

## TUBAL LIGATION REVERSAL

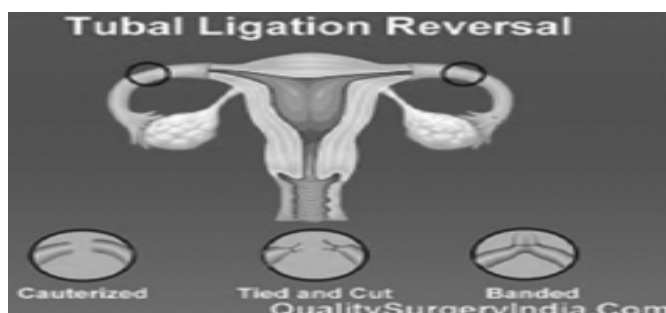


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Tubal reversal, also called tubal sterilization reversal or tubal ligation reversal, is a surgical procedure that attempts to restore fertility to women after a tubal ligation. By rejoining the separated segments of fallopian tube, tubal reversal may give women the chance to become pregnant again.

**TUBAL REVERSAL SURGERIES:** Tubal reversal surgeries utilize the techniques of microsurgery to open and reconnect the fallopian tube segments that remain after a tubal sterilization.

**Tubotubal anastomosis:** Following a tubal ligation, there are usually two remaining fallopian tube segments—the proximal tubal segment that emerges from the uterus and the distal tubal segment that ends with the fimbria next to the ovary. After opening the blocked ends of the remaining tubal segments, a narrow flexible stent is gently threaded through their inner cavities or lumens and into the uterine cavity. This ensures that the fallopian tube is open from the uterine cavity to its fimbrial end. The newly created tubal openings are then drawn next to each other by placing a retention suture in the connective tissue that lies beneath the fallopian tubes (mesosalpinx). Microsurgical sutures are used to precisely align the muscular portion (muscularis externa) and outer layer (serosa), while avoiding the inner layer (mucosa) of the fallopian tube. The tubal stent is then gently withdrawn from the fimbrial end of the tube.



**Tubouterine implantation:** In a small percentage of cases, a tubal ligation procedure leaves only the distal portion of the fallopian tube and no proximal tubal segment. This may occur when monopolar tubal coagulation has been applied to the isthmic segment of the fallopian tube as it emerges from the uterus. In this situation, a new opening can be created through the uterine muscle and the remaining tubal segment inserted into the uterine cavity. This microsurgical procedure is called tubouterine implantation.

**Laparoscopic tubal reversal:** Laparoscopic Tubal Reversal is a minimally-invasive surgical procedure (laparoscopy), using small, specially-designed instruments to repair and reconnect the fallopian tubes.

After general anesthesia has been administered, a 10mm (less than ½-inch) tube (trocar) is inserted just at the lower edge of the navel, and a special gas is pumped into the abdomen to create enough space to perform the operation safely and precisely. The laparoscope (a telescope), attached to a camera, is brought into the abdomen through the same tube, and the pelvis and abdomen are thoroughly inspected. The fallopian tubes are evaluated and the obstruction (ligation, burn, ring, or clip) is examined. Three small instruments (5mm each, less than ¼-inch) are used to remove the occlusion and prepare the two segments of the tube to be reconnected. Once the connection (anastomosis) is completed, a blue dye is injected through the cervix, traveling through the uterus and tubes, all the way to the abdomen. This is to make sure the tubes have been aligned properly and that the connection is working well.

Patients are seen between 5–7 days after the operation to look at the small incisions and remove any stitches if necessary. Most of the time, the few stitches that were placed will be under the skin and will be absorbed by the body, without need for removal.

Patients should wait two to three months prior to attempting pregnancy in order to give the tubes a chance to heal completely. Trying to conceive before could result in an increased risk of ectopic pregnancy (pregnancy inside the fallopian tube instead of in the uterus).

When performed by a trained laparoscopic tubal reversal surgeon, laparoscopic tubal reversal combines the success rates of micro-surgical techniques with the advantages of minimally-invasive surgery - namely faster recovery, better healing, less pain, fewer complications, and no large disfiguring scars.

**Robotic assisted tubal reversal:** Robotic assisted tubal reversal surgery is a surgical procedure in which the



fallopian tubes are repaired by a surgeon using a remotely controlled, robotic surgical system.

The robotic system involves two components: a patient side-cart (also referred to as the robot) and a surgeon's console. The robot is placed adjacent to the patient and has several attached arms. Each arm has a unique surgical instrument and performs a specialized surgical function. The surgeon sits near the patient at the surgeon's console and visualizes the surgery through a monitor. The surgeon performs the entire reversal surgery using controllers located inside the surgeon's console.

Robotic surgery experts have suggested robotic tubal ligation reversal offers the advantage of smaller incisions when compared to traditional laparotomy tubal reversal surgery. These smaller incisions have been reported to result in less pain and quicker return to work after robotic tubal reversal when compared to traditional tubal ligation reversal using larger abdominal incisions. The potential disadvantages to robotic surgery are longer operating times and higher costs.

A retrospective, Cleveland Clinic study compared 26 patients who underwent robotic assisted tubal reversal to 41 patients who underwent outpatient mini-laparotomy (abdominal incision) tubal reversal. Robotic tubal reversal patients, when compared to abdominal tubal reversal surgery patients, had longer times under anesthesia (283 minutes vs 205 minutes) and longer times in surgery (229 minutes vs 181 minutes). On average, robotic tubal reversal patients returned to work one week sooner than abdominal tubal reversal patients and the robotic tubal reversal surgeries were also more expensive than abdominal tubal reversal surgeries.[4]

#### An Overview of Tubal Reversal Surgery

☞ Tubal reversal surgery is performed on women who have previously undergone tubal ligation surgery and wish to reverse the process.

☞ During tubal ligation surgery, the fallopian tubes are typically blocked or tied so that the eggs cannot travel to them, thus preventing fertilization. Tubal reversal surgery allows for the blocked or tied fallopian tubes to be reconnected so that women can restore their fertility.

☞ Surgeons use microsurgical tools, such as small instruments and surgical magnification glasses, to repair blocked fallopian tubes. These advanced tools allow for smaller incisions and a faster recovery time.

☞ Recovery typically takes 1-3 days. Women who undergo tubal ligation surgery should not engage in vigorous exercise for a couple of days afterwards.

☞ According to the Department of Obstetrics and Gynecology at the Penn State Milton S. Hershey Medical Center, pregnancy rates range from 45-80% twelve months after tubal ligation reversal.

#### Before surgery

☞ Getting Informed consent from the patient; Vital signs should be checked

☞ The patient may be given medicine right before procedure or surgery. This medicine may make her feel relaxed and sleepy.

**After surgery:** After surgery the patient is watched closely for any problems. The bandage keeps the area clean and dry to help prevent infection.

☞ **Food and drink after surgery:** The patient will be able to drink liquids and eat certain foods once stomach function returns after surgery. The patient may be given ice chips at first. Then they will get liquids such as water, broth, juice, and clear soft drinks. If the stomach does not become upset, they may then be given soft foods. Once she can eat soft foods easily, may slowly begin to eat solid foods.

☞ Medicines like Antibiotics, analgesics, and antiemetics can be provided.

**Complications:** The likelihood of actual complications during surgery is small but include infection (1%), injury to abdominal organs during surgery (<1%), failure of reversal after surgery (10-30%) and the possibility that the subsequent pregnancy may be an ectopic (tubal) pregnancy (10-15%).

**Post Tubal Ligation Syndrome :** *Sometimes, tubal ligation reversal is desired not for the purpose of having children, but to reverse the effects experienced by many women of post tubal ligation syndrome. The symptoms of post tubal ligation syndrome may include:*

- ☞ Irregular, heavy, painful periods, and other menstrual issues
- ☞ Symptoms of early onset menopause
- ☞ Severe or worsening of premenstrual syndrome
- ☞ Loss of libido ☞ Ectopic pregnancy
- ☞ Anxiety ☞ Vaginal dryness
- ☞ Palpitations ☞ Hot flashes
- ☞ Cold flashes ☞ Trouble sleeping ☞ Mood swings

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