

Laparoscopic Sterilization: An Obsolete Procedure?

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Developments in gynecological endoscopy are truly remarkable. Their many applications have improved diagnosis and treatment of a variety of gynecologic conditions, whilst simultaneously bringing about a reduction in both cost and morbidity as compared to more invasive practices. Access to these newer developments remains a problem in most areas of the world. It is, therefore, important to be alert to newer nonsurgical methods that may eclipse now well-established endoscopic procedures. Laparoscopic sterilization may be on this list.

Quinacrine Pellet Sterilization

This method, developed by Zipper (1), involves transcervical application of pellets of quinacrine in the proliferative phase of the menstrual cycle using a modified Copper T IUD inserter. The pellets are cylindrical in shape to accommodate the inner diameter of the inserter. The application technique generally used is similar to that of an IUD insertion, leaving the quinacrine pellets deposited at the uterine fundus. Most experience (2) is with pellets of 36 mg quinacrine with a rapid dissolution time, using seven pellets (252 mg). The procedure is repeated once or twice at a monthly interval. Recently, Zipper has added 50 mg of diclofenac pellets to the quinacrine insertions to both reduce mild side effects and improve efficacy (3).

The quinacrine pellet method requires technical skills similar to those for IUD insertions. A large and increasing number of nurses are quite competent to carry this out, especially in developing countries. The potential access to the quinacrine pellet method is, therefore, very large.

Future Sterilization Needs

Voluntary female sterilization is the most prevalent contraceptive method today, used by over 138 million married women of reproductive age (MWRA) compared to 95 million in 1984 (4). Using current trends in the growth of sterilization acceptance in developing countries, predominantly by women, Ross estimated there would be 159,000,000 new sterilizations in the 1990s, thereby raising the prevalence from 23.5 to 28.8 percent of couples (5). The modesty of this increase is due to the fact that nearly half of the gain in users is being offset by the increase in MWRA in developing countries. If the 47% sterilization prevalence of MWRA, as now obtained by Korea and Puerto Rico, is to be achieved by the end of the decade, an additional 169,429,000 sterilizations are required over Ross's estimate (6). It is unlikely that surgical sterilization could meet this need safely in this decade because of the limitations of surgical resources.

The first argument favoring quinacrine pellet nonsurgical female sterilization is that it can meet the needs of developing countries.

Safety

There is a wide variation in the safety of surgical female sterilization between industrialized and developing countries. Case fatality rates in the United States are reported as 1-4 per 100,000 procedures (7), whereas in less developed nations, they range up to 19 (8) or 21 (9), but are thought generally to be 6-8 per 100,000 procedures. In the over 30,000 cases of the quinacrine pellet sterilization in Vietnam (10), 10,000 cases in India, and 5,000 cases in other regions of similar economic status (11), no death has been reported.

Morbidity is the other important aspect of safety. Reports of the quinacrine pellet method are uniformly reassuring by their absence of serious complications that could be life threatening (2,11). In a large field trial in Vietnam, Hieu and coworkers (10) found a major complication rate of 0.03%, using criteria of the Centers for Disease Control (12). The more common side effects are lower abdominal pain, mild fever, headache, oligomenorrhea and amenorrhea. Amenorrhea disappears within five months without treatment. Fever and pain have been readily treated with common analgesics.

Laparoscopic sterilization is associated with more serious complications, and their relative risk varies with patient characteristics and associated procedures, such as general anesthesia. In the collaborative Review of Sterilization by the Centers for Disease Control (12), 3,500 laparoscopic sterilization procedures in the United States showed that 37 (1.1%) resulted in unintended major surgery, 16 (0.5%) required rehospitalization, and 7 (0.2%) were treated for febrile morbidity for a total complication rate of 1.7%.

Efficacy

Efficacy of the quinacrine pellet method, originally considered to have a lifetime failure rate of 5%-6%, shows promise of marked improvement. The most optimistic lead comes from the large Vietnamese field trial (10), where great variations in pregnancy failure rates were found between inserting clinicians. As with the IUD, efficacy is apparently highly influenced by the insertion technique. The addition of antiprostaglandins to relax the tubal ostia and temporary post-insertion contraception to give time for tubal closure to occur (13), are other promising leads.

Surgical sterilization is highly effective, as evidenced by studies reporting low failure rates at one- or two-year follow-up (14), usually less than 0.5%. But ten-year follow-up of the Collaborative Review of Sterilization shows a 2.8% failure rate for bipolar laparoscopic sterilization and 0.7% for unipolar sterilization (15).

Efficacy is important. The efficacy of newer protocols

of the quinacrine method in terms of long-term follow-up is not yet known, but the difference in effectiveness between surgical and non-surgical methods appears to be narrowing.

costs

The cost of making surgical sterilization available to the people varies among countries (16). Propagating the non-surgical quinacrine pellet method would be less expensive everywhere. The personnel, equipment and facilities are similar to those used in IUD insertions. The cost of supplies of quinacrine pellets and inserters is less than one dollar (U.S.) for the two insertions required per case.

Acceptability

Careful studies have not been conducted to compare acceptability of surgical and nonsurgical female sterilization, but there is evidence from two areas favoring the latter. In Namha province, Vietnam, where surgical and quinacrine sterilization were available in 1992, the non-surgical method was chosen 11 to 1 over surgical sterilization. In rural West Bengal, India, over 10,000 nonsurgical quinacrine procedures have been performed on women who paid for the procedures and gave up government incentives offered for surgical sterilization.

Conclusion

On the basis of need, safety, efficacy, cost, and acceptability, the quinacrine pellet method of nonsurgical female sterilization should be offered by all gynecological endoscopists to their well informed patients. The need for laparoscopic sterilization will rapidly decline if this is done.

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