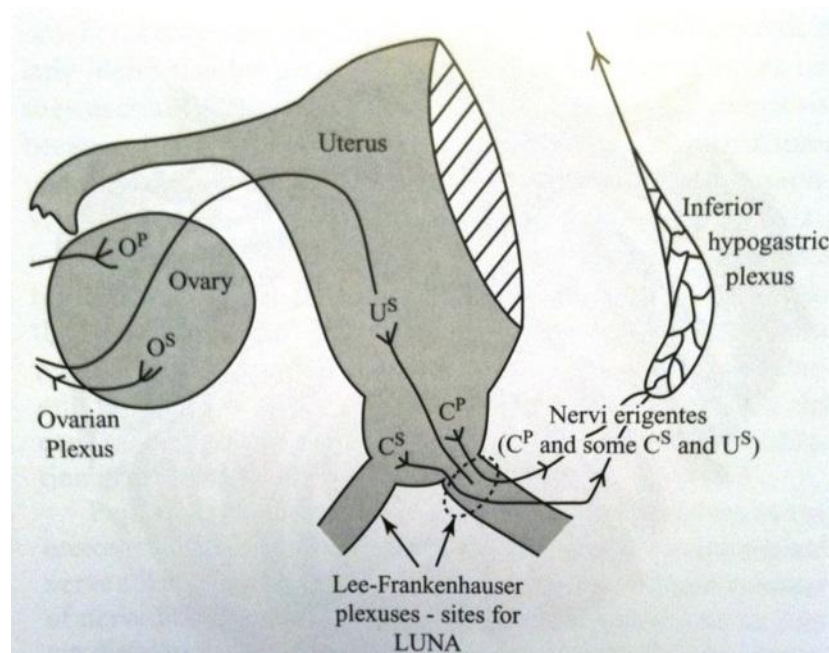


PELVIC NERVE TRANSECTION

Various techniques have been employed to treat central pelvic pain, particularly pain that has not responded to conventional measures. Laparoscopic uterine nerve ablation (LUNA) and laparoscopic presacral neurectomy (PSN) have been used to treat central pelvic pain for many decades. LUNA partially denervates the uterus while PSN denervates the uterus and some bladder fibers. These techniques have variable efficacy and are most often not viewed as first-line treatment modalities.

LUNA Procedure

LUNA procedure involves transection of afferent nerve fibers leaving the uterus, coursing through the utero-sacral ligaments and Frankenhauser plexus. To accomplish this, utero-sacral ligaments are transected near their insertion into the cervix.



Anatomic studies have shown the nerve fibers are located 6.5 – 33 mm lateral to and 3 – 5 mm distal to the attachment of the utero-sacral ligament to the cervix. This location puts the nerve fibers very close to the pelvic ureter. Additional afferent nerve fibers leave the uterus and course through the broad ligament toward the ovarian plexus. This second route for pain fibers may also explain the limited effectiveness of the LUNA procedure.

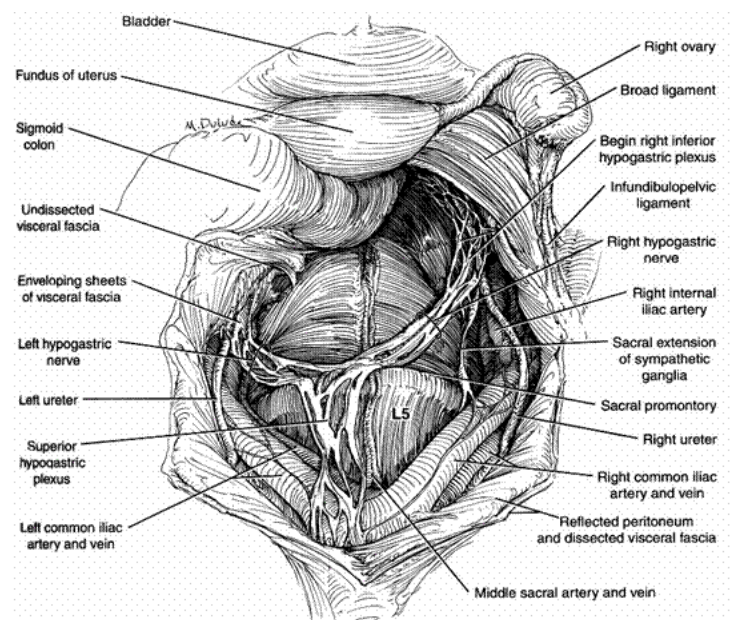
In a Cochrane Review, Proctor and colleagues evaluated two randomized studies and found only a small benefit in pain relief following LUNA procedure.¹ Another study showed LUNA procedure does not add to pain relief achieved by laser vaporization of endometriosis alone.² Finally, LUNA was shown to be inferior to Pre-Sacral Neurectomy in the long-term treatment of dysmenorrhea.³ Various surgical techniques have been used to transect the utero-sacral ligaments possibly explaining the variation in response amongst investigators.⁴ Most recently, a randomized controlled study concluded LUNA did not result in improvements in pain, dysmenorrhea, dyspareunia, or quality of life compared to laparoscopy without pelvic denervation.⁵

The principal surgical risk of LUNA is damage to the ureters. The ureters can be injured during LUNA if the procedure is performed too far laterally or if a uterosacral ligament is distorted by previous unsuccessful LUNA or endometriosis. Uterine blood vessels lateral to the uterosacral ligaments could be lacerated during a LUNA and a ureter could be damaged during efforts to coagulate such a bleeder. Suture repair of a bleeder might be slightly more precise but still puts the ureter in some jeopardy.

Because the LUNA procedure has limited effectiveness and carries with it a potential for ureteral injury, it has fallen out of favor.

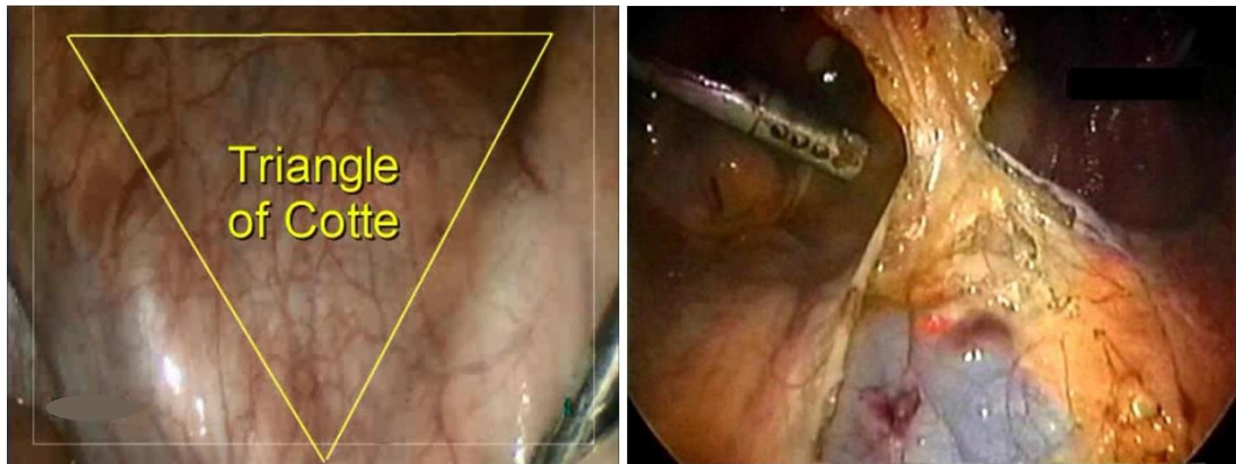
Pre-Sacral Neurectomy

Pre-Sacral Neurectomy is the procedure of choice for midline pelvic pain and dysmenorrhea. Patients who have failed previous medical or surgical treatment of central pelvic pain are candidates for Pre-Sacral Neurectomy.



This procedure involves opening the pre-sacral space overlying the sacral promontory, isolating and then transecting right and left hypogastric nerve bundles entering the hypogastric plexus. This procedure is performed through multi-port laparoscopy in steep Trendelenburg position using left tilt to bring the descending colon out of the operative field. The principal landmark is the triangle demarcated by the bifurcation of the left and right common iliac arteries and veins. It is essential to open the parietal peritoneum in the midline to avoid vascular injury.

Loose areolar tissue is cleaned and the glistening periosteum reached lateral to the midline. A blunt grasper is used to dissect posterior to the nerve bundles. We cauterize then divide this tissue.



Perez published this technique in 1990 using electrosurgery.⁶ The Nezhat brothers adapted it for CO2 laser.⁷ Some centers now use the DaVinci Robot for Pre-Sacral Neurectomy.

Results

In 1992, Candiani and colleagues presented a randomized, controlled trial of Pre-Sacral neurectomy and ablation of endometriosis (conservative surgery) vs. conservative surgery alone.⁸ Significant diminution of midline pelvic pain was noted with Pre-Sacral Neurectomy at one-year interval. Pre-Sacral Neurectomy had no impact on lateral pelvic pain.

In 1997, Chen published a retrospective study with one year follow-up on over 500 women with chronic pelvic pain unresponsive to medical management.⁹ At twelve months 77% of women with primary dysmenorrhea, 74% of women with endometriosis (all stages), 62% of women with chronic pelvic pain and 55% of women with adenomyosis had meaningful relief with Pre-Sacral Neurectomy.

In 1998, Nezhat and colleagues reported on 176 women from a single surgical practice with variable-duration-follow-up of up to six years treated with either Pre-Sacral Neurectomy and laparoscopic destruction of endometriosis lesions or laparoscopic destruction of endometriosis

alone.¹⁰ More women achieved long-term pain relief in the Pre-Sacral Neurectomy group. This benefit existed irrespective of the stage of endometriosis treated.

In 2004, Zullo, et al, in a randomized controlled trial reported on pain level before and twenty-four months after either Pre-Sacral Neurectomy or laparoscopy without Pre-Sacral Neurectomy.¹¹ At two years 83.3% of women with Pre-Sacral Neurectomy compared to 53% of those who did not have it showed complete relief of symptoms. Long term complications associated with Pre-Sacral Neurectomy were constipation and bladder urgency (14% and 5% respectively).

Insurance Coverage

The minority of insurance plans cover laparoscopic Pre-Sacral Neurectomy for persistent, central pelvic pain. Adnexal pain is not amenable to treatment with Pre-Sacral Neurectomy and is, therefore, often not covered. Performing Pre-Sacral Neurectomy at the time of initial laparoscopy for pelvic pain is often not allowed as well.

United Healthcare Policy (228.B from November, 2013) states the following—

1. Presacral neurectomy is proven/medically necessary for treating women with primarily midline pelvic pain unresponsive to medical therapy.
2. Presacral neurectomy is unproven/not medically necessary for treating lateral pelvic pain or symptoms other than midline pelvic pain.
3. Uterine nerve ablation (UNA) and laparoscopic uterine nerve ablation (LUNA) are unproven/not medically necessary for treating chronic pelvic pain associated with dysmenorrhea or endometriosis.

As a precondition United Healthcare requires at least a three month course of oral contraceptives or three month trial of Depot Provera or Lupron (GnRH agonist therapy). CPT codes 58578 (unlisted laparoscopic procedure, uterus), 58999 (unlisted procedure, female genital system) and 64999 (unlisted procedure, nervous system) can be used.

Oppositely, Blue Cross / Blue Shield do not cover Pre-Sacral neurectomy. Their policy dated 2014, states they consider Pre-Sacral Neurectomy to be “investigational.” They do not cover “investigational” procedures.

Aetna, in their policy 0754, considers Pre-Sacral Neurectomy “investigational” as well and denies coverage.

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