Four Year Experience in Laparoscopic Dissection of Intact Ovarian Dermoid Cysts

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Background: Intraperitoneal spillage of dermoid cyst content, if not followed immediately by abundant peritoneal lavage, can cause a chemical peritonitis with subsequent adhesion formation.

Study Design: We performed an open clinical study in a university hospital. Forty-four consecutive ovarian dermoid cysts were removed intact from 40 premenopausal women operated on between October 1993 and December 1997. The laparoscopic technique included: 1) creation of a cleavage plane between the cyst and the ovary; 2) dissection of the cyst by a combination of water, scissors, and gravity without direct traction on the cyst; and 3) extraction of the cyst after its placement inside a laparoscopic bag.

Results: The mean cyst diameter was 6.5 cm (range 3 to 12 cm). Mean operating time was 125 minutes (range 50 to 180 minutes). All patients were discharged within 48 hours. The cysts were dissected completely intact and were extracted without spillage in the abdominal cavity in all cases. Operative followup was available in 15 of the 40 patients; mild adhesions were found on the treated ovary in 3 (20%).

Conclusions: It is always possible to prevent rupture and spillage of dermoid cysts during laparoscopic operations, but this approach is time consuming and needs expert surgical technique. (J Am Coll Surg 1998;187: 519–521. © 1998 by the American College of Surgeons)

Laparoscopy represents a major improvement in surgery because of its better magnification, reduced invasiveness, and shorter hospitalization. Laparoscopic removal of dermoid cysts, first described in 1989, has been performed successfully, even in pregnancy, by several investigators. The advantages of laparoscopy over laparotomy have been established in a randomized, prospective study.

METHODS

The surgical technique has been described in detail in a previous article. Briefly, after establishment of the pneumoperitoneum, an 11-mm trocar was inserted in the umbilicus for the laparoscope and, under visual control, three 5-mm trocars (two lateral and one midline) were inserted. For creation of the cleavage plane, in the first 25 patients we injected saline solution through a laparoscopic needle at the most prominent part of the cyst. In the last 15 patients, the ovarian surface near the mesovarium was grasped with two specially designed forceps (Olympus, Hamburg, Germany; catalogue number A6127–A6128) and incised with the scissors between them. By applying traction with the forceps only on the ovarian cortex, the cleavage plane was developed progressively by a combination of water dissection with a blunt cannula, scissors, and a dissecting forceps. We intentionally never applied traction directly to the cyst. Incision and dissection were performed either

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parallel to the mesovarium or perpendicular to it (see Discussion).

Once enucleated, the cysts were placed inside a laparoscopic bag to be removed without any risk of peritoneal contamination. We successfully used the Dexide endobag (Dexide, Fort Worth, TX) for cysts greater than 8 cm and the Endocatch endobag (Autosuture, Norwalk, CT) for smaller cysts. The bag with the cyst was extracted through the posterior vaginal fornix after colpotomy in the first 18 patients and subsequently through the umbilical incision.

The ovaries were checked carefully for any bleeding. The edges of the ovarian incision were then pressed together for 5 minutes to evaluate spontaneous healing. When healing was judged unsatisfactory (5 patients), we placed a running suture with 2-0 polydioxanone (POS II, Ethicon, Somerville, NJ) to close the ovary, hiding the knots and the suture inside the ovary as much as possible. One liter of warm saline solution was left in the peritoneal cavity at the end of the procedure; in the last 32 patients we used Ringer's lactate solution. Chromopertubation was performed when indicated.

RESULTS
Between October 1993 and December 1997, surgery was performed on 40 women with dermoid cysts using the described technique, for a total of 44 dermoid cysts (3 bilateral and 1 double unilateral cysts). The mean age of the patients was 32 years (range 21 to 39 years). Thirteen of the women were parous. The mean cyst diameter was 6.5 cm (range 3 to 12 cm), and the mean operating time was 125 minutes (range 50 to 180 minutes). Estimated blood loss was less than 100 mL in all patients. We successfully removed the dermoid cysts completely intact in all patients. Intraabdominal spillage during extraction was always prevented by using the laparoscopic bag. All patients were discharged within 48 hours.

Transvaginal ultrasonographic examination performed 6 months later showed no evidence of recurrence in any patients. Fifteen of these patients have undergone a second look (laparoscopy or laparotomy) for other surgical indications; mild adhesions were found in 3 (20%) of the treated ovaries and never on the contralateral ones. We have not had a chance to evaluate the sutured ovaries.

DISCUSSION
The search for a reproducible laparoscopic surgical technique was prompted by the frustrating experience of aspirating sebaceous secretions and hairs once the cyst is broken. We have found that preventive aspiration of the cyst content, even with a very large cannula or a 5-mm trocar, was not always satisfactory because hair can completely occlude the aspiration channel. Creation of the cleavage plane is one of the critical steps. In our preliminary report, we advocated the injection of saline through a laparoscopic needle, but with increasing experience the same results can be obtained with grasping forceps and scissors. The use of specially designed forceps was found to be helpful in the creation of the cleavage plane.

Once the first incision is created, there are two possible lines of dissection: one runs parallel to the mesovarium and the other perpendicular to it. In the first case, all the ovarian cortex lying over the cyst is kept attached to it and thus is “lost”; in the other case, the ovary is nearly halved and all of the ovarian cortex is preserved while removing only the cyst. The first option is faster (minimum 30 minutes less for the operation) but it is proposed only to multiparous patients because of the loss of ovarian tissue. We stress the importance of not using the usual laparoscopic “stripping” technique (traction and countertraction on the ovary and cyst). On the contrary, one should never exert traction directly on the cyst. This approach is obviously slower and more time-consuming than the standard technique but is safer in terms of avoiding cyst puncture. To the best of our knowledge, this is the largest series of dermoid cysts removed intact at laparoscopy.

The described rates of adhesion after laparoscopic surgery for dermoid cysts range from 20% to 50% up to 100%; in our series, we found a 20% rate of thin adhesions at second-look laparoscopy. We think that some adhesions are inevitable because of the very large ovarian incision that is necessary to remove the cyst intact. The use of specific antiadhesion agents, such as barrier methods, might reduce the incidence of this complication, but we have no data at the moment. The other and most important inconvenience we found is the need for a long operating time and expert surgical skill compared with the standard stripping procedure. This procedure cannot be performed by learning residents because during the dissection, there are moments when the cleavage plane between the cyst and the ovary is so minimal that even misplacement of the forceps might break the cyst.

In conclusion, during the last 4 years we have evaluated a successful and reproducible laparoscopic technique to dissect all ovarian dermoid cysts with-
out breakage. The same technique can be used to remove other ovarian cysts, such as echographically suspected borderline and functional cysts. The disadvantages found are the duration of the operation, the need for expert surgical skill, and the risk of postoperative adhesions.

References