

# Laparoscopic Management of Ovarian Cysts in infertile Women

Siddhartha Chatterjee • Sandip Dey

Repose Fertility Clinic, Calcutta 700 019.

**Summary :** Large number of ovarian cysts demand surgical intervention. Laparotomy, the usual surgical procedure, is far from ideal in infertile and nulliparous women because it may impair fertility by inviting pelvic adhesions. Laparoscopic surgery, in this instance, has appeared to be a very promising procedure due to its cost effectivity, short convalescence period and preservation of fertility potential. The various endoscopic surgical procedures are detailed in the text. Our data shows the incidence of ovarian cysts in infertile women is 10%, commonest being endometriotic ovarian cysts. Laparoscopic surgery with or without adjuvant medical treatment resulted in overall pregnancy rate of 35%. The highest rate could be found between a period of one to one and a half year time following the key hole surgery.

## Introduction:

Ovarian cysts due to high possibility of complications, demand surgical intervention at the earliest. The infertologists are more worried about endometriotic ovarian cysts or chocolate cysts which are not only progressive themselves but invite severe pelvic adhesion and sometimes infection in the form of ovarian abscess. The pressure effects of gradually enlarging cyst destroys the ovarian tissue and sometimes invites ovulatory dysfunction. The available ways of managing these ovarian cysts are laparotomy, laparoscopic surgery and transvaginal ultrasound guided cyst aspiration. (Dordoni 1993).

Laparotomy, of course a major surgical procedure, leads to increased morbidity, cost involvement, prolonged recovery time as well as extensive post operative surgical adhesions. Ultrasound guided ovarian cyst aspiration, because of its high recurrence rate, should not be considered as a definitive treatment but a stopgap procedure particularly before IVF or any medical treatment of endometriosis.

Laparoscopic surgery, on the other hand has emerged as an acceptable surgical procedure for dealing the ovarian cysts, particularly in infertile women. The low incidence of post operative adhesions, ability to perform complete surgical procedure, short convalescence more over less cost involvement have made Laparoscopic surgery an invaluable treatment modality for ovarian cysts particularly in infertile and nulliparous women.

## Material and Methods :

Between January '95 & January '97, 606 nulliparous women attended our clinic. 60 cases were found to have ovarian cysts (10%). The nature of cysts, those we came across in our clinical practice are varied. Those are presented in table - I. In our clinic about 20% of the ovarian cysts present with symptoms of lump, pain and discomfort. The large group (80%) on the other hand are asymptomatic. They are detected in routine check up, Ultrasonography (USG) or diagnostic laparoscopy.

Preoperative Preparation: Preoperative preparation includes not only the medical aspects like bowel preparation but also providing the couple with proper information regarding the advantage, outcome, recurrence rate and follow up treatment of the procedure.

Surgical Procedure : Surgical procedure, as we follow in our clinic involves simple cyst aspiration, ovarian cystectomy, cystostomy, widening of the cyst opening and cauterisation of the cyst wall, excision of the cyst wall and Endoscopic Marsupialisation. The first procedure is suitable for small simple serous cysts or follicular cysts, accidentally detected during diagnostic Laparoscopy. Ovarian cystectomy by Laparoscopy is rewarding operation as no ovarian tissue is destroyed. In this procedure relatively avascular area on the ovarian cyst wall is selected. If necessary the area is diathermised to minimise blood loss. An incision is made on the ovarian tissue with cutting diathermy or Laparoscopic knife or scissors. The cyst is separated from ovarian tissue by blunt dissection. The oozing blood is washed with physiological saline. If the cyst is large a hole is made

on it and the contents aspirated. The collapsed cyst wall is grasped with endoscopic grasper and the healthy ovarian wall is peeled off from the cyst wall. This leads to less amount of bleeding. When bulk of healthy ovarian tissue is reached the remaining wall is dissected after diathermy.

In some cases particularly for dermoid cysts, the excised cyst may be placed in a nonpermeable sac called Lap-Sac and the cyst is ruptured in it, so that no content spills in the abdomen. The sac is then brought out through a 10mm. port (Possover M. et al 1994). In many cases cyst wall can be excised and the rest of the wall in contact with the healthy ovarian tissue either left alone or diathermised. The oozing from the wall stops easily on pressure or apposing the ovarian capsular walls together. This is nicely applicable for medium sized cyst without adhesions.

Ovarian cystostomy and drainage of the contents becomes mandatory when cyst wall is adherant intimately with intestines and lateral pelvic wall. This is most often found in cases following previous conventional surgery particularly in endometriosis. A recurrent chocolate cyst of about 8-10 cm. size which has reappeared following conventional surgery for chocolate cyst and pelvic endometriosis, presents a real problem for the clinician when conservative approach remains to be cystostomy only. Here an avascular or relatively less vascular area of cyst wall preferably at dependent part is made free from adhesions. A 5 mm. trocar and canula is introduced directly into the cyst cavity.

Suction irrigation is continued till the contents of the cyst are aspirated & cyst wall collapsed. Bleeding points if any at the stoma are diathermised. Sometimes the stoma is now cut in criss cross direction to widen it and margins are diathermised. It is difficult to separate the whole cyst wall from ovarian tissue or to cauterise whole cyst wall of such a big cyst.

In endometriotic cysts the cyst wall remains intimately adherant to the ovarian wall as in most cases the cysts develop from endometrial implants over the ovarian serosal surface & then the endometriotic invagination of the cortex forms the cyst (Brosens et al 1994). In such cysts attempt to separate the cyst wall from the ovary may fail. It becomes sufficient to find out the stigma of invagination over the cyst wall followed by drainage of

contents. The active area at the stigma may be cauterised. Too much of diathermy to the cyst wall should be avoided. In some cases endometriosis develops deep into ovary due to haematogenous spread of the endometriotic tissues into the ovarian stroma. In case of these types of cysts the wall of the endometrioma may be separated from ovarian tissue.

In even larger cysts the thinned out cyst wall may be excised leaving thicker part of the wall and healthy ovarian tissue undisturbed. The bleeding points may be diathermised. This we call Laparoscopic Marsupialisation of the ovarian cysts.

In few cases partly adhesion and partly friability demands dismantling the cyst wall by multiple incision on the wall.

The main disadvantage of Laparoscopic ovarian cyst operation is difficulty in applying microsurgical techniques for ovarian reconstructions. To achieve this and in cases of ovarian cysts of doubtful pathology a combined laparoscopic and extracorporeal ovarian cystectomy may be performed (CLECOC) (Goldenberg et. 1994). This is particularly helpful for ovarian dermoid cysts, though the lapsac or endoscopic impermeable sac technique has allowed total Laparoscopic cystectomy possible (Chapron et al. 1994). In this procedure under Laparoscopic view a small incision, sufficient to eventrate the cyst is made on the abdominal wall. Cystectomy & microsurgical ovarian reconstruction is performed thereafter. The ovary is put back into the abdomen.

The surgical procedure for ovarian cysts followed in our clinic are summarised in table - II.

**Adjuvant Procedures :** In conjunction with management of ovarian cysts, ovariolysis may be necessary. This is particularly important for Pelvic endometriosis when ovary remains adherant to uterosacral ligament or surrounding structures in the Pouch of Douglas. The tubes may also remain blocked in advanced endometriosis or associated Pelvic Inflammatory Disease. Attempts to open the tubes by squeezing, manipulation & hydrotubation (SMH) are often helpful.

**Post operative medical therapy :** It has been observed that there is a quick recurrence of endometriotic ovarian cysts (ECC) after drainage. This has proved drainage alone, ineffective for ECC (Donnez. et. al 1994). Hence



**Table - I****Different types of ovarian cysts in infertile women**

| Nature of cysts                    | Number of cases |
|------------------------------------|-----------------|
| Simple serous                      | 4               |
| Dermoid                            | 4               |
| Cyst with old blood                | 6               |
| Endometriotic chocolate cyst (ECC) | 46              |
| Cysts                              | 60              |

**Table II****Surgical Procedures followed in our Clinic**

| Nature of operation | Number of cases |
|---------------------|-----------------|
| Aspiration          | 4               |
| Cystectomy          | 14              |
| Marsupialisation    | 10              |
| Dismantling         | 14              |
| Cystostomy          | 6               |
| Clecoc              | 10              |
| Operation           | 60              |

**Table III****Outcome of follow up in ECC**

| Period         | Recurrence of Cyst |         |        | Pregnancy |
|----------------|--------------------|---------|--------|-----------|
|                | <3 cm.             | 3-5 cm. | > 5 cm |           |
| By 1 year      | 7                  | 3       | X      | 6(13.5%)  |
| By 1-½ year    | 15                 | 5       | 2      | 12(27%)   |
| By 1½ - 2 year | 24                 | 6       | 5      | 3 (6.75%) |

adjuvant medical therapy is essential.

After the surgical procedures Danazol, progestogen or LHRH analogue are administered for proper control of endometriosis. We prefer a full course of danazol for 6 months or Medroxyprogesteron acetate (MPA) continued for 6-9 months. A complete amenorrhoea during this period is preferred too.

LHRH analogues for 6-8 weeks are administered in cases where ovulation stimulation by pure FSH is performed immediately under the down regulation protocol in our clinic for IVF or other procedure of ART.

Follow up with Results : A two year follow up in all the available cases particularly for endometriosis is presented in Table - III. The main stay for followup is transvaginal

sonography (TVUSG). 3-4 weeks following the Laparoscopic procedure a TVUSG is performed to see the condition of the pelvis and for presence of any cyst. After completion of adjuvant medical treatment of endometriosis another TVUSG is performed time to time. In women looking for a child, induction of ovulation, intra uterine insemination in indicated cases are also carried out. In these group TVUSG at 3-6 months interval is performed to keep watch on development of newer cysts.

It is evident from the result that pregnancy rate is maximum by 1-1½ yrs time (27%). This may be due to the time taken by the Fallopian Tubes to regain its structural and functional integrity when they were involved in adhesion. The success rate falls thereafter. If pregnancy does not occur by then a second look laparoscopy should be undertaken for further evaluation.

Conclusion: The main aim of surgical procedures in infertile woman is preservation and restoration of reproductive capacity and the anatomy of the reproductive organs as maximum as possible. The conventional surgery for ovarian cyst, particularly if they are endometriotic or bilateral, does not serve the aforesaid purpose. It has been observed that considerable number of cases develop severe pelvic adhesion following conventional surgery. Laparoscopic surgery here appears to be very promising to reach the goal and helps us to remain extremely conservative. It also allows us to perform repeat procedure by laparoscopy if needed at short interval of time.

**References**

1. Brosens IA., Puttemans PJ., Deprest J., *Fertil. Steril.* 61: 1034: 1994.
2. Chapron C., Dubuisson JB., Samouh N. Foulot H., Aubriot FX., Amsquer Y., Morice P., *Surg. Endosc.* 8: 1092: 1994
3. Donnez J., Nisolle M., Gillerot S., Anaf V., Clerckx-Braun F. *Fertil.Steril.* 62:63:1994
4. Dordoni D., Zaglio S., Zucca S., Favalli G. J. *Ultrasound Med.* 12: 27: 1993.
5. Goldenberg M., Oelsner G., Bider D., Admon D., Rabinowich O., Mashiach S. *Gynec. Obstet. Inv.* 37: 196: 1994.
6. Possover M., Morawski A., Hettenbach A., *J. Gyn. Obst. Bio. Reprod.* 23: 784: 1994.