EXTRA CORPOREAL ABDOMINAL HYSTERECTOMY: VIA MINI LAPAROTOMY AN ALTERNATIVE TO LAPAROSCOPIC UTERINE REMOVAL

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ABSTRACT

Objective: The purpose of this new surgical approach to abdominal hysterectomy is to present the technique and evaluate the advantages of this procedure.

Materials and Methods: Fifty-two women candidate to abdominal hysterectomy due to fibroids, endometriosis and chronic pelvic pain were included in the study. A special new technique "extra corporeal hysterectomy", was performed under mini laparotomy.

Technique: Surgical approach is simply to use a 4 cm transverse incision on the skin after opening the abdominal wall; the round and infundibulo-pelvic ligaments are tagged, incised, sutured and removed, before the uterus is pulled out. Lower level ligaments and vessels are prepared after the uterus is pulled out tightly from the abdominal incision. And the rest of the operation is performed in the usual manner.

Results and Conclusion: We concluded that extra corporeal abdominal hysterectomy is a safer, simpler, shorter and more cost-effective surgical procedure in comparison to laparoscopic hysterectomy. For all the patients the post-operative period and the three to five year follow-up was uneventful.

Key Words: Hysterectomy, Laparoscopy, Mini-laparotomy

INTRODUCTION

During the last hundred years, the performance of conventional abdominal and vaginal hysterectomies has gained wide acceptance, due most probably to the advent of antibiotics and anesthetic drugs, but has slowed down due to cost-effectiveness and long term morbidity (1). To further fullfill these expectant trends, Laparoscopy Assisted Vaginal Hysterectomy (LAVH) (2,3) was introduced and received its due acclaim. It can be performed in ambulatory centers, and needs no hospital stay. However, it requires cumbersome equipment, laser, cautery, disposable instruments and automatic stapling devices. Cost consciousness concerning health care in the United States and in many other developed countries has prompted surgeons to make special efforts to shorten the hospital stays and reduce operating room expenses. The aim of this study is to present a new hysterectomy technique with the advantages of LAVH, while using traditional, less expensive instruments requiring a very short hospital stay and causing lesser morbidity.

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MATERIALS AND METHODS

Fifty two patients with a mean age of 52.13±7.64 (35-69) underwent corporeal abdominal hysterectomy between October 1994 and October 1997 in University Hospital, St Joseph Hospital and Columbia/Augusta Surgical Center, Augusta, Georgia, USA. The indications were; pelvic pain, menorrhagia, leiomyomata, uterine prolapse and endometriosis for Extra Corporeal Abdominal Hysterectomy (ECAH) and more than one indication in many patients. Uteri larger than 14 week gestational size (or more than 15 cm) were excluded. There were no exclusion criteria such as adhesion and severe endometriosis but the uterus should be mobile on the examination. All ECAH procedures were performed by the authors. Patients were followed for a maximum of five years. All charts were reviewed in early 1999. Only one case required subsequent repair of a rectocele. The parameters considered were; duration of operation, technical difficulties during the procedures, blood loss, post-operative course, diet resumption, bowel movements, hospital stay, return to work and average cost of surgery.

Operative Technique

Patients, under general endotracheal anesthesia, were placed in supine position, a catheter was placed in the bladder, with or without an intra-uterine manipulator. A small 4-6 cm transverse incision was made above a shaved mons, depending on the uterine size and thickness of the subcutaneous fatty tissue, minimizing injury to intertegument, muscles and other soft tissues (Fig I-[1]). The round ligaments were grasped with babcock clamp, pulled through the incision, tagged and sectioned (Fig I-[2]). The adnexae were one at a time exteriorized and evaluated. Broad ligaments were opened in their avascular portion, followed by clamping and the sectioned suture of adnexal and cornual pedicles (Fig I-[3]). Biodegradable suture material was used. The infundibulo pelvic ligaments could be clamped, cut and sutured for additional removal of the adnexae.

After pushing the tagged pedicles back into the pelvis, the uterine corpus was grasped with one or two tenecula, pulled gently and squeezed through the skin incision (Fig I-[4]). The bladder flap was then developed with upward and backward traction of the uterus (Fig I-[5]). The uterine vessels and the cardinal ligaments were clamped, cut and ligated in routine fashion, but above skin level (Fig I-[6]).

The tagging and sectioning of the utero-sacral ligaments was performed with upward and lateral traction on the uterus (Fig I-[7]). The vagina was entered laterally with intermediate closure of the cuff (Fig I-[8]). Optional plication of the cul de sac between utero-sacral ligaments (Fig I-[9]) and approximation of the cuff to the round ligaments with non-absorbable suture could be performed before reperitonealization (Fig I-[10,11]). If the support of the vagina was poor, the cuff was suspended and if an enterocele was present, the cul de sac was plicated. 2 gm of prophylactic antibiotic, cefazoline sodium, were administrated intravenously during the operation.

RESULTS

Myomectomy was performed on five cases first, in order to reduce the uterine size. The fibroids in these cases ranged from six to ten cm in diameter. A pitressin solution was used prior to the myomectomy. The use of this solution as well as careful technique allowed blood loss to be similar to the loss from ECAH's for other indications. Blood loss was remarkably low 50 to 250 ml for an average of 120.

Duration of the procedure varied between 80 and 120 minutes including a subcuticular closure of the skin. Duration of hospitalization: twenty-one overnight stays, 15 two-day and three-day hospital stays when only hysterectomy with or without salpingo-oophorectomy were performed. Regular diet was resumed in all cases the day after surgery. ECAH when compared with twenty-five mean age 48.04±5.73 (39-59) cases of LAVH performed in our institutions showed the following:1) Lower cost: about 4400 USD with 23 hours observation instead of 6700 USD for LAVH. 2) Shorter operating time: average duration for LAVH was 170 minutes (range 110-270). 3) Total length of skin incision for LAVH varied between 5 and 7 cm when adding the umbilical to the 2 or 3 lower abdominal ports (Table I).

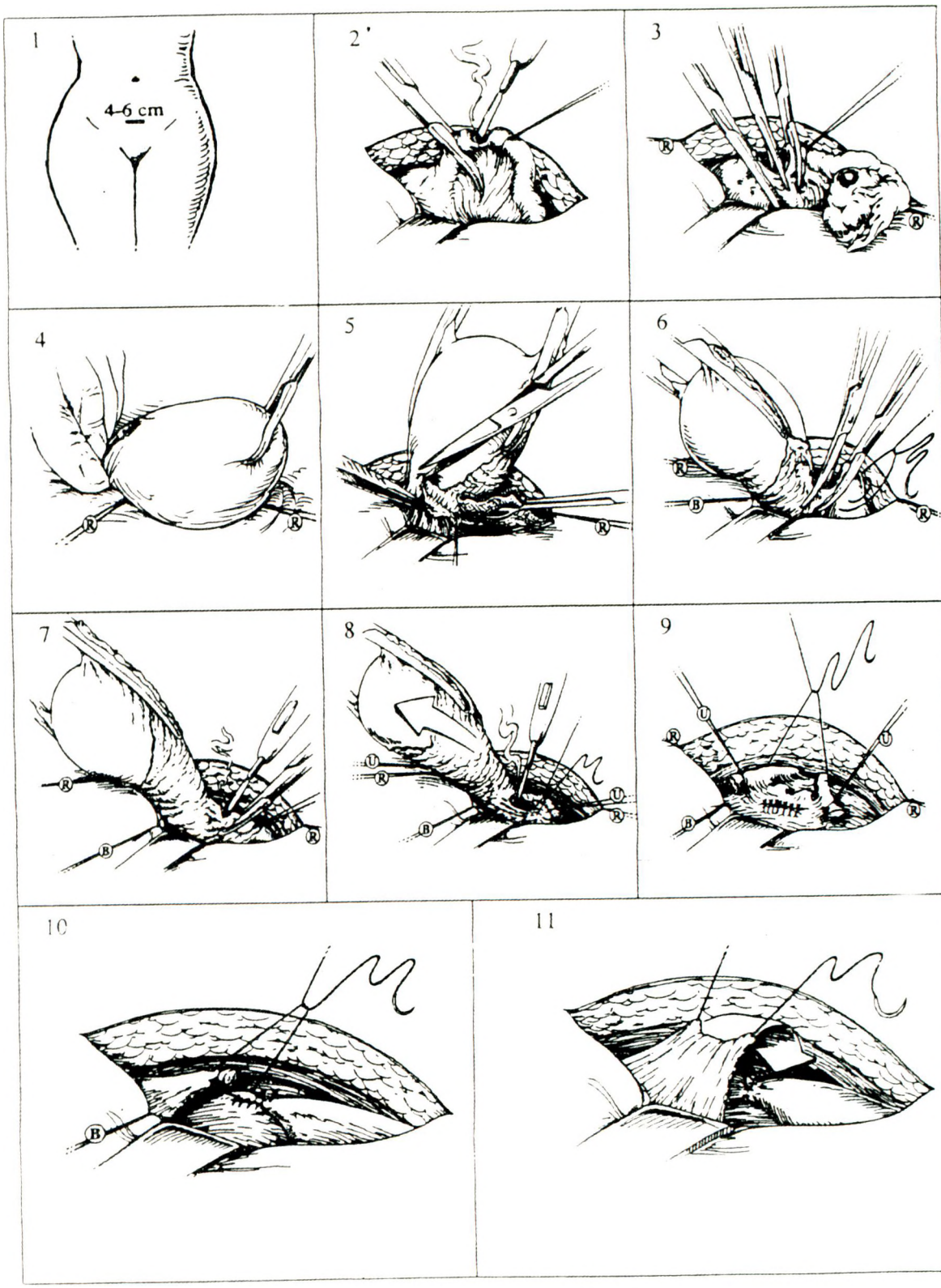

Fig. 1: Visual depiction of ECAH-mini laparotomy procudure in a stepwise fashion.

Table I.: Age (mean±sd) and parameter in ECAH and LAVH

Operation	ECAH	LAVH	TAH(5)	TVH(5)
Number of patients	52	25	-	-
Age (mean)	52.13±7.64 (35-69)	48.04±5.73 (39-59)	-	-
Duration of operation (min)	100 (80-120)	170 (110-270)	80	65
Skin incision (cm)	4-6	Sum of 5	12	-
Visualization	Fair	Good	Good	Blindfold
Blood Loss (ml)	120 (50-250)	100 (50-200)	Less	Less
Other morbidity during the operation	None	None	-	-
Postop course	One atelectasis	Uneventful	-	-
Analgesia	+	+	+++	+
Bowel movements (day)	1	1	2	Immediate
Diet resumption (Day)	1	1	2	1
Hospital Stay (Day)	2	2	3	2
Postop morbidity	None	None	-	-
Return to work (week)	3	3	5	4
Average cost of the surgery	4400	6700	5400	4400
Long term follow-up(Year)	One case posterior repair			

DISCUSSION

Extra Corporeal Abdominal Hysterectomy (ECAH) is a simple and perhaps a better approach to hysterectomies. It offers a number of advantages when compared to alternate forms of hysterectomies such as LAVH, classical abdominal and vaginal surgeries. Previous studies have compared these alternate procedures (4-6), however we are presenting the use of ECAH and its benefits (Table II).

In addition, ECAH can be performed with the patient in supine position with or without an intra uterine manipulator. There is no need for trans-muscular incision and no post-operative discomfort due to retention of intra peritoneal C02 such as during laparoscopic surgery. These patients resumed their dieting habits and physical activity similar to what we have observed for LAVH. When the uteri were too large to be removed through the abdominal incision, such as in the case of fibroids, they were partially morcelated until they were of small enough to be extra-corporealized. During the last five decades Total Abdominal Hysterectomy (TAH) has been preferred by the majority of surgeons as prevention from future cervical cancers. After increased early detection of cervical cancer screening methods, the advocacy of supra cervical hysterectomy seems to be just and its advantages, such as prevention from pelvic prolapses, bladder dysfunction and diminishing sexual activities should not be overlooked. Supra cervical hysterectomies can easily be performed via mini laparotomy (6).

Table II.: Advantages of ECAH over the other surgical procedures, LAVH, TAH and TVH

ECAH over LAVH	ECAH over TAH	ECAH over TVH
Supine position	Small skin incision	Supine position
No transmuscular port	No bowel manuplation and packing	Better visualization
No use of cumbersome utensils	No use of self retaining retractor	Possibility of DX of other intraabdominal pathology
No postop C02 retention	Early bowel movement and diet resumption	Lower cost
Short operating time	Short hospital stay	
Lower cost	Lower cost	

A recent study among 78 in -patients demonstrated the use of mini laparotomy in benign gynecological disease (7). Hysterectomies were performed through incision between 7-9 cm long. Our incisions tended to be smaller than those previously described, however, this larger and detailed study confirmed our findings of less post operative pain, rapid recovery time, and early discharge from the hospital.

It can be argued that LAVH offers a better visualization of the posterior pelvis, therefore laparoscopy can be performed in combination with ECAH for other procedures such as salpingo-oophorectomy, ovarian cystectomy, adhesiolysis, appendectomy or cysto-uretropexy. In their study, Kohama et al proposed mini laparotomy aided vaginal hysterectomy instead of laparoscopy (8).

In a recent study by Dorsey and co-workers (9) they found that LAVH costs and charges were much higher when compared to those of total abdominal hysterectomy and trans-vaginal hysterectomy. The reasons for this appeared to be the use of disposable supplies for LAVH and the longer operating room time. When compared to alternative methods, ECAH has the advantages of LAVH in addition to being lower in cost, like the classical hysterectomies. Hoffmann and friends in their article reported that mini laparotomy hysterectomy is a safe and feasible method of approach in selected patients (10).

Total abdominal hysterectomy (TAH) as classically described requires the use of self-retaining retractors, with bowel manipulation and packing, giving a better exposure (11). But, as a result, there is more post-operative discomfort with need for more analgesia, a delayed diet resumption and a longer hospital stay.

Trans-vaginal hysterectomy (TVH) provides the same benefits as ECAH, as far as the post-operative course is concerned (11). The duration of surgery is generally shorter but adnexeal exposure, potential for colpopexy are better with ECAH. Omental or intestinal fibrotic adhesions and scarring of the vesico-uterine fold, when there is a history of previous caesarean section, are a minimal burden with ECAH as opposed to TVH. ECAH through a mini laparotomy incision is a safe and simple operation for a trained gynecological surgeon. It is cost effective and well tolerated by the patients, providing both a rapid and easy post-operative recovery.

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