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GENERAL GYNAECOLOGY

Laparoscopic presacral neurectomy – retrospective series

Adrian Kwok, Alan Lam and Robert Ford

The Women's Institute – Endosurgery, Mater Misericordiae Hospital, North Shore Private Hospital, St Leonards, Sydney, Australia

SUMMARY

A retrospective audit of medical records was conducted for one surgeon (AL). All patients who underwent laparoscopic presacral neurectomy for severe midline dysmenorrhoea were identified. Details of the preoperative symptoms, clinical findings and operative records were studied. Improvement of dysmenorrhoea was assessed according to a pain scale. Twelve patients who had a laparoscopic presacral neurectomy performed were identified. Eight patients reported significant improvement of symptoms, with a further two reporting mild improvement. Two patients failed to show any improvement of symptoms. We believe that the role of laparoscopic presacral neurectomy should be limited to patients with severe midline dysmenorrhoea not responding to the medical therapy. It may be a supplementary procedure to laparoscopic resection of endometriosis or adhesiolysis.

INTRODUCTION

Perez first described laparoscopic presacral neurectomy for relief of midline dysmenorrhoea in 1990.[1] Since that time, a handful of individual series have been reported.[2,3,4,5,6,7,8] The operation, like its counterpart done by laparotomy remains contentious. It is a procedure that has potentially severe complications. Most studies addressing this procedure, either by laparotomy or by laparoscopy are retrospective in nature and there are only a few prospective, randomised controlled trials.[4,9,10]

Enthusiasm for the procedure has waned since presacral neurectomy by laparotomy was first described 100 years ago. This is partially explained by the advent of effective non-steroidal anti-inflammatory agents and the widespread use of the oral contraceptive pill. However, there are a significant number of women with resistant dysmenorrhoea and this remains a significant cause of lost work hours. The laparoscopic approach of this operation may offer relief of symptoms without causing as much acute discomfort as the laparotomy approach.

Address for correspondence

Dr Alan Lam
Suite 7 Level 3, North Shore Private Hospital
Westbourne Street
St Leonards
Sydney, New South Wales 2065
Australia

Dr Adrian Kwok FRANZCOG MRCOG Fellow in Gynaecological Laparoscopic Surgery, Dr Alan Lam FRANZCOG MRCOG Consultant, Dr Robert Ford FRANZCOG MRCOG Consultant

We present a retrospective audit of a personal series of the senior and second author between 1996 and 1998.

METHODS

The medical records of one surgeon (AL) between January 1996 and January 1999 were reviewed. Demographic details, indications for surgery, operative details and follow-up details were sought. All patients had severe midline dysmenorrhoea with minimal or no lateral components. Postoperative patient follow-up was performed in the gynaecologist's rooms or, if notes were incomplete, they were contacted by telephone. A pain scale for dysmenorrhoea was used as follows: 1 = no change, 2 = mildly improved, 3 = much improved, 4 = pain free.

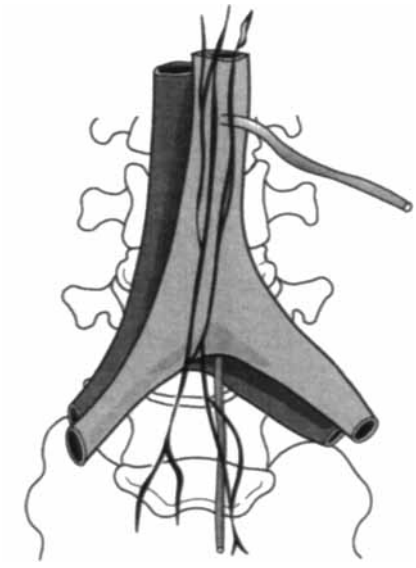
All 12 cases had clear fluids for 24 hours prior to the procedure and had medical bowel preparation the day before surgery (Picoprep™ or Golytely™). Informed consent was obtained after careful explanation of the risks and blood was taken for group and held.

Under general anaesthesia, the patient is placed in Trendelenberg position, legs supported by Allen's stirrups. An open approach for insertion of Hasson cannula is performed at the base of the umbilicus. Following insertion of the laparoscope, pneumoperitoneum is achieved and after careful inspection of the abdomen, three 5 mm ports are inserted under direct vision, suprapubically and in the left and right iliac fossae. By tilting the patient 10 to 15 degrees to the left and reflecting the sigmoid colon laterally, the sacral promontory is exposed. This allows identification of important anatomical landmarks, including the

bifurcation of the aorta and inferior vena cava, the right and left common iliac arteries and veins, the left and right ureters, and the middle sacral blood vessels. (Figure 1).

The peritoneum over the sacral promontory is lifted up and incised horizontally with unipolar diathermy scissors. Ureter and the right iliac vessels mark the lateral border of the dissection. The sigmoid mesentery and its blood vessels mark the limit of the left surgical border. The left ureter is usually obscured by the sigmoid colon. The presacral nerve is sometimes easily identified, when present as a single nerve trunk. More often, it is a plexus of nerve fibres, which can be exposed by blunt dissection in the areolar tissue underneath the peritoneum. Utmost care must be exerted to avoid injuring the presacral middle vessels as they can cause very troublesome bleeding if traumatised. Approximately 2 cm of the nerve is removed with monopolar scissors. The specimen is sent for histological confirmation. After ensuring haemostasis, the peritoneal window is left to heal without suturing. Any adhesions and/or endometriosis are treated at the same time. After 4–6 hours of observation, the patient is discharged home on the same or the following day after the procedure with follow-up in the following six weeks, then six-monthly.

Figure 1 The presacrel nerve plexus



RESULTS

A total of 12 women underwent the procedure between January 1996 and January 1999 (Table 1). The average age of the patients was 29 and their ages ranged between 20 and 40. All had tried medical therapy unsuccessfully and had a preoperative pain score of 5 out of 5 (severe). Those whose indication for surgery was endometriosis had had previous surgery for excision of disease on at least one occasion. The average time for surgery was 40 minutes. The average blood loss was 10–20 ml. There were no peri- or intraopera-

Table 1 Summary of cases

Patient	Age	Past operations	Date Of Operation	Pathology	Adhesiolysis	Resection of Endometriosis	Ventro-suspension	Dysmenorrhoea*	Follow up (months)
1	26	Operative laparoscopy	24/01/1996	Endometriosis	Yes			4	32
2	40	Cholecystectomy, appendicectomy	22/02/1996	Endometriosis				2	8
3	31	Ovarian cystectomy	27/03/1996	Endometriosis				1	2
4	35	Laparoscopic tubal ligation	09/08/1996	Primary				3	12
5	23	Laparoscopy	16/09/1996	Primary				2	24
6	20	Laparoscopic excision of endometriosis	17/09/1996	Endometriosis	Yes			3	32
7	37	Diagnostic laparoscopy	04/02/1997	Primary				1	25
8	26	Laparoscopic cystectomy, laparotomy and excision of endometriosis	10/09/1997	Endometriosis		Yes		3	6
9	25	Three previous operative laparoscopies for pain	13/03/1998	Endometriosis	Yes	Yes		3	12
10	25	Laser laparoscopy	01/07/1998	Endometriosis		Yes		3	12
11	33	Laparoscopic ovarian cystectomy. Laparoscopic fundoplication	27/07/1998	Endometriosis			Yes	3	5
12	28	Two laparoscopic excisions of endometriosis	08/08/1998	Endometriosis				3	6

Primary = primary dysmenorrhoea; *1 = No change, 2 = mildly improved, 3 = much improved, 4 = pain free.

tive complications apart from a mild loss of bladder filling sensation and constipation, which lasted two weeks in one patient.

Tissue was sent for histological confirmation in all 12 patients and in all cases neural tissue was found. The average follow-up time was 14.6 months. Eight of the twelve patients had a successful outcome reporting much improvement (seven patients) or being pain free after the operation (one patient). Two patients reported a mild improvement in their symptoms. Two patients reported no improvement; one, with a history of depression, requested and underwent a total abdominal hysterectomy a year after the laparoscopic presacral neurectomy. Her uterus was histologically normal. She has continued to suffer chronic pelvic pain and has been referred on to specialist help at a pain clinic.

DISCUSSION

The superior hypogastric nerve is an alternative name for the presacral nerve and is perhaps a better anatomical description. The nerve lies in front of the fourth and fifth lumbar vertebrae rather than being presacral in position. In perhaps about 20% of cases[11] it is usually only a single nerve trunk and in the remaining cases it forms a plexus of nerves or two or three nerve trunks. The thus-named superior hypogastric plexus carries the pain afferents from the proximal parts of the Fallopian tubes, uterus and cervix. It does not supply the ovaries, which send their afferents separately via the ovarian plexus. Therefore, it is not surprising that this procedure is traditionally indicated for midline dysmenorrhoea and not lateral pain arising from the ovaries. A good discussion of the neuroanatomical basis for pelvic pain is found in the paper by Rogers.[12]

Pain perception is a complex process and is influenced by many factors including psychological, family and social interactions. There are also individual variations of pelvic anatomy and neurophysiology, intermingling of afferent fibres, intercommunication among nerve plexuses and cross-talk.[12] All these factors can contribute towards an inconsistent outcome for this operation. In this light, women with chronic pelvic pain should be managed in a multidisciplinary unit with psychologists, pain specialists as well as gynaecologists.

Our numbers are small and not conclusive on their own. However, since the first description of the procedure, several reports of laparoscopic presacral neurectomy have been published. Perhaps the study most supportive of this procedure is that of Chen et al[4] which is a prospective randomised controlled trial comparing laparoscopic presacral neurectomy (LSPN) and laparoscopic uterine nerve ablation (LUNA) for primary dysmenorrhoea. Thirty-three patients were randomised to the former group and 35 to the latter. At three months follow-up efficacy was similar (87.9% versus 82.9% respectively). However, on pain scoring at 12 months LSPN was significantly better (81.8% vs 51.4%). These are similar to the open surgical counterparts of presacral neurectomy, which report 65% to 89% cure for primary dysmenorrhoea.[13]

The procedure, however, is potentially hazardous as the surgical site is in close proximity to major vessels, which if traumatised can cause torrential bleeding. Other reported complications include constipation, painless first stage of labour and chylous ascites.[14]

Our small series reflects similar experiences in other larger series. Technically, laparoscopic presacral neurectomy has advantages over laparotomy: magnification of vision, easier tissue dissection, less bleeding, less adhesion risk, day or overnight stay and better cosmetic scar. However, whether the operation is performed laparoscopically or by laparotomy, there is inherent risk because of damage to the ureters, rectum and middle sacral vessels.

Careful patient selection is important. The role of laparoscopic presacral neurectomy lies in the treatment of severe intractable midline dysmenorrhoea. Patients should have minimal lateralised pelvic pain and have failed medical therapy and be unsuitable for hysterectomy. Patients should be carefully counselled as to the risks of the procedure and its possible variable outcome as well as have appropriate psychological or psychiatric assessment, if appropriate. Further trials would be beneficial to better evaluate this procedure.

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