

Tubal Ligation & Post-Tubal Ligation Syndrome

Barry Schlafstein, M.D.

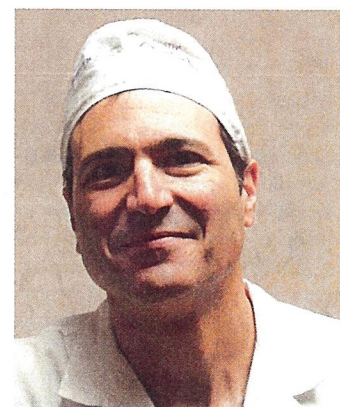
Tubal ligation remains a popular method of permanent sterilization in the United States and throughout the world, to prevent unwanted pregnancies. The surgical procedure itself is very safe, and relatively easy to perform by a properly trained obstetrician/gynecologist. The procedure is most commonly performed either at the time of cesarean section, immediately after a vaginal delivery, or by scheduled surgery via a minimally invasive laparoscopic approach. Pregnancy rates after tubal ligation are extremely low, and surgical complication is rare. Technically the procedure involves occlusion or blockage of the lumen of both fallopian tubes, either by removal of a small segment of the tube, or by placement of a small occluding device (silastic band or titanium clip) across the tube.

The first report of tubal sterilization was in 1881 by Samuel Lungren of Toledo, Ohio. While another early description was reported in 1919 in Germany, very few sterilization procedures were performed prior to the introduction of "family planning"

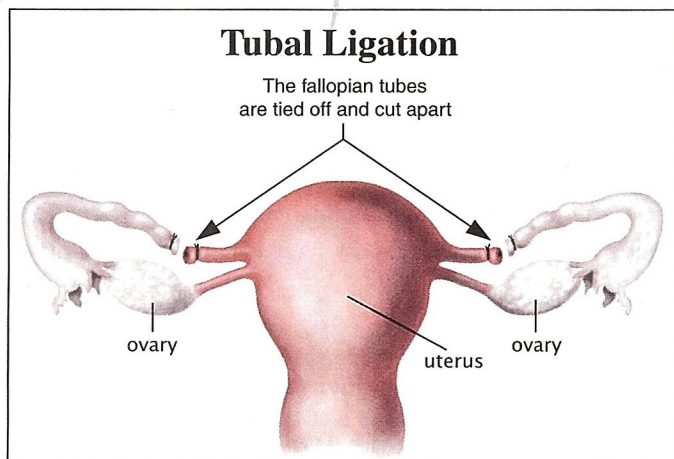
in the 1930's. In 1929 the method of Ralph Pomeroy, a prominent physician in Brooklyn, New York, was published posthumously (four years after his death). The Pomeroy technique, which involves tying off and removing a small (one centimeter) "knuckle" of the fallopian tube, is still popular today.

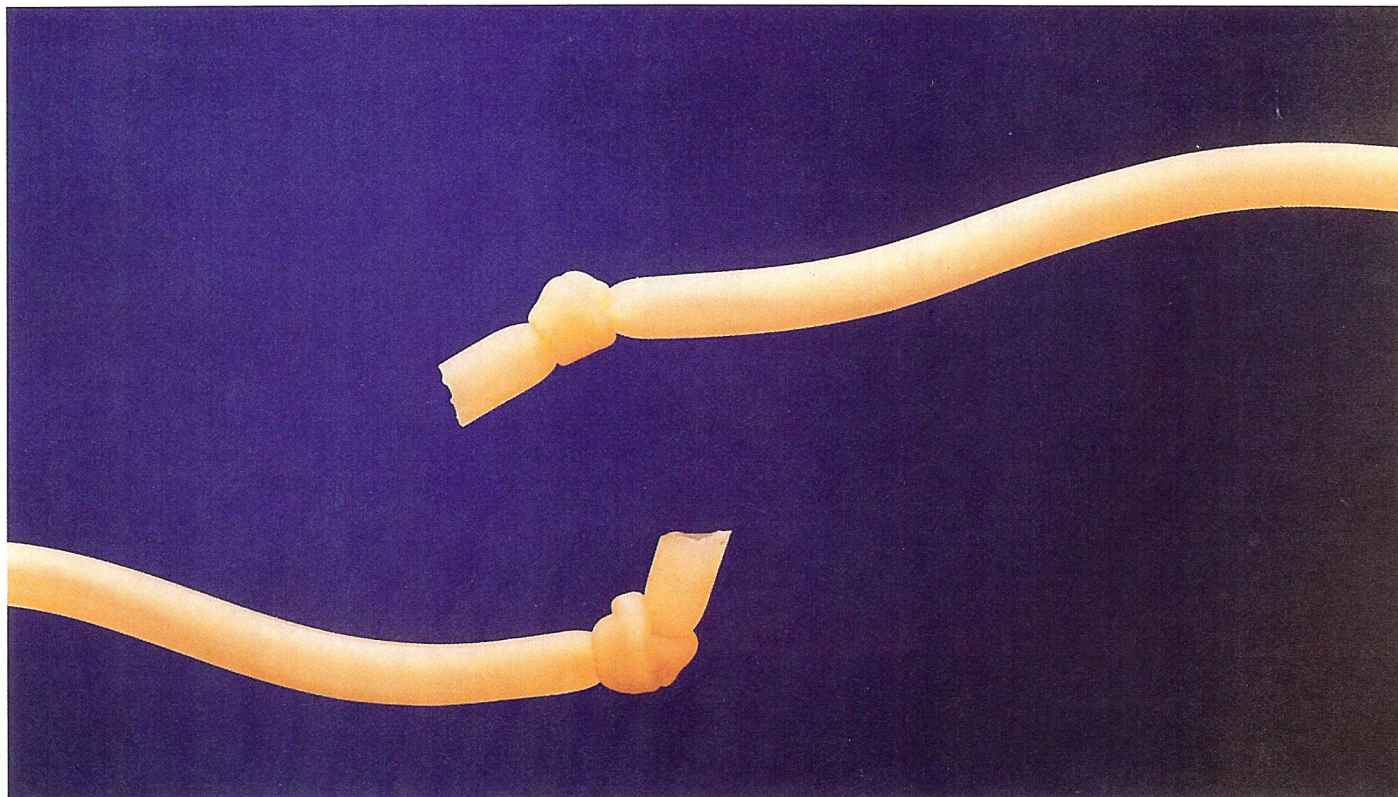
While early physicians used mathematical formulas, often requiring a woman to be over forty years of age and having had eight or more children, today the mean age of a woman at sterilization in the United States is 30 years. Minimally invasive, laparoscopic procedures for tubal sterilization were introduced in the early 1970's, and subsequently the number of female tubal occlusion procedures increased rapidly. By 1973 more sterilization procedures were performed on women than men in the United States. In 1970 the average woman stayed in the hospital 6-7 days after tubal sterilization. Today, women are in the hospital for less than 6-7 hours after tubal sterilization, and are rarely hospitalized overnight.

As the reader can infer, advances in surgical technique and social changes have made tubal sterilization a very popular procedure. And in the "short view" there is little to dispute the efficacy and safety of the procedure. But patients must also consider the "long view" of this procedure. As younger patients are having this procedure, it must be emphasized that tubal sterilization is considered "permanent". Surgical procedures to reverse the operation are available, as is in-vitro fertilization, but these can be complex, costly, and rarely are they covered by insurance.



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Also the patient should be aware of the “Post-Tubal Sterilization Syndrome”. This syndrome was first postulated in the 1950’s and includes any or all of the following: alteration of the menstrual cycle, with heavy flow, increased blood loss, and worsened cramps; exacerbation of premenstrual syndrome (PMS); pelvic pain; change in sexual behavior; changes in mental health; and abnormal hormone levels. Although a clear definition of the syndrome is lacking, and numerous but often poorly designed studies have provided conflicting results regarding the syndrome, there is no dispute that women who undergo tubal sterilization by any method are 4 to 5 times more likely to have a hysterectomy. The biological basis for this had long been considered unclear, and for that reason, women often have not been counseled about the greater potential for hysterectomy when considering tubal sterilization.

From my experience in the private practice of gynecology, I had noticed empirically that women, who underwent hysterectomy and had a history of tubal ligation, often had in common a particular histopathology finding in their uterus. In 2003 with the help of Michelle Perry (an Ob/Gyn resident in-training) we published a report in the peer review journal *Obstetrics & Gynecology* (a.k.a. “The Green Journal”). This report showed a significantly higher incidence of adenomyosis (the penetration and growth of endometrial tissue from the uterine lining into the myometrium [uterine muscle]) in patients with prior tubal occlusion, than in patients without prior tubal occlusion. This finding allows an explanation for the heavy periods and pelvic pain involved in the “Post-Tubal Sterilization Syndrome”, and hence the much higher rate of hysterectomy in patients with prior tubal ligation.

During the menstrual cycle the endometrial lining of the inside of the uterus thickens in response to the hormones estrogen and progesterone in preparation for a potential pregnancy. In the absence of pregnancy this lining must be shed as menstrual flow. As the muscle of the uterus contracts to expel or shed the lining, pressure inside the uterine cavity increases. Patent (or open) fallopian tubes effectively act as “pressure release valves” to help decompress the intrauterine pressure. If the tubes are occluded (or blocked), then they can not allow the

release of any pressure, causing the intrauterine pressure to further rise. Ultimately, instead of being shed with the menstrual flow, some endometrial tissue will burrow laterally into the muscular walls of the uterus, causing the condition mentioned above (i.e. adenomyosis).

Adenomyosis is characterized clinically by heavy, painful menses, pelvic pain, and painful sexual relations. The uterus is diffusely enlarged, tender, heavy, and boggy. Women have described this heaviness as if they have a “ball on a chain” inside of their pelvis. Symptoms are usually worse just before or during the menses. In many patients the only relief of this condition is to remove the uterus (hysterectomy).

Good news for some patients is that we believe that adenomyosis, hence “Post-Tubal Ligation Syndrome” and hysterectomy, can be avoided; if after tubal ligation, menstrual intrauterine pressures are kept low. This is achieved by maintaining a thin endometrial lining, which decreases the amount of menstrual tissue to be shed, thus requiring less uterine muscular contraction; thereby maintaining low intrauterine pressures. This effect can be achieved with the use of a low dose (20 microgram EE) oral contraceptive; if prescribed early after tubal ligation, before the onset of significant adenomyosis.

In my practice, we recommend that if a patient wants the comfort and “peace of mind” that only tubal sterilization will provide her; then she should also plan to take a low dose oral contraceptive after the procedure. This is not for the direct purpose of contraception, as that should be adequately covered by the tubal occlusion procedure, but rather to help prevent adenomyosis, “Post-Tubal Ligation Sequela”, and subsequent hysterectomy.

Dr. Barry Schlafstein is a board certified Obstetrician /Gynecologist. He completed his internship and residency training at The Johns Hopkins Hospital in Baltimore, Maryland. His special interests include menopausal hormone replacement, minimally invasive gynecologic and pelvic reconstructive surgery, and female urinary incontinence. Dr. Schlafstein can be reached at 912-355-5755.