ACCEPTANCE AND PROBLEMS OF LAPAROSCOPIC STERILIZATION AT AN INDUSTRIAL FAMILY WELFARE CENTRE—BOMBAY

By

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SUMMARY

Of 10,176 Laparoscopic Sterilizations carried out at an Industrial Family Welfare Centre till October '87, 6,716 were followed up for 2 years. These have been studied for complications and failures. Tubal transection was the commonest complication of sterilization. There was uterine perforation in 55 cases and 12 had haemorrhage due to the procedure of abortion. Causes of failure of this operation are analysed.

Introduction

Larsen & Toubro Limited, Family Welfare Centre, Bombay, offers facilities for sterilization operations to its employees as well as to the community.

Till October 1987, 12,667 sterilizations were performed of which 10,176 were laparoscopic sterilizations and 2,491 were vasectomies. In the same period, 1,972 women accepted IUD insertions and 4,935 cases had termination of unwanted pregnancy.

6,716 laparoscopic sterilizations performed until September 1985 have been followed up for two years. The acceptability and problems as well as complications related to this operation are presented and discussed.

Material and Methods

In each operative session. 2 laparoscopists and 2 anaesthetists aided by 3 theatre nurses and 2 theatre assistants work as a team in a well equipped operation theatre and carry out 15-18 operations. 33% of the sterilizations were performed with first trimester termination of pregnancy. Prior to the operation, all patients are screened clinically. Anaemia, urinary tract infection, diabetes, cervical dysplasia, are ruled out. Facilities for paediatric check-up and immunization for their children are offered.

Yoon's band applications were done by single puncture laparoscope in two-thirds of the cases and double puncture laparoscope in the rest. Biploar cautery was available and used in cases of tubal transection and for thickened or odematous tubes. Direct trocar placement was made in 1,600 cases by one of our surgeons. There were no complications in his series. He felt that the possibility of extra peritoneal gas and embolism were eliminated and operation time shortened. This method was carried out in patients with thin and very lax anterior abdominal wall. Patients with good abdominal tone,

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obesity or previous operation scars were relative contra-indications.

Patients were observed post-operatively for 3 hours and discharged. The immediate and remote complications were noted and categorised into those due to sterilization and those due to termination of pregnancy.

Acceptability

Majority of the patients were between 25 to 34 years of age, 50% were illiterate or had primary school education. Acceptors of vasectomy were between 30 to 39 years of age and had higher income and educational levels as 50% were educated upto secondary school or were graduates. Among Muslims, laparoscopic sterilizations were more popular compared to vasectomy acceptance. The ratio of Hindu to Muslim was 7 to 1 for laparoscopic sterilizations and 22 to 1 for vasectomy. Majority of women acceptors had 3 living children with 1 or 2 male children, whereas vasectomy acceptors had more often 2 living children of which 1 was male. Only one-fifth of the patients had tried spacing methods prior to accepting sterilization.

Complications and Failures

The commonest complication of laparoscopic sterilization was tubal transection (69 cases). None of them required exploration. In 5 cases there was excessive extraperitoneal insufflation making visualisation of the tubes difficult. One patient was hospitalised for observation following serosal injury to bowel. One omental prolapse, required surgery for its reposition. This occurred while removing the trocar. Three anaesthetic episodes caused great concern. Fortunately all were resuscitated.

Of 2,149 cases, 70 cases had complications related to the procedure of abortion. Twelve had significant haemorrhage and of these, 3 required prostaglandin injections and three others were hospitalised for blood transfusion. Fifty five uterine perforations occurred of which 2 required laparotomy and suturing. Three patients who developed post-operative infection, responded to antibiotics.

Thirty-five cases of failure reported back. 10 of them continued their pregnancies and refused to follow-up with us. We realised that there was failure of the procedure of abortion in two patients and three women had sterilization operation in post-ovulatory phase of menstrual cycle. Laparoscopy was repeated in rest of the cases. Application of Yoon's band was on mesosalpinx in 10 cases and on round ligament in 2 cases. In 3 women there was absence of band on 1 tube perhaps due to band fracture. Two women had very small loops of the tube. In one woman both bands were well in place and timing of the operation was also correct! Two patients had severe intraperitoneal adhesions and had got pregnant. Perhaps the procedure was not satisfactorily accomplished. Their husbands were advised to undergo vasectomy but had not complied due to improper follow-up on our part.

Some unexpected and incidental findings were unruptured tubal pregnancies (2 patients), small to moderate sized ovarian cyst (3 patients), leiomyoma of the uterus (1 patient) and bicornuate uterus (3 patients). They were suitably treated, when necessary.

During the same period 2,079 vasectomies were performed at the Centre. There was one major complication—severe wound infection, requiring hemiorchidectomy. Fifteen minor problems occurred such as swelling and odema. Our failure rate was 0.24%. However laparoscopic

sterilization still remains far more popular than vasectomy.

Discussion

Although the procedure of sterilization carries a certain number of complications and failures it is necessary to note that the mortality and morbidity due to child birth and induced abortions is higher than sterilisation in developing countries.

In a large multicentric study of 24,439 laparoscopic sterilizations, Bhiwandiwala *et al* have found that surgical difficulties due to anaesthesia problems, obesity, adhesions and tubal pathology ranged from 2.4% to 12.5% (Avg. 5.1%). The rate of surgical complications like injury to viscera, tubes, mesosalpinx and bleeding ranged from 0.7% to 2.7% (Avg. 1.7%). Technical failures varied from 0.6% to 1% (Mean 0.8%).

Rochat *et al* (1986) in their study of 41,834 sterilizations reported a very low mortality attributable to the procedure used. Their figures were 13.4 per 1,00,000 for interval procedures, 53.3 per 1,00,000 for post-abortion procedures and 43.4 per 1,00,000 sterilizations after deliveries.

Cardiac arrest during laparoscopy would be due to anaesthesia, gas embolism, vena-caval occlusion or blocking of pulmonary circulation. Biologic changes and haemodynamic changes are other factors contributing to cardiac arrest. In case of anaesthetic episode leading to cardiac arrest, one should immediately stop insufflation and lower the intra-abdominal pressure, but not withdraw the endoscope immediately as possibility of retroperitoneal bleeding and haematoma should be ruled out.

We had 76 obese women. In two of them vaginal route of insufflation was necessary. !Mehta (1982) had 101 markedly obese women in his series of 57,000 laparoscopic sterilizations. He advocates the use of sharp 10 cms. long BD needle instead of Verre's needle and also suggests that abdominal wall should not be lifted upwards as this increases the distance between the skin and the peritoneum. I Cheng Chi *et al* (1985) have assessed the risk of tubal sterilization in obese women. Incidence of anaesthetic and surgical complications was comparably low and of a mild nature in both the obese as well as normal groups. However, the incidence of surgical difficulties and technical failure was higher in the obese.

We had 164 cases with history of previous abdominal surgery. Though pneumoperitoneum could be achieved in all the cases through trans-abdominal route, dense and extensive adhesions prevented visualisation and occlusion of tubes in 5 cases. There were no cases of visceral injury. Hasson's cannula has a blunt obturator and can be inserted after a small incision, retraction and visualisation. Feldblum *et al* (1986) also found that previous abdominal surgery is associated with higher technique failure. A transverse abdominal incision should not make one complacent as generally, the peritoneum is opened vertically and hence the adhesions may extend right upto the umbilicus.

Vascular injuries though uncommon are potentially dangerous. A survey of AAGL by Penfield disclosed 19 vascular injuries, eight of which were to the aorta. It is suggested that steep head low position should not be given till the trocar and scope have been placed in the peritoneal cavity as this brings the abdominal aorta directly in the direction of insertion of trocar.

A significant number of complications were due to abortion prior to sterilization

operation. Other studies have also shown a about ten-fold increased risk of infection and 25 fold increase in bleeding problems in cases where termination of pregnancy was carried out.

Better education and acceptance of spacing methods prior to undergoing sterilizations would avoid most of the complications that go with abortions. Even in our Centre we find the acceptance of sterilization and termination of pregnancy much more than spacing methods.

Most failures of sterilization can be avoided by rechecking of application of bands preferably by some other surgeon, in operation theatre. There should be no great hurry, to complete the work. We certainly advocate a small number of 15-20 operations per session rather than large camps where hundreds of cases are operated. Taking too large a bite below the tubes or a bite half way through the tubes can be responsible for some of the failures. The quality of the bands is of course certainly very important.

Six women operated in this series came back to us for recanalisation, as they had lost a male child. In view of the potential demand for recanalisation, good asepsis, correct site of occlusion and minimal destruction of tubes are important.

As we will rely on laparoscopic sterilization for many more years to come to achieve population stabilisation, we should continue to refine our techniques and carry out this procedure with care and diligence.

Complications

Sterilizations	6,716
Sterilizations with MTP	2,149
— *Related to Laparoscopy*	
— Tubal transactions	69
— Excessive extraperitoneal insufflation	5
— Serosal injury to bowel	1
— Omental prolapse	1
— Anaesthetic episodes	3
	79
— *Related to MTP*	
— Perforation of Uterus	55
— Haemorrhage	12
— Infection	3
	70

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