

GYNECOLOGICAL PELVISCOPY

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SUMMARY

The technological advances in diagnostic imaging and the proliferation of sophisticated surgical skill in pelviscopic surgeries should not be withheld from benefiting our patients. The advantages of endoscopic surgeries compared with conventional laparotomy are obvious. Pelviscopic surgeries are as effective and as successful as laparotomy in curing benign gynecological diseases and management of fertility disorders. It is safe in the hands of experienced surgeons, when practiced with caution and skill. The advantages of endoscopic surgery are reduced patient morbidity, decreased discomfort, lesser risk of postoperative adhesions, avoidance of complications of abdominal scar, minimal hospitalization time and rapid return to normal health as well as aesthetic benefits.

An optimal preoperative assessment, particularly employing endovaginal sonography, helps proper patient selection for expectant management versus surgical treatment; and if surgery is indicated to decide whether to perform laparoscopy or laparotomy. This approach will reduce the risk of complications including suboptimal laparoscopic surgeries in adnexal malignancies. Between endosonography and endoscopy they are complementary to each other in the management of infertility, with the former engaged in pelvic diagnosis and proper patient selection, and the latter preoccupied and concentrated on operative management of infertility.

INTRODUCTION

Pelviscopic surgical procedures have

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come to represent the progression from diagnostic to interventional or therapeutic measures (Diamond, 1991). Advances in endoscopic surgery have had a dramatic influence on the management of benign

gynecologic conditions. Endoscopic instrumentations allow gynecologists to perform adhesiolysis, remove ectopic pregnancies, treat endometrioma, leiomyomas and benign ovarian cysts (Schwartz, 1991). In the practice of infertility endoscopic surgeries have improved the pregnancy rate and the results are not different from those of laparotomy. Since laparoscopy is more convenient, involves low morbidity and requires minimal hospital stay it should be the preferred surgical approach.

In this communication I view pelviscopy essentially as an operative armamentarium of the gynecologist, and present the criteria employed for recruiting subjects to undergo the procedure, discuss the various pelvic disorders that have been successfully treated, and also the surgical techniques followed in our practice.

MATERIAL AND METHODS

Over a period of 2 years and 9 months, between October, 1991 and July, 1994, the author has performed 376 laparoscopies, majority of which were pelviscopic surgeries, and few of them were purely diagnostic procedures. The most common indication for pelviscopic surgeries in 272 subjects was infertility, and the other indications included treatment of pelvic pathologies such as ectopic gestations, ovarian tumors, and myomas. Transvaginal sonography (TVS) has been employed as the standard investigative tool for recruiting subjects to undergo diagnostic and operative laparoscopy.

RECRUITMENT PROTOCOL

The following categories of infertile

patients found normal at TVS did not merit further investigation by endoscopy (1) young subjects (< 25 yrs) with a short period of infertility (< 3 yrs), (2) subjects with endocrine infertility, and (3) couples with male factors.

Wherever a precise diagnosis has been already made at diagnostic imaging, such as endometrioma, ectopic gestation, functional or neoplastic cysts of the ovary or uterine myoma, a further endoscopic confirmation was not entertained. Instead, the decision on treatment of these pathologies by medical or surgical, and if surgical whether pelviscopy or laparotomy, is made on the basis of the endosonographic assessment criteria.

Endoscopy is assigned a diagnostic role only in a few special circumstances: (1) those with inconclusive sonographic findings, (2) elderly subject with long period of infertility in whom no etiology could be assigned, (3) subjects who fail to achieve conception inspite of optimal treatment.

SURGICAL TECHNIQUES

Currently we employ the four-point laparoscopy under general anaesthesia for operative procedures. The 10 mm 0° telescope has been employed as the visual axis, and the operating axis consisted of 3 portals, one in the suprapubic region (10 mm sleeve) and two 5 or 7 mm sleeves placed on either side at the lateral borders of the rectus muscles. The suprapubic portal is employed for suction-irrigation, retraction and removal of tissues. Whereas the lateral portals are employed alternately for grasping, dissecting, cutting and coagulating.

Endometriosis : Surgery for endometriosis begins with adhesiolysis and desiccation of the endometrial implants. Both monopolar and bipolar coagulation are employed. Small endometrioma were simply desiccated by employing cautery. Bigger cysts, 3 to 5 cms, were enucleated after drainage of the contents. The incision is made in the most dependent portion and is enlarged, and the cyst wall is stripped from the normal ovarian cortex. The cyst is held towards the anterior abdominal wall and enucleation completed employing blunt dissection and cautery. Hydrodissection with blunt irrigating probe helps easier enucleation. After ensuring hemostasis the ovarian edges are left open and they align reasonably well for healing.

Cysts which are > 5 cms, and adherent were partially resected after drainage. The most redundant portion of the cyst is grasped and major portion of the cyst wall along with the overlying thin strip of ovarian tissue is resected and removed. The base is inspected, and the remnants of the cyst wall in the hilum were coagulated.

PCOD/PCO : Multiple follicular puncture, drainage by ovarian diathermy was offered for PCO subjects refractory to CC induction, and as primary method of induction of ovulation for PCOD subjects. Monopolar needle cautery is employed for ovarian drilling, and after steadying the ovary by the grasper at the ovarian ligament, an average of 15 to 20 punctures are made uniformly around the entire ovarian surface on each ovary.

Ovarian tumors : Ovariectomy or ovarian cystectomy are the pelviscopic

surgeries offered for the TVS selected ovarian cysts. For ovariectomy, first the cyst is opened, inspected and drained; and after coagulation of the vasculature of the ovarioepelvic fold employing bipolar forceps the peritoneal fold is divided by monopolar cautery knife or scissors. The collapsed ovarian mass is pulled out through the suprapubic 10 mm portal. Ovarian cystectomy, usually for dermoid cysts, is performed by pulling the cyst into the anterior abdominal wall through the 10 mm suprapubic portal and draining the same outside through a small incision on the cyst wall. The cyst could be easily enucleated after debulking the contents. After achieving hemostasis, and approximation of the ovarian edges if required, the ovary is replaced. Paraovarian cysts were enucleated by incising the broad ligament at the most prominent and avascular zone. The cyst is only surrounded by areolar tissue and hence easily levered out. Usually there will be no need for hemostasis, and the tube remains unaffected. After tapping the cyst with aspiration needle the collapsed cyst is removed through the suprapubic sleeve.

Tubal surgeries : Tubal pregnancies are managed either by salpingostomy or by salpingectomy. For salpingostomy an incision is made along the antimesenteric border at the point of maximum bulge with a monopolar needle electrode. The products separate in the plane of cleavage and are aspirated out or are removed with forceps. After achieving hemostasis the tube is left to close by secondary intention. Salpingectomy is performed by successive coagulation and cutting of the tube, mesosalpinx and the infundibulo-

pelvic fold. Hydrosalpinx is managed by salpingostomy and fimbrial eversion. Salpingolysis was mandated when tubal adhesions were also present.

Myoma : Myomectomy was practiced only for subserous myomas, and were enucleated by electrocauterization of the base with the help of the monopolar cautery knife. Hemostasis was achieved with the help of bipolar forceps. The myoma is morcellated and removed through the 10 mm portal, or alternatively removed by posterior colpotomy.

RESULTS

Of the 376 subjects undergoing laparoscopy only 43(11.44%) had normal pelvic findings. The remaining 333 patients (88.56%) had various pathologies which included endometriosis in 143 patients (42.95%), 67 PCOD/PCO subjects undergoing ovarian diathermy (20.12%), ovarian or para-ovarian cysts in 30(9.00%), myoma in 22(6.61%) tubal ectopic gestation in 12(3.60%), hydro/hematosalpinx in 9(2.70%), and others (Table I).

Of the 333 patients with pelvic pathologies 272 were treated by operative laparoscopy (81.68%), and the remaining 61(18.32%) underwent laparotomy (Table II).

Among those pelvic pathologies operated through the laparoscopic, endometriosis formed the major group (Table III). All subjects with stage I and II endometriosis and > 90% with stage III endometriosis were treated by operative laparoscopy. Nearly 74% of stage IV endometriosis was also managed at pelviscopic surgery. Only 7% of the patients with endometriosis mandated

Table I
Incidence of pelvic pathology at laparoscopy

Findings Endoscopy	At total Number	Percentage
All patients	376	
Normal pelvis	43	11.44
Pelvic pathology	333	88.56
Endometriosis	143	42.94
PCO/PCOD	67	20.12
Ovarian/Paraovarian Cysts	30	9.00
Fibroid	22	6.61
Ectopic Gestation	12	3.60
Hydro/Hematosalpinx	9	2.70
Uterine anomalies	8	2.40
Genital tuberculosis	2	0.60

laparotomy. However, one subject with stage IV endometriosis undergoing operative laparoscopy needed laparotomy for completion of the treatment.

Laparoscopic enucleation was performed in 3 of the 6 dermoid cyst. Of the

Table II
Frequency of operative pelviscopy

Laparoscopy	Total	Percentage
Total patients	376	
Pelvic pathology	333	88.56
Operative laparoscopy	272	81.68
Laparotomy	61	18.32

Table III

Operative pelviscopy for endometriosis

Endometriosis	Total	Operative Pelviscopy	Percentage
Stage I	48	48	100
Stage II	33	33	100
Stage III	36	33	91.67
Stage IV	26	19	73.76
All patients	143	133	93.00

One patient with stage IV endometriosis underwent laparotomy for completion of surgery (0.75%)

4 serous tumors, one was enucleated, and two were subjected to endoscopic ovariectomy. Three broad ligament cysts were enucleated and 3 were aspirated. Of the 12 ectopic gestations treated, there were 8 salpingostomies and 3 salpingectomies. One subject mandated laparotomy following bleeding at laparoscopic salpingectomy. All subjects with hydrosalpinx underwent either salpingostomy or salpingectomy depending on the necessity for preserving the tube. One case of hematosalpinx in a parous subject was managed by salpingectomy.

Complications : Complications were

encountered in 5 subjects (1.84%) undergoing operative laparoscopy, which included bladder injury and pelvic abscess in one each, and laparotomy for uncontrolled hemorrhage or other reasons in 3 subjects.

DISCUSSION

In the management of infertility, there has been no difference between the overall uncorrected pregnancy rate, whether routinely investigated by laparoscopy (15.85%) or by endovaginal sonography (17.66%); thereby suggesting that endovaginal sonography could be a

Table IV

Pregnancy rate for operative laparoscopy

Operative laparoscopy	Total operated	Total followed	Total pregnant	Pregnancy rate
All patients	165	165	69	41.82%
Endometriosis	92	92	39	42.39%
Ovarian diathermy	64	44	20	45.45%

Table V

Pregnancies following operative laparoscopy for endometriosis

Operative pelviscopy	No. treated	No. pregnant	Percentage
Endometriosis Stage I	21	6	28.57
Endometriosis Stage II	16	10	62.50
Endometriosis Stage III	28	11	39.29
Endometriosis Stage IV	19	6	31.58

better alternate to endoscopic evaluation as the primary investigative modality (Meena and Rajan 1994). Moreover, endovaginal sonography also provides for simultaneous evaluation of endocrine etiology of infertility (Rajan 1994). Accuracy of sonographic diagnosis of normal pelvis has been confirmed at laparoscopy in 60%, and if stage I endometriosis is ignored the diagnostic accuracy is 80%. By combining sonosalpingography or HSG the diagnostic accuracy of TVS could be increased to 92.50% (Rajan 1994). Pelvic pathologies detected at endopelvic scan has been confirmed at laparoscopies in 95.24%. Certain pelvic factors such as endometrial cysts of the ovary, other ovarian pathologies, ectopic gestation, hydrosalpinx and myoma have been diagnosed with great precision at TVS (Meena and Rajan, 1994).

Hence I advance the argument that pelvic diagnosis and preoperative assessment should be by a meticulous recourse to TVS, and endoscopy in modern gynecological practice should be viewed as a powerful operative armamentarium which provides surgical treatment. Laparotomies

could be avoided in as many as 67.21 of ovarian pathologies and 83.87% of major degrees of endometriosis (Rajan, 1994).

Many have claimed that the efficacy of laparoscopic procedures is equivalent, or even greater than procedures done at laparotomy (Diamond, 1991). In our earlier study (Rajan, 1994), among the 165 infertile subjects undergoing operative laparoscopy for various indications such as endometriosis, ovarian diathermy for PCOD/PCO, pelvic adhesiolysis salpingostomy for hydrosalpinx and myomectomy, 69 conceptions have been recorded, giving a pregnancy rate of 41.82% for operative laparoscopy. Individually the conception rates reported for ovarian diathermy and endometriosis have been 45.45% and 42.39% respectively (Table IV). The pregnancy rates for operative laparoscopy for endometriosis, which ranged from 62.50% for stage II to 31.58% for stage IV, are given in table V.

Laparoscopic management of ectopic gestation is a major welcoming breakthrough which has been made possible by the early detection of intact tubal gestation in the stable subject with the help of TVS and urinary β hCG studies (Nager and

Murphy, 1991). In our study 11 of the 12 subjects (91.67%) have been managed successfully at operative pelviscopy. Salpingostomy with preservation of the fallopian tube was feasible in 8 subjects, and salpingectomy was performed in 3 patients.

One major area of controversy in operative laparoscopy is treatment of ovarian pathologies (Diamond, 1991), and pelviscopy surgery have had a dramatic influence on the management of benign ovarian neoplasms (Schwartz, 1991), and the fact is that few women of reproductive age group have ovarian cancer as against the large number of women who currently undergo endoscopic surgery (Schwartz, 1991). The risk of operating on a ovarian cancer could be negligible because preoperative evaluation employing vaginal ultrasound has 84% diagnostic accuracy in discriminating functional cysts, benign neoplasms and malignant tumors (Girija and Rajan, 1993). Laparoscopic ovarian cystectomies and ovariectomies have been reported safe and effective (Johns, 1991). In our study 3 dermoids, 3 broad ligament cysts and one serous tumor have been enucleated and 2 ovariectomies have been

performed for serous cystadenoma.

Complications encountered in this series of operative laparoscopy (1.84%) included one case of bladder injury which was cured by suturing of the bladder at laparotomy, one case of pelvic abscess which was drained vaginally and need for laparotomy in 3 subjects. We feel hydrofloatation should be avoided to negate the postoperative morbidity. Determination in gaining experience and skill, and exercise of extreme degree of caution are the cornerstones for avoiding complications in this ever progressing discipline of pelviscopic surgeries.

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