MANAGEMENT OF CHRONIC PELVIC PAIN

Prof. Dr. M. Turan Çetin

Çukurova University, Faculty of Medicne, Department of Obstetrics and Gynecology, Division of Reproductive Endocrinology and Infertility,

2009-Adana

CPP

- **No consensus on definition**
- **Non-menstruel pain of ›6 months duration that localizes to the anatomic pelvis and is severe enough to cause functional disability and require medical or surgical treatment**

RCOG / Kennedy S, Moore S. The initial management of chronic pelvic pain. 2005

- **Chronic pelvic pain (CPP) is one of the most frustrating problems encountered in gynecology (frusturating not only to the patient and her family, but also to her gnecologist.)**

- **The prevalance of CPP among women of reproductive age in the general population is estimated to be as high as 25 %.**

K.T.Zondervan, S.H.Kennedy /Epidemiology of chronic pelvic pain. International Congress Series 1279 (2005) 77-84.

- **In the UK, the annual prevalence of chronic pelvic pain in primary care is estimated to be 3.8% in women aged 15–73 years, which is higher than the prevalence of migraine (2.1%), and is similar to that of asthma (3.7%) and back pain (4.1%).**

- Zondervan K, Barlow D H. Epidemiology of chronic pelvic pain. *Bailliéres Best Pract Res Clin Obstet Gynaecol* 2000; **14:** 403–14.

CPP

- **10% of all visits to a gynecologist**
- **12-40% all laparoscopies**
- **12% of hysterectomies**

1. Reiter RC. Clin Obsted Gynecol 33:117, 1990
2. Howard FM Obsted Gynecol Surv 48:357, 1993
3. Peterson HB et al J Reprod Med 35:587, 1990
4. Rapkin and Kames. The Female Patients 13:100, 1988
5. Gelbaya T A, El Halwagy H E. Focus on primary care: chronic pelvic pain in women. *Obstet Gynecol Surv* 2001; **56:** 757–64

- **Direct annual costs of health care for chronic pelvic pain in the United States is around $880 million, which escalates to over $2 billion when combined with indirect costs (e.g. time off work).**

- Mathias S D, Kuppermann M, Liberman R F, Lipschutz R C, Steege JF. Chronic pelvic pain: prevalence, health-related quality of life, and economic correlates. *Obstet Gynecol* 1996; **87:** 321–7.

CAUSES OF CHRONIC PELVIC PAIN

CYCLIC

-Mittelschmerz

-Dysmenorrhea

Primary

Secondary

-Lesion of the lower genital tract or uterus

ACYCLIC

-Causes outside the reproductive tract

-Causes within the reproductive tract

Pelvic adhesive disease

Endometriosis

Ovarian tumors, pelvic varicosities

-No organic cause

Differential Diagnosis-1

- **Gynaecological: endometriosis, adhesions (chronic pelvic inflammatory disease), leiomyoma, pelvic congestion syndrome and adenomyosis**

- **Gastrointestinal disease: including constipation, irritable bowel syndrome, diverticulitis, diverticulosis, chronic appendicitis and Meckel's diverticulum**

Differential Diagnosis-2

- **Myofascial disease: including fasciitis, nerve entrapment syndrome and hernia (inguinal, femoral, umbilical and incisional)**

- **Genitourinary disease: including interstitial cystitis, bladder dyssynergia and chronic urethritis**

Differential Diagnosis-3

- **Skeletal disease: including scoliosis, L1-2 disc disorders, spondylolisthesis and osteitis pubis**
- **Psychological disorders: including somatisation, psychosexual dysfunction and depression**
- **Neuropathic disorders: pudendal nerve entrapment and spinal cord neuropathies**
- (C.Farquhar and P.Latthe. Chronic pelvic pain: Aetiology and therapy. / Reviews in Gynecological and Perinatal Practice 6 (2006) 177-184)

Multidisciplinary approach to CPP

Team composition

- **Gynecologist**
- **Psychologist**
- **Other specialists**
- **Nurse**

PREOPERATIVE EVALUATION: TO OPERATE OR NOT TO OPERATE

- Before contemplating or scheduling any surgical procedure, nongynecologic causes of pain should be sought and the surgical procedure should be based on this diagnosis.

- Diagnostic laparoscopy has been used as the gold standard in the investigation of CPP, but in approximately 40% of cases, no cause for the pain is found.

- Howard FM. The role of laparoscopy in chronic pelvic pain: promise and pitfalls. Obstetrical and Gynecological Survey 1993; 48: 357-387.
- Porpora MG & Gomel V. The role of laparoscopy in the management of pelvic pain in women of reproductive age. Fertility and Sterility 1997; 68: 765-779

THE LAPAROSCOPE AS A DIAGNOSTIC TOOL

- **Laparoscopy serves three important diagnostic functions:**

1)Diagnostic comfirmation.

2)Histologic documentation.

3)Patient reassurance

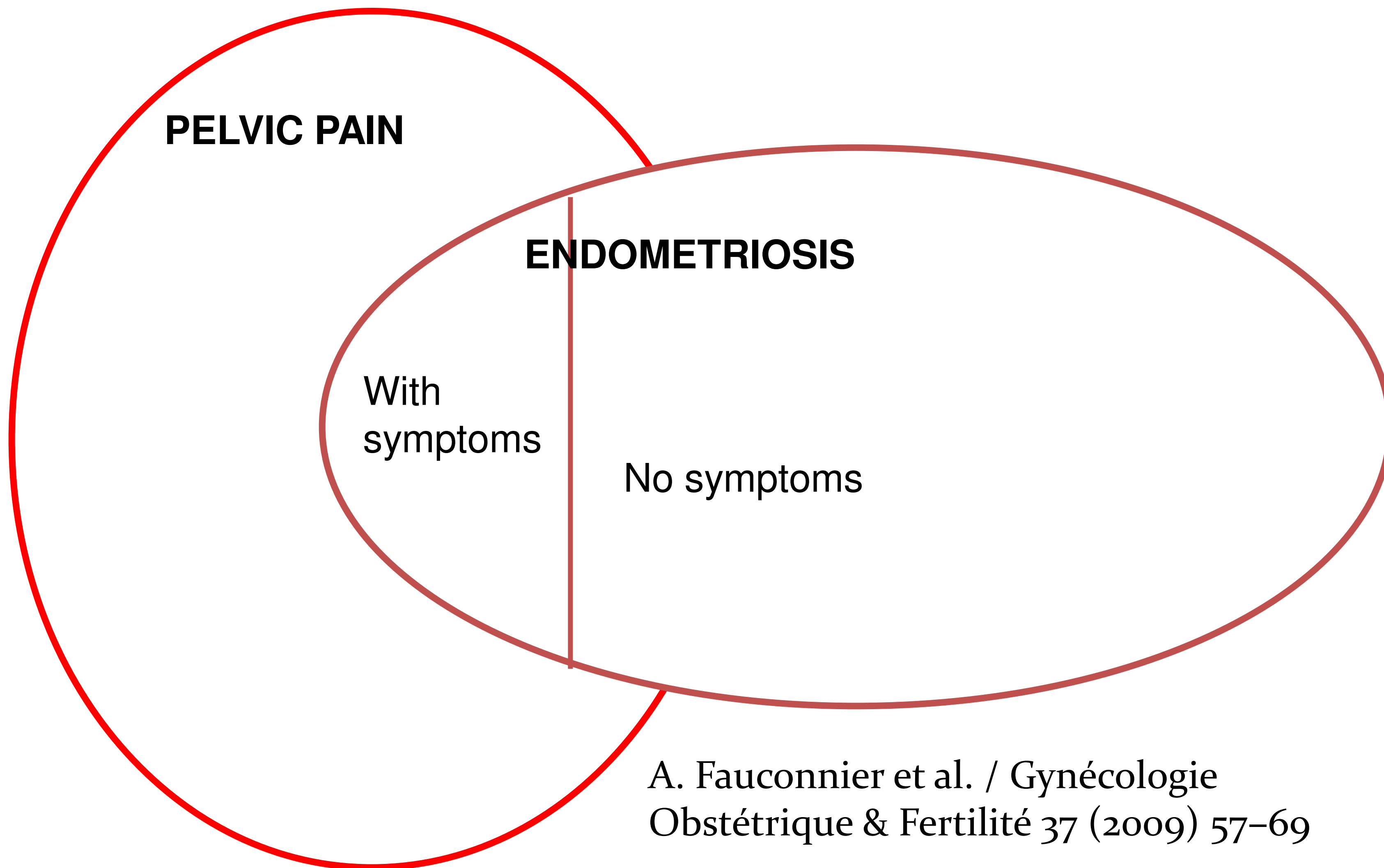
L/S: What can it reveal in CPP patients?

- **Endometriosis**
- **Adhesions**
- **C.PID**
- **Pelvic varicosities**
- **Other (eg.ovarian remnant syndrome)**
- **NO VISIBLE PATHOLOGY**

Advantages of laparoscopy in CPP

- **Differentiation between gynecologic and non-gynecologic etiyology**
- **Diagnosis of endometriosis, adhesions etc**
- **Allows histologic documentation of diagnoses**
- **İmmediate surgical treatment possible**
- **Advantages of operative laparoscopy**

- **Endometriosis is an estrogen-dependent disease characterized by the presence of functional endometrial tissue outside the uterus.**
- **It is an important cause of long-term morbidity, commonly from chronic pelvic pain and infertility.**
- [Amsterdam LL, Gentry W, Jobanputra S, Wolf M, Rubin SD, Bulun SE. Anastrazole and oral contraceptives: a novel treatment for endometriosis. Fertil Steril 2005;84:300–4.].



A. Fauconnier et al. / Gynécologie Obstétrique & Fertilité 37 (2009) 57–69

- **Cardinal symptoms associated with endometriosis:**

  -CPP

  -Dysmenorrhea

  -Dyspareunia

- **A woman having all three, has 3.1 (95% confidence interval 1.5±6.5) times as likely to have endometriosis found at laparoscopy as a woman with no symptoms.**

- (Fedele L, Bianchi S, Bocciolone L et al. Pain symptoms associated with endometriosis. Obstetrics and Gynecology 1992; 79: 767-769).

L/S FINDINGS IN WOMEN WITH CPP

	Normal		Endometr.		Adhesions		C.PID		Other	
Study	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Renaer – 1981	63	58	22	20	0	0	32	22	0	0
Kresch – 1984	9	9	32	32	51	51	0	0	8	8
Rosenthal -1984	15	25	10	17	24	40	0	0	11	18
Levitan – 1985	168	92	4	2	6	3	8	3	0	0
Rapkin – 1986	36	36	37	37	26	26	0	0	1	1
Bahary – 1987	24	18	7	5	3	2	38	29	58	45
Longstreth – 1990	27	36	15	20	27	36	3	4	22	29
Vercellini – 1990	47	37	41	34	23	18	8	6	7	5
Keninckx -1991	6	3	168	74	119	52	5	2	0	0
Peters – 1991	32	65	4	8	9	18	0	0	4	8
Mahmood – 1991	89	57	24	15	43	28	0	0	0	0
TOTAL	**516**	**39**	**364**	**28**	**331**	**25**	**85**	**6**	**111**	**9**

Correlation of r-AFS staging & depth of infiltration

r-AFS Stage	Deep invasion (%)
I	3
II	34
III	15
IV	22

Correlation of depth of infiltraiton with pelvic pain

Infiltration depth	Pelvic pain (%)
‹2 mm	17
2-6 mm	53
›6 mm	37

koninckx et al, Fertil steril 55:759, 1991

- Some studies have been able to correlate the degree of pain with features such as

-the site of the disease (Vercillini P, Trespidi L, De Giorgi O et al. Endometriosis and pelvic pain: relation to disease stage and localization. Fertility and Sterility 1996; 65: 299-304).

-the number of implants (Perper MM, Nezhat F, Goldstein H et al. Dysmenorrhoea is related to the number of implants in endometriosis patients. Fertility and Sterility 1995; 63: 500-503).

-the depth of infiltration beneath the peritoneal surface (Koninckx PR, Meuleman C, Demeyere S et al. Suggestive evidence that pelvic endometriosis is a progressive disease, whereas deeply infiltrating endometriosis is associated with pelvic pain. Fertility and Sterility 1991; 55: 759-765).

Endometriosis & CPP

Pathophysiology

- PGs
- Mechanical

- Endometriosis appears in a number of forms, some of which may be difficult to identify at laparoscopy. (Jansen RPS & Russell P. Nonpigmented endometriosis: clinical laparoscopic and pathologic definition. American Journal of Obstetrics and Gynecology 1986; 155: 1154-1159)
- Superficial peritoneal disease appears to progress from one form to another over time. (Nisolle M, Casanas-Roux F, Anaf F et al. Morphometric study of the stromal vascularization in peritoneal endometriosis. Fertility and Sterility 1993; 59: 681-684).

- The earlier, more inflammatory forms probably cause more pain than the `burnt out' forms, even though they may be harder to identify. This superficial form of the disease may cause pain by releasing inflammatory mediators of pain, such as bradykinins and prostaglandins. (Vernon MW, Beard JS, Graves K & Wilson EA. Classification of endometriotic implants by morphologic appearance and capacity to synthesize prostaglandin F. Fertility and Sterility 1986; 46: 801-806).

- Extensive nodular disease in the rectovaginal space may appear at laparoscopy as a few blue or black pin pricks on the uterosacral ligaments. Pain associated with these forms of endometriosis may be caused by traction on tissues, or by infiltration or constriction of nerves themselves.

Endometriosis & CCP - Medical

- The medical management of endometriosis is a management strategy only in that it is not curative.
- Medical treatments are directed towards inducing atrophy within these deposits in an attempt to alleviate the problem.

- Farquar and Sutton examined the evidence for the management of endometriosis and in particular evaluated medical interventions including

  -medroxyprogesterone acetate (MPA),

  -gestrinone,

  -combined oral contraceptive pills,

  -gonadotrophin-releasing hormone (GnRH) analogues

  -'add-back therapy'

  -danazol [Farquhar C, Sutton C. The evidence for the management of endometriosis. Curr Opin Obstet Gynaecol 1998;10(4):321–32.].
- Medical therapies were compared with either a placebo or against each other.

- As a conclusion,

  -All currently available medical therapies are equally effective in treating pelvic pain due to endometriosis

  -Medical treatment was more effective than placebo alone

- Recently, aromatase inhibitors have been proposed as novel potential candidates for treatment of endometriosis.
- Aromatase is a key enzyme in the synthesis of estrogens.
- It mediates the conversion of androstenedione and testosterone to estrogens.
- High aromatase expression in endometriotic cysts/extra-ovarian endometriotic implants resulting in local production of estrogens accounts for failure of conventional medical treatment.
- It is on this basis that aromatase inhibitors have been proposed for the treatment of endometriosis-related pelvic pain refractory to conventional treatment.

- There is presently one case report documenting successful treatment of refractory endometriosis with the use of anastrazole, progesterone, calcitrol and rofecoxib [Takayama K, Zeitoun K, Gunby RT, Sasano H, Carr BR, Bulun SE. Treatment of severe postmenopausal endometriosis with an aromatase inhibitor. Fertil Steril 1998;69:709–13.].
- There is also a prospective open-label phase 2 trial reporting significant pain relief with the use of anastrazole and oral contraceptive [Amsterdam LL, Gentry W, Jobanputra S, Wolf M, Rubin SD, Bulun SE. Anastrazole and oral contraceptives: a novel treatment for endometriosis. Fertil Steril 2005;84:300–4.].
- Progesterone and oral contraceptive pill are used in the treatment of endometriosis and hence may have synergistic effect when used with anastrazole.
- Letrozole and Norethisterone acetate are used in one study to reduce CPP.

A. Verma, J.C. Konje / European Journal of Obstetrics & Gynecology and Reproductive Biology 143 (2009) 112–115

Endometriosis & CCP - Surgery

Objectives

- Debulking of ectopic imlants
- Restoration of normal pelvic anatomy
- Pelvic denervation?

Endometriosis & CPP

Endoscopic prosedure

- Conservative

- Radical

Endometriosis & CPP

Conservative endoscopic procedures

- Uterina anterior ligamentopexy
- LUNA
- Presacral neurectomy
- Resection of bowel, rectum or bladder

Endometriosis & CPP - Surgery

Energy modalities

- Mechanical
- Electrical

  -monopolar

  -bipolar
- Laser

  -CO_2 laser exccision / vaporization

  -others

Pelvıc pain status 1 year after endoscopic treatment of endometriosis

Author	n	Pain-free	Improved	No change	Worse
Sutton & Hill-1990	187		67	29	
Nezhat et al-1988	45		80	16	
Nezhat et al-1989	270		78	22	
Daniell et al-1991	30	37	40	10	13
Hasson-1979	11	64		36	
Badawy et al-1991	21	38	62	0	0
Sulewski et al-1980	43		67	33	
Shirk et al-1991	93		18	8	
Fayez & Vogel-1991	124	100			
Davis & Brooks-1988	64	86		14	
Keye et al-1987	50		68	32	

Endometriosis-CPP and laparoscopic surgery

Outcome measures

- % of "significant" pain relief
- Length of time to be pain free
- Recurrence rate

Anterior uterine ligamentopexy

- To minimize the recurrense of adhesions following liberation of cul-de-sac obliteration or adnexal adhesiolysis
- To relieve deep dysparaneunia & CPP
- Shortening round ligaments with yoon rings or Gilliam-type uterine suspension

ANTERİOR UTERİNE LİGAMENTOPEXY

Author	n	Follow-up	Pain relief %	Complic. %	Design
Yoong – 1990	72	6m	26	39	Case-series
Paterson –1978	100	6m	89	9	Case-series

1. Yoong AFE. Am J Obsted Gynecol 1990; 163:1151
2. Paterson MEL et al. Br J Obsted Gynecol 1978; 85:468
3. Candy JW. Obsted Gynecol 1976; 47:242

UTEROSACRAL LIGAMENT RESECTION (LUNA)

- The use of laparoscopic uterine nerve ablation has been advocated by Lichten and Bombard in order to transect the afferent pain fibers within the uterosacral ligaments.
- The expected pattern of sympathetic fibers from T10 to L1 passing through the uterosacral ligaments occurred in only 70% of patients. In the remaining %30, alternate pathways were present.

LUNA

- Laparoscopic uterine nerve ablation
- İnterruption of uterosacral ligaments at their attachment to the posterior portion of the servix(2 cm long; 1 cm deep)

LUNA

Complications

- Bleeding
- Ureteral injury
- Complications of L/S

“Surgical treatment of primary dysmenorrhea with laparoscopic uterine nerve ablation”

Groups	Modality	n	% relief	Follow-up
LUNA	Mech & Elect.	11	81*	3m
			45*	1y
Control	-	10	0	3m

*$p<0.05$

J Reprod Med 1987;32:37-41

RESULTS OF LUNA

author	modality	dysmenorrhea		dyspareunia		follow-up	study type
		n	%relief	n	%relief		
Feste -1985	**CO_2**	**32**	**72**	**-**	**-**	**6m**	**Observational**
Davis 1986	CO_2	146	92	109	94	15m	Observational
Daniell -1989	KTP	80	75	-	-	6m	Observational
Lichten -1989	Mech & Elect	54	59	-	-	6m	Observational
Sutton & Hill-1990	CO_2	187	70	-	-	1-6y	Observational
Gürgan -1992	CO_2	23	74	-	-	3m	Observational

LUNA

- Safe and easy to perform
- A viable option for midline pelvic pain
- Routine performance complemantary to surgery for endometriosis associated pain?
- May <u>not</u> provide complete cure
- Further double blind randomized trials are warranted to establish its efficacy

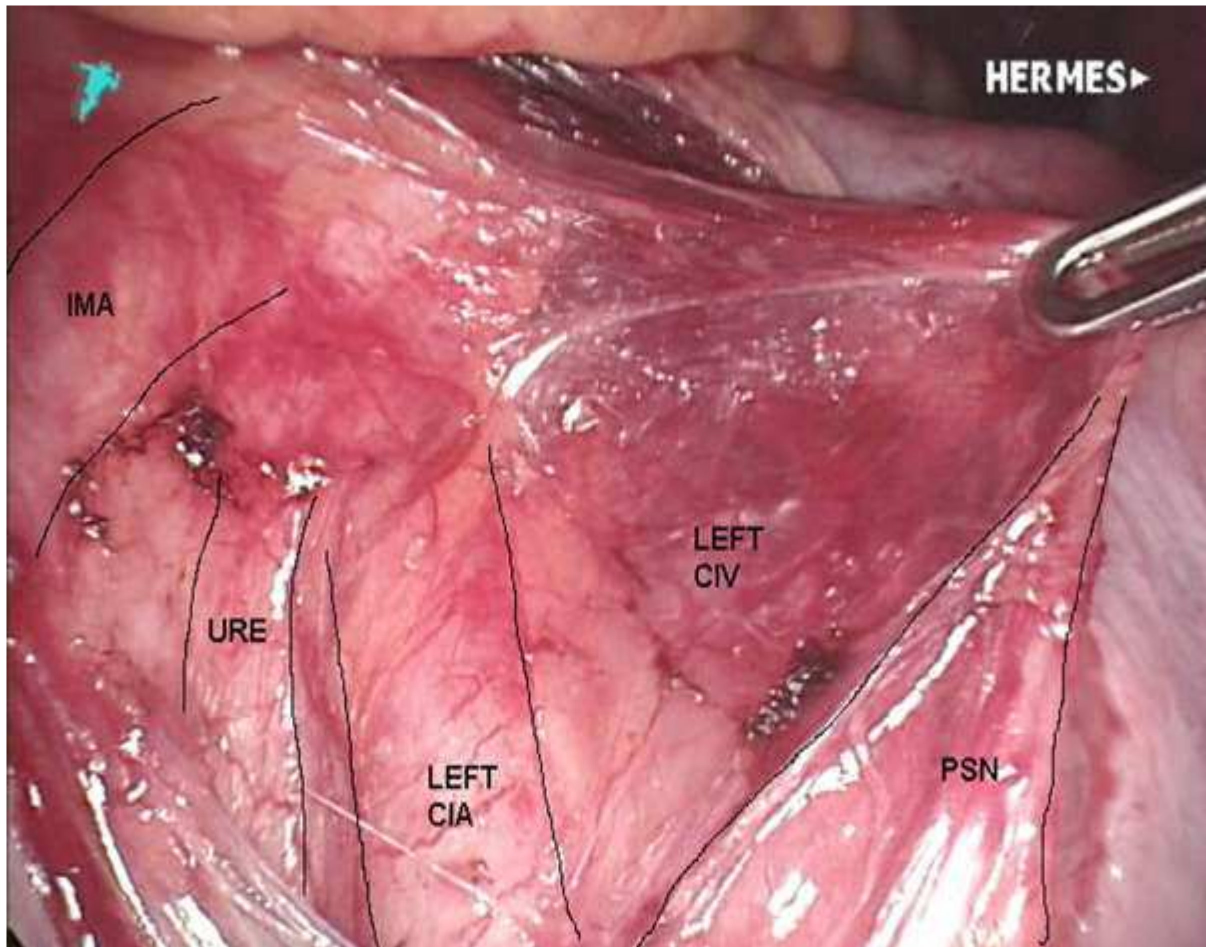
- Many uncontrolled studies have claimed LUNA and PSN to be effective for primary and secondary dysmenorrhea. (Ewen S & Sutton C. A combined approach to painful heavy periods: laparoscopic laser uterine nerve ablation and endometrial resection. Gynaecological Endoscopy 1994; 3: 167-168; Perez J. Laparoscopic presacral neurectomy. Results of the first 25 cases. The Journal of Reproductive Medicine 1990; 35: 625-630) .
- A multi-centre study is underway to examine the effectiveness of LUNA in CPP. (Anonymous. A randomised controlled trial to assess the efficacy of Laparoscopic Uterosacral Nerve Ablation (LUNA) in the treatment of chronic pelvic pain: the trial protocol. [ISRCTN41196151]. BMC Womens Health 2003; 3: 6)

LAPAROSCOPIC PRESACRAL NEURECTOMY

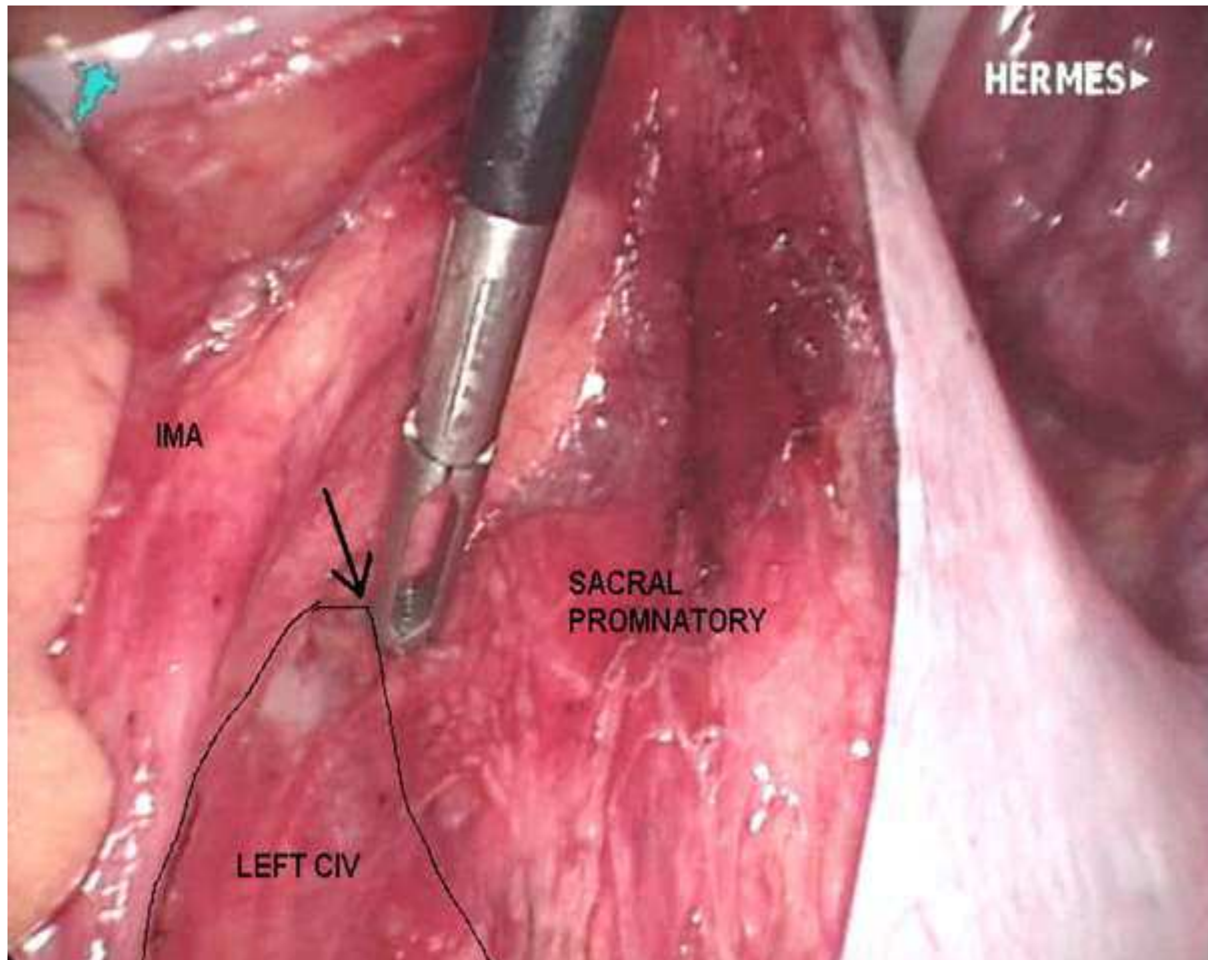
- Presacral neurectomy is the excision of the superior hypogastric plexus, which is also known as the presacral nerve.
- This procedure is typically used for women with severe dysmenorrhea or endometriosis
- it has also been used for women with chronic pelvic pain [Zullo F, Pellicano M, DeStefano R. Efficacy of laparoscopic pelvic denervation in central-type chronic pelvic pain: a multicentre study. J Gynecol Surg 1996;12:35–40].

- Whereas presacral neurectomy may be effective for both primary dysmenorrhea and endometriosis-related pelvic pain,
- the role of uterine nerve ablation should be reserved for patients with primary dysmenorrhea only, as evidenced by several randomized trials.

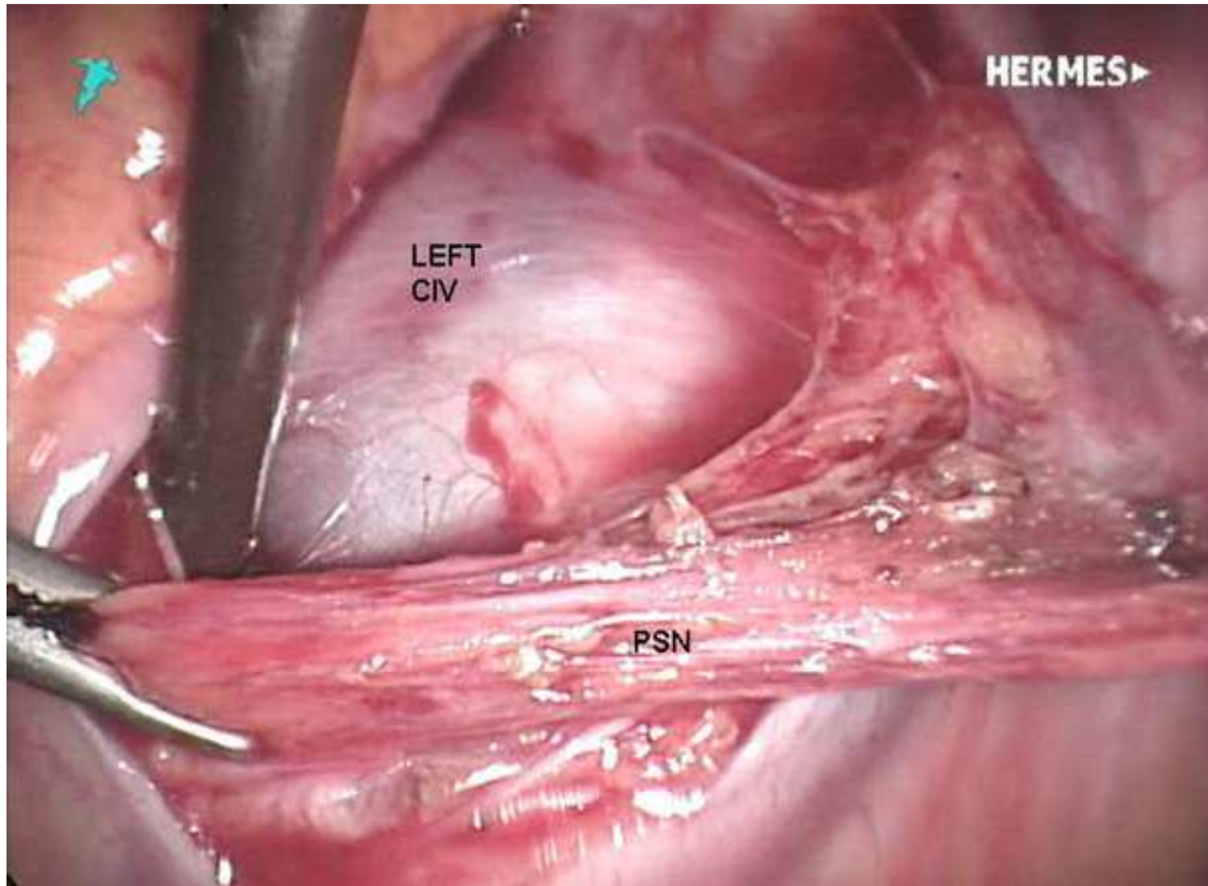
- Pelvic denervation procedures: A current reappraisal T.T.M. Lee, L.C. Yang International Journal of Gynecology and Obstetrics (2008) 101, 304–308



Relationship of inferior mesenteric artery and surrounding structures with retraction of peritoneal edge. Abbreviations: IMA, inferior mesenteric artery; URE, ureter; LEFT CIA, left common iliac artery; LEFT CIV, left common iliac vein; PSN, presacral nerve.



Entry into avascular space (arrow) between inferior mesenteric artery and left common iliac vein. Abbreviations: IMA, inferior mesenteric artery; LEFT CIV, left common iliac vein.



Presacral nerve reflected cephalad to expose the left common iliac vein.
Abbreviations: LEFT CIV, left common iliac vein; PSN, presacral nerve.

LAPAROSCOPIC PRESACRAL NEURECTOMY

Author	Modality	n	% Pain relief	Follow-up
Perez -1990	CO_2 & YAG	25	80	6m
Nezhat -1992	CO_2	52	94	1y

- One retrospective report of 655 women undergoing laparoscopic presacral neurectomies suggests that the benefit may be greater in women with dysmenorrhea
  (n = 392) than chronic pelvic pain (n = 135).
- Overall, pain was significantly decreased following PSN—72% with dysmenorrhea, and 62% with chronic pelvic pain
- [Chen FP, Soong YK. The efficacy and complications of laparoscopic presacral neurectomy in pelvic pain. Obstet Gynecol 1997;90:974–7].

- Short term results for PSN and LUNA for dysmenorrhoea seem to be similar,
- PSN has better results in the long term

Chen F, Chang S, Chu K & Soong Y. Comparison of laparoscopic presacral neurectomy and laparoscopic uterine nerve ablation for primary dysmenorrhea. The Journal of Reproductive Medicine 1996; 41: 463-466).

- Further work is required in this area.

Zullo F, Palomba S, Zupi E, Russo T, Morelli M, Sena T, Pellicano M, Mastrantonio P. Long-term effectiveness of presacral neurectomy for the treatment of severe dysmenorrhea due to endometriosis. J Am Assoc Gynecol Laparosc 2004;11:23–8.

- Vercellini et al. studied 180 patients undergoing operative laparoscopy as first-line therapy for stages I–IV symptomatic endometriosis.
- The authors concluded that the addition of uterosacral ligament resection to conservative laparoscopic surgery for endometriosis did not reduce the medium- or long-term frequency and severity of recurrence of dysmenorrhoea.

Vercellini P, Aimi G, Busacca M, Apolone G, Uglietti A, Crosignani PG. Laparoscopic uterosacral ligament resection for dysmenorrhea associated with endometriosis: results of a randomized, controlled trial. Fertil Steril 2003;80:310–9.

DO PELVIC ADHESIONS CAUSE CPP?

Resolution of CPP after laparoscopic lysis of adhesions

- Improvement in 63% of cases
- Recurrence of CPP in 37%
- No correlation between patients's rating of CPP/dyspareunia and severity of adhesions
- Pain located in the areas of adhesions in 90% of the cases

Steege and Stout. Am J Obstet Gynecol 165:278, 1991

Pain relief after laparoscopic adhesiolysis

Author	n	Pain better (%)	Design
Sutton & McDonald	65	82	Case series
Goldstein et al	18	89	Pros. Chort
Steege & Stout	30	63	Pros. Cohort
TOTAL	**103**	**85**	**-**

Treatment Possibilities for CPP

- **PRIMARY CARE**
  - **MEDICAL TREATMENT**
    - **Non-steroidal anti-inflammatory analgesia (1)**
    - **Combined oral contraception**
    - **Progestins**
    - **Diet: high in fibre, more fluid**
    - **Anti-bowel spasmodics**
  - **SURGICAL**
    - **None**
  - **PSYCHOLOGICAL**
    - **Psychosexual counselling;**
    - **Cognitive psychotherapy;**
    - **antidepressants**

- **SECONDARY CARE**
  - **MEDICAL TREATMENT**
    - **Gonadotrophin-releasing hormone agonists (endometriosis)**
    - **Sodium pentosan polysulphate (interstitial cystitis)**
    - **Injecting abdominal myofascial pain trigger points (local anaesthetic, botulinum toxin A)**
    - **Pelvic floor neuromodulation and biofeedback**
  - **SURGICAL TREATMENT**
    - **Excision or ablation of endometriosis;**
    - **Presacral neurectomy**
    - **Laparoscopic uterine nerve ablation (LUNA)**
    - **Adhesiolysis (controversy exists over its therapeutic value) (2)**
    - **Hysterectomy +/- bilateral salpingo-oophorectomy**
  - **PSYCHOLOGİCAL**
    - **Similar to primary care**
    - **Psychiatry**

Practice Points

- **CPP has a significant neurological mechanism.**
- **In CPP, the symptoms may be well localised or diffuse (regional or systemic); as well as pain, functional visceral and musculoskeletal symptoms may exist.**
- **Assessment should aim to identify contributory factors rather than assign causality to a single pathology**
- **Adequate time should be allowed for the initial assessment of women with CPP. They need to feel that they have been able to tell their story and that they have been listened to and believed**

- **Management should be holistic and include treatments aimed at pain, functional symptoms, and psychological conditions (e.g., depression, anxiety and catastrophising and social and sexual disorders).**
- **Management of the patients should be both multidisciplinary and interdisciplinary and concentrate on symptomatology.**
-

A.P. Baranowski / Best Practice & Research Clinical Gastroenterology 23 (2009) 593–610

- **Ideal practice is to diagnose and treat endometriosis surgically**
- **Severe cases of endometriosis should be referred to units with the necessary expertise to offer all available treatments in a multidisciplinary context, including advanced laparoscopic surgery**