to 10 pain scale, as well as a reduction of left lower quadrant tenderness on the pain scale. The subjects displayed no significant difference in midline tenderness on the pain scale after the procedure (Table 2). In the treatment group following laparoscopy, there was a significantly greater reduction in the right lower quadrant pain scale compared with that for the controls who did not undergo right paracolic adhesiolysis (P=0.0014). There were no differences in midline or left lower quadrant pain reduction between the treatment and control groups (Table 3).

The response to surgery, measured by site-specific reductions in the preoperative pain scale, was not influenced by the specific diagnostic finding of endometriosis, prior pel-

Table 2.

Comparison of the Pre- and Postoperative Pain Scales in All Subjects

Location	Mean Preoperative Pain Score	Mean Postoperative Pain Score	P Value
Suprapubic region	3.88±0.64	2.68±0.61	0.23*
Right lower quadrant	5.0±0.7	1.48±0.45	0.001 ^a
Left lower quadrant	3.56±0.60	1.44±0.38	0.009 ^a

*Friedman paired rank sum test.

Table 3.

Reduction in Postoperative Pain Scale in Paracolic Adhesiolysis Versus Controls

Location	Reduction in Pain Scale, Right Paracolic Adhesiolysis	Reduction in Pain Scale, Controls	P Value
Right lower quadrant	-5.2±0.9	-1.7±0.9	0.0014 [†]
Suprapubic region	-0.7±1.2	-1.8±0.9	0.14 [†]
Left lower quadrant	-2.9±1.1	-1.2±0.6	0.38 [†]

[†]Kruskal-Wallis rank sum test.

vic inflammatory disease (PID), or other pelvic adhesions. Endometriosis was, however, associated with significantly lower preoperative right and left lower quadrant pain when compared with chronic pain subjects without endometriosis, most of whom had prior PID. Pelvic inflammatory disease was associated with slightly higher preoperative left lower quadrant pain than in those with no history or findings suggestive of PID.

DISCUSSION

We found that laparoscopic paracolic adhesiolysis results in significantly greater reduction of short-term (2 months) site-specific pain when compared with pain in controls who underwent operative laparoscopy but did not undergo paracolic adhesiolysis. The mechanism through which adhesiolysis might reduce local tenderness is unknown but may include ablation of endometriosis or other inflammatory processes, as well as the ablation of the peritoneal and fascial innervation at the site of adhesiolysis. It is also possible that the benefit is derived from increasing the mobility of the colon, either allowing unimpaired colonic function or eliminating restricted movement at the peritoneal adhesion site during peristalsis.

Some authors have questioned any causal connection between adhesions and pelvic pain.^{4,5} If adhesions can cause pain, as our findings suggest, the exact mechanism remains unknown. For instance, studies to assess the association between the content of nerve fibers in adhesions and pelvic pain have been inconclusive.^{9,10}

We found that our subjects undergoing operative laparoscopy, whether in the treatment or control group for paracolic adhesiolysis, had a significant reduction in right and left lower quadrant pain scores postoperatively. This is consistent with findings in a number of previous nonrandomized studies in which 60% to 75% of subjects experienced improvement in pelvic pain following adhesiolysis, with this effect lasting for up to a year.^{7,8} Additionally, a randomized study of pelvic adhesiolysis through laparotomy by Peters et al⁶ showed a significant improvement in pain score for severe intestinal adhesions lasting for 9 months to 12 months, a finding consistent with our data.

Rapkin et al⁴ have suggested that pelvic adhesions are not a cause of pelvic pain based on the common finding of adhesions in pain-free infertility patients. Although pain is a subjective finding and some individuals even with severe adhesions may not experience pain, this trial suggests that in patients with focal chronic pelvic pain and adhesions, the adhesions can be causal, and adhesiolysis is beneficial. Stovall and colleagues¹¹ examined potential predictors of pelvic adhesions and found right adnexal tenderness a good predictor of right-sided adhesions. Additionally, several controlled and uncontrolled studies have found that adhesions are at least associated with pelvic pain.^{1,2,3,12}

When managing patients with chronic pelvic pain, it is important to evaluate and offer therapy for any psychosocial dysfunction. When psychosocial issues are not addressed, surgical intervention is less likely to result in significant long-lasting pain reduction.^{8,13,14} Therefore, although this study documents a benefit from adhesiolysis, adhesiolysis alone will unlikely be curative for chronic pelvic pain. Additionally, because subjects were followed for only 2 months, longer follow-up will be necessary to assess whether any benefit of adhesiolysis is lasting. Additionally, a larger study population in future studies would strengthen our findings. Our finding that endometriosis was associated more often with midline lower pelvic pain and chronic pelvic inflammatory disease was more often associated with lateral lower pelvic pain is consistent with the well-established association of endometriosis with dysmenorrhea, and salpingitis with lateralized pelvic pain.

CONCLUSION

This study suggests that right paracolic adhesiolysis may be beneficial for reducing site-specific pain and tenderness. Given the very common finding of right paracolic adhesions at laparoscopy for pelvic pain,³ and the relative ease and safety of paracolic adhesiolysis for a skilled laparoscopic surgeon, it seems appropriate to lyse these adhesions during laparoscopy for chronic pelvic pain. These adhesions are likely the result of peritoneal inflammation due to pelvic inflammatory disease or endometriosis, one of which was found in 84% of our subjects. Although the risks and benefits of laparoscopy and adhesiolysis need to be assessed individually for patients with chronic pelvic pain, those who would benefit from diagnostic or operative laparoscopy would likely benefit further from paracolic adhesiolysis. Further randomized studies with a larger sample size should be assessed before the routine recommendation of right paracolic adhesiolysis in the management of patients with chronic pelvic pain.

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