Tubal Sterilization

Updated: Nov 11, 2024 | Author: Robert K Zurawin, MD; Chief Editor: Michel E Rivlin, MD more...

History of the Procedure

Key events in the history of tubal sterilization include the following:

- In 1823, Blundell first suggested tubal ligation for sterilization before the Medical Society of London.
- In 1876, Porro performed a cesarean hysterectomy with the secondary intention of sterilization.
- In 1880 in Toledo, OH, Lungren was first to ligate a woman's tubes.
- In 1885, Thomas suggested tubal ligation as opposed to Porro's operation for sterilization.
- In 1895, Dührssen used a double ligature and was the first to perform tubal ligation via colpotomy.
- In 1897, Kehrer and Buettner divided the tubes between the sutures.
- In 1898, Ruhl cut the tube 5 cm from the uterus and sutured the ends to a vaginal incision.
- In 1898, Rose removed the tubes at the cornua.
- In 1919, Madlener crushed and ligated the tubes with nonabsorbable suture.
- In 1924, Irving published his method in which the proximal portion of the severed tube is buried in a small myometrial tunnel on the anterior uterine surface.
- In 1930, colleagues posthumously published the Pomeroy technique in the *New York State Journal of Medicine.*
- In 1936 in Switzerland, Bosch performed the first laparoscopic tubal occlusion as a method for sterilization.
- In the 1940s, Hajime Uchida developed his technique, which can be performed as an interval or puerperal procedure. He subsequently reported on his personal experience with more than 20,000 tubal sterilizations over 28 years without a known failure. [5]
- In the 1960s, the era of laparoscopy began with unipolar electrocoagulation of the fallopian tube. Failure rates and safety concerns associated with both unipolar and bipolar electrosurgery led to the development of laparoscopic devices that do not require radiofrequency energy.
- In 1973, Jaroslav Hulka devised a spring clip that could be applied laparoscopically. [6]
- In 1981, Filshie introduced a titanium and silicone clip that was widely used in Europe. It was not introduced into the United States until the 1990s. [7]
- In 2002, the Essure hysteroscopic sterilization procedure was approved for use in the United States.
- In 2018, Bayer announced that they will stop selling and distributing the Essure device in the United States.

Procedures to block the fallopian tube may be divided into those performed at the time of delivery or shortly thereafter, and those performed at another time. The latter are referred to as interval sterilization procedures. Minilaparotomy (Uchida, Pomeroy, or Parkland technique) is the most common procedure in the immediate postpartum period, performed via periumbilical incision following vaginal delivery. The proximity of the uterine fundus in relation to the umbilicus during the immediate postpartum period facilitates this approach. However, there is a much higher incidence of poststerilization remorse associated with procedures performed immediately following delivery.

The laparoscopic approach may be used at any time other than the postpartum period and involves either a single umbilical 10 mm port, or a smaller umbilical camera port and a secondary suprapubic port through which the various devices are introduced.

Although local anesthetic techniques have been described and used for transabdominal approaches, the vast majority of intraperitoneal tubal interruption procedures in the United States are performed using general or spinal anesthesia. And by definition, all require incisions that invade the peritoneal cavity, thereby introducing complications related to general or spinal anesthesia as well as injury to intra-abdominal structures.

Several attempts have been made in the past to achieve transcervical tubal blockage using radiofrequency, chemical scarring with quinacrine, and the injection of liquid silicone. However, these have all failed for safety or efficacy reasons.

In 2002, the US Food and Drug Administration (FDA) approved the use of Essure microinserts for hysteroscopic sterilization. The devices consist of polyethylene terephthalate (PET) fibers wrapped around a stainless steel core, surrounded by 24 coils of nickel-titanium alloy. After the microinserts are deployed, the PET fibers induce the tubal epithelium to undergo fibrosis, which results in proximal tubal occlusion. This process takes approximately 3 months to form complete occlusion, which is then documented by a hysterosalpingogram.

In April 2018, the US Food and Drug Administration ordered restrictions to the sale and distribution of the Essure permanent contraceptive device. [8] The Essure system was voluntarily removed from the US market in December 2018. As of December 31, 2019, all unused Essure units should have been returned to the manufacturer, Bayer, so that they are no longer available for implantation. [9]