

GYNAECOLOGY

A simplified method of laparoscopic presacral neurectomy for the treatment of central pelvic pain due to endometriosis

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ABSTRACT

Objective To describe optimal procedures and preliminary results for videolaparoscopic presacral neurectomy as part of the surgical treatment of endometriosis associated with intractable dysmenorrhoea.

Design Observational study with follow up for at least one year.

Setting Specialty practice: Endometriosis Clinic and Centre for Special Pelvic Surgery.

Subjects Eighty five women (18-45 years) with endometriosis and intractable pain, referred because medical and surgical management had failed. Subjects without a central (midline) component to their discomfort were excluded.

Interventions Excision and vaporization of endometriotic pathology was followed by presacral neurectomy.

Outcome measures During surgery, severity of endometriosis was assessed using revised American Fertility Society scoring. Overall pelvic pain and dysmenorrhoea relief were determined by office visit, telephone interview and questionnaire at a minimum of one year postoperatively.

Results There were no operative complications and all women left hospital within 24 h of surgery. Overall pain relief was reported by 49 (94%) of 52 patients followed. The other three subjects noted no pain abatement. Dysmenorrhoea was reduced in 48 (92%) whereas four (8%) women claimed no relief.

Conclusions Laparoscopic presacral neurectomy is an option for treating dysmenorrhoea and pelvic pain in selected women, but is indicated only if medical management has failed. Videolaparoscopic presacral neurectomy using the CO₂ laser is safe in trained hands. Pain relief achieved is within the range reported for laparotomy.

Though surgical interruption of pelvic autonomic afferent nerves to combat serious dysmenorrhoea was independently described by Jaboulay (1899) and Ruggi (1899), a variety of more apt procedures, well reviewed by Fontaine & Herrmann (1932), subsequently evolved. Among them was ablation of the superior hypogastric plexus by Cotte (1925) to ameliorate pelvic pain. While controversy that has been evident from the beginning concerning case selection, variability in the anatomy (Elaut 1933; Davis 1936; Labate 1938) and results achieved remains unresolved (Black 1964; Tjaden *et al.* 1990; Vercellini *et al.* 1991), we deemed it appropriate to study the effects of presacral denervation in women with endometriosis and severe uterine pain, referred because medical and surgical management had proven inadequate. Accordingly, we have devised procedures using the CO₂ laser, hydrodissection and videolaparoscopy to treat endometriosis and a variety of other pelvic pathologies (Nezhat *et al.* 1991; Nezhat & Nezhat 1989, 1991). Our purpose here is twofold: firstly, to describe the lapa-

roscopic methods employed in 85 women thus far and, secondly to summarize early results in the 52 patients treated since the project was initiated in September, 1989.

Subjects and methods

The 85 subjects included in the study were between 18 and 45 years of age and had been referred with endometriosis and severe pelvic pain unresponsive to medical and surgical treatment. All had severe dysmenorrhoea and some also had adnexal or other discomfort. Those without prominent menstrual pain were excluded.

Preoperative and immediate postoperative routines were those for videolaparoscopic gynaecological surgery (Nezhat & Nezhat 1989, 1991). Prophylactic antibiotics and general endotracheal anaesthesia were used and the presacral neurectomies followed any surgical intervention necessary to treat pelvic disease. For research and record purposes, all procedures were video and audio taped. Fifty-two of the patients have been followed for a minimum of 12 months through office

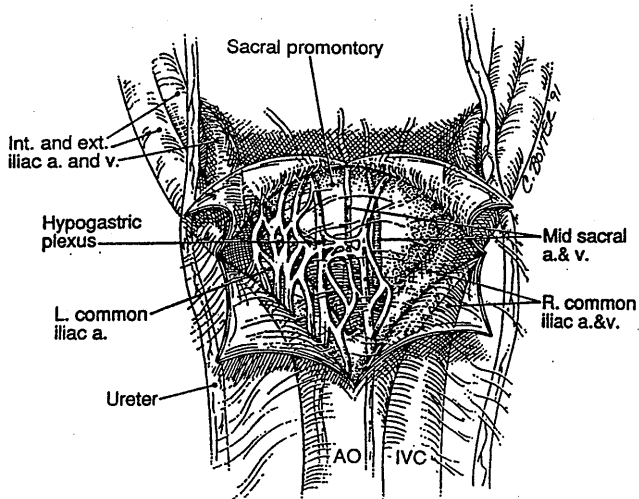


Fig. 3. Hypogastric plexus.

disease. Seven women had minor complications: constipation (3), urine urgency (1), vaginal dryness (1), 'painless' labour (2), one with very little pain and the other felt backache but no cramping pain.

Of the 31 patients with minimal endometriosis (Table 1) 16 (52%) reported 100% relief of dysmenorrhoea. Ten (32%) and 3 (10%) judged relief at 50–80% and less than 50%, respectively. Two women stated they experienced no relief at all.

Of 52 patients followed, 4 (8%) noted no relief of dysmenorrhoea, the other 48 (92%) reported some relief and 27 of these reported 100% relief of dysmenorrhoea. Of these 27 patients, 16 (67%), 6 (25%) and 3 (12%) had minimal, mild and moderate endometriosis, respectively.

Patient estimates of 'overall' relief of dysmenorrhoea and of any other pelvic pain were essentially similar to those for dysmenorrhoea. In contrast to the four women experiencing no relief of dysmenorrhoea, there were three who obtained no overall relief. Small sample constraints discourage emphasizing any other differences between overall pain relief and dysmenorrhoea relief but, taken together, one can speculate there may be a 50–50 chance for long-term, complete pain alle-

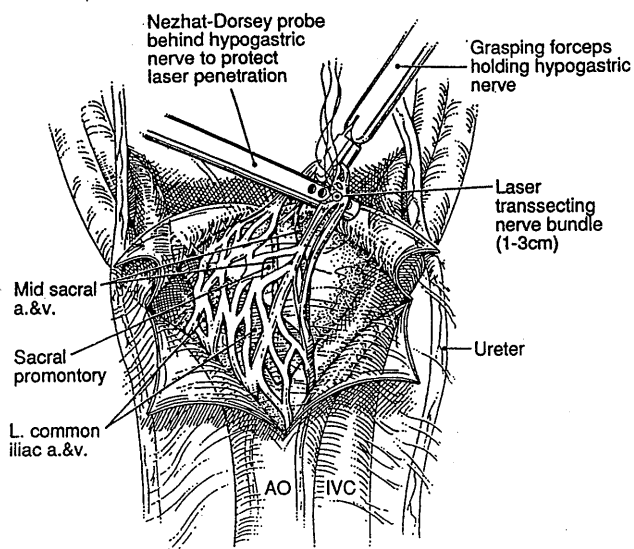


Fig. 4. Transecting nerve bundle.

viation in selected patients with endometriosis undergoing a presacral neurectomy at the same time as thorough surgical treatment of coexisting endometrial and other pelvic pathology.

Discussion

The most favourable results reported with presacral neurectomy to treat pelvic pain described only 2% failures in 1500 selected patients (Cotte 1949). In contrast, Black (1964) reviewed 2516 patients described between 1936 and 1963 in the world literature where primary and secondary dysmenorrhoea had been treated by presacral neurectomy. Good results were noted in 70%, 19% were improved and 11% were not improved. More recently, Lee *et al.* (1986) tabulated data from 11 studies of pelvic denervation (1939–1985) involving 576 patients, including 40 of their own. The combined figures reveal a 74% success rate (range 53–89%). Partial success occurred in 14% (range 6–13) and failures in 12% (range 6–12). Thus the pain relief achieved in the present study is well within the published range. It is relevant that Perez (1990) has also described a laparoscopic approach for presacral neurectomy, though he used an umbilical laparoscope to retract the bowel. Results in 25 patients with endometriosis with dysmenorrhoea, in which adnexal pain was minimal and medical treatment unsatisfactory, were assessed using a 0–10 pain scale. The mean preoperative score was 8.4 (7–10) compared with a post-surgical figure of 2.2 (0–8). Initially, all patients had incapacitating pain keeping them from school or work, and, with one exception, each resumed and maintained near normal activity over a follow-up period of 3–12 months. The only complication noted was one example of retroperitoneal haemorrhage requiring laparotomy.

Any attempt to compare presacral neurectomy by open laparotomy with laparoscopy is premature. Suitable data are sparse and there has been no consistent and clearly defined collection of information of the results obtained thus far by laparotomy.

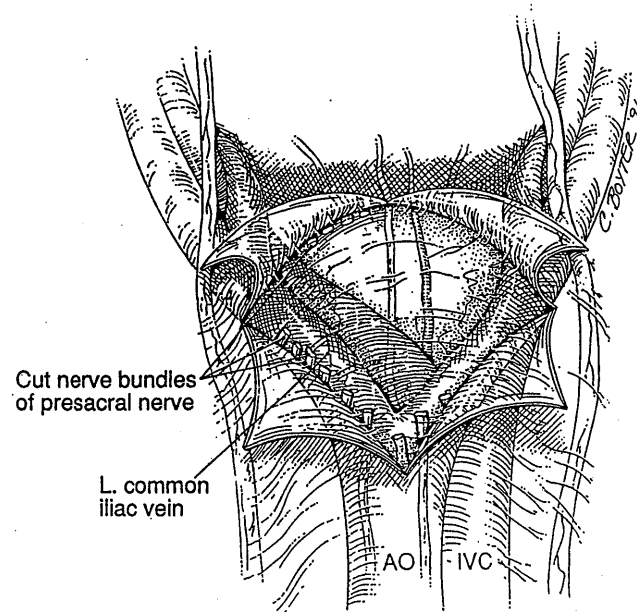


Fig. 5. Sacral promontory after neurectomy.

were derived from a study over 22 years of 240 deliveries in 35 women, utilizing a variety of segmental, regional and local anesthesia blocks to interrupt afferent transmission pathways. These data may have a bearing upon post-neurectomy complications involving the bowel and bladder whose central connections are through the lumbar and sacral roots.

A comprehensive review by Janig & McLachlan (1987) provides further understanding of pelvic innervation, in particular a quantitative classification of preganglionic neurons in splanchnic nerves. Of these, 15% were estimated to be vasoconstrictive in function, 41% motor and 44% unclassifiable in that they were not involved in demonstrable local reflexes. Most of the latter were silent to electrical stimulation and were assumed to be involved in reproductive organ physiology, possibly through the release of bioactive substances.

Janig & McLachlan (1987) also suggested that there were local and regional autonomy and redundancy in the control of pelvic mechanisms. Data based on frequency distribution of neurons, functional activity of fibres with similar biophysical characteristics and biochemical coding, indicated that activity patterns, arising in the spinal cord or at higher levels, were transmitted via different routes from the cord to target areas. It appeared that both lumbar and sacral enervation were important in control of the bladder and colon. Functional disturbances occurred in animals if lumbar fibres were reduced or eliminated, but motor evacuative function was preserved when sacral elements remained intact. These findings are not inconsistent with what is known about bladder and colon complications following presacral neurectomy, but are insufficient to help surgeons achieve a zero complication rate.

Finally, it is important to keep in mind that presacral neurectomy does little to improve adnexal pain (Perez 1990; Tjaden *et al.* 1990) and, therefore, should be reserved for patients with central pain or intractable dysmenorrhoea. Given these complications, it is essential that patients are carefully assessed before surgical management. Only properly selected patients who have failed medical therapy should be considered.

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