

Conservative surgery of uterine adenomyosis

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Introduction

- **Adenomyosis** is defined as the presence of endometrial tissue within the myometrium
 - Focal localized adenomyosis(adenomyoma)
 - Diffuse adenomyosis
- In case of patients who have adenomyosis refractory to medical treatment
 - The classical surgical treatment of uterine adenomyosis : hysterectomy

However, the patients' desire to preserve the fertility has been increasing

Who wants to conserve the uterus,

- **Conservative surgery** could be reasonable and desirable treatment for refractory adenomyosis

Unlike uterine myoma, conservative surgery is much more difficult, **especially in diffuse cases** because of,

- Obscure boundary
- Defects of myometrium after excision
- Profuse bleeding

Issues

- Why does conservative surgery of uterine adenomyosis need?

If medical therapeutic strategy could overcome the problems of adenomyosis in aspect of patients

If successful medical treatment could be feasible to patients

If it is wrong that total hysterectomy is just only question about surgical treatment of uterine adenomyosis

If conservative surgery essentially should be considered to all women with uterine adenomyosis , regardless of fertility.

Issues

- What should conservative surgery of uterine adenomyosis have?

Resolving of primary problems : dysmenorrhea, menorrhagia, infertility, habitual abortion, and others

the operated uterus close to normal uterus in menstrual function and shape.

could be comparable to effects of classical surgical treatment (hysterectomy)

could be reasonable – recurrence rate and low complications after surgery

Truth about ...

- No standard guideline for indication of conservative surgery
- No standard procedures for effective and safe surgical technique
- No definite result for fecundity and Symptoms-relief after conservative surgery through prospective comparison study between conservative surgery and medical treatment.

But

- **Uterus conservative surgery is needed and the need in patients has been increasing**

Recently challengeable works about ...

Table 1

Methodologic quality assessment of the included studies on surgical treatment of adenomyosis

Authors	Study design	Risk of bias	Comments
Kwon et al 2015 [22]	Prospective	Low	
Kim et al 2014 [23]	Retrospective	High	No correction of confounders, mixed postoperative hormonal treatment
Saremi et al 2014 [24]	Prospective	Low	
Kwon et al 2013 [25]	Prospective	Low	
Liu et al 2013 [26]	Prospective	Low	
Dai et al 2012 [27]	prospective	Low	
Osada et al 2011 [28]	Prospective	Low	
Al Jama 2011 [29]	Retrospective	High	No clear description of evaluation of symptoms
Sun et al 2011 [30]	Retrospective	High	No clear description of method of diagnosis and outcome validation
Koo and Kwon 2011 [31]	Retrospective	High	Short time of follow-up, additional treatment with GnRHa
Wang et al 2009 [32]	Prospective	Low	
Wang et al 2009 [33]	Retrospective	Moderate	Exclusion of patients requiring blood transfusion after surgery
Grimbizis et al 2008 [34]	Retrospective	Moderate	Small cohort number
Takeuchi et al 2006 [35]	Prospective	High	Time of follow-up not indicated, no adequacy of follow-up
Wood et al 1998 [36]	Retrospective	High	No clear description of method of diagnosis, no clear validation of outcome
Fedele et al 1993 [19]	Retrospective	High	Retrospective diagnosis from histology reports, treatment of concomitant disorders, no controlling for confounding factors, unclear surgical description
Nishida et al 2010 [37]	Retrospective	Low	
Fujishita et al 2004 [38]	Retrospective	High	No clear validation of outcome
Preuthippan and Herabutya 2010 [39]	Retrospective	High	No clear validation of outcome
Kang et al 2009 [40]	Retrospective	Low	
Wang et al 2002 [41]	Prospective	High	Short follow-up period, no clear description of the lesions (focal/diffuse)
Takeuchi et al 2010 [7]	Retrospective	High	No controlling for confounding factors, 5 patients had endometriosis, not mentioned if excision of the endometrioma was performed
Wood et al 1993 [42]	Retrospective	High	No clear validation of outcome
Wood et al 1994 [43]	Retrospective	High	No clear validation of outcome
Maia et al 2003 [44]	Retrospective	High	No clear description of the lesions (focal/diffuse), no clear validation of outcome
Philips et al 1996 [45]	Prospective	High	No clear description of the lesions (focal/diffuse), no clear validation of outcome
Kriplani et al 2011 [8]	Retrospective	Low	

GnRHa = gonadotropin-releasing hormone agonist.

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Laparoscopic Surgery for Focal Adenomyosis.

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➤ Author information

Abstract

BACKGROUND AND OBJECTIVES: For conservative surgical treatment of focal uterine adenomyosis, laparoscopic adenomyomectomy has been increasingly performed, so that reassessment to determine the safety and efficacy of the laparoscopic surgical technique in a larger number of cases and reevaluation for reproducibility for laparoscopic adenomyomectomy is needed. We evaluate the clinical outcomes of laparoscopic adenomyomectomy with transient occlusion of uterine arteries (TOUA) for focal uterine adenomyosis performed by a single surgeon at a single institute.

METHODS: Patients (N = 105) with symptomatic focal uterine adenomyosis underwent laparoscopic adenomyomectomy with TOUA by a single surgeon at Ulsan University Hospital from May 1, 2011, through September 30, 2016. Surgical outcomes included operative time; intraoperative injury to blood vessels, nerves, and pelvic organs; and intraoperative blood loss. We assessed the degree of improvement in dysmenorrhea and menorrhagia and relapsing or remnant adenomyosis lesion by ultrasonography at the 7-month follow-up after the operation. Then, all patients were followed up at 6-month intervals at the outpatient clinic.

RESULTS: The mean patient age was 41.98 ± 4.73 years. The mean TOUA and operative times were 4.46 ± 2.68 and 75.14 ± 20.56 min, respectively. The mean estimated blood loss was 148.19 ± 101.69 mL. No conversion to laparotomy or major complications occurred. At the 7-month follow-up, complete remission of dysmenorrhea and menorrhagia had occurred in 93.02% and 76.92% of patients, respectively.

CONCLUSIONS: Laparoscopic adenomyomectomy with TOUA is a safe and effective surgical treatment modality for women with symptomatic focal uterine adenomyosis who want to preserve fertility.

KEYWORDS: Focal uterine adenomyosis; Laparoscopic adenomyomectomy; Transient occlusion of uterine arteries

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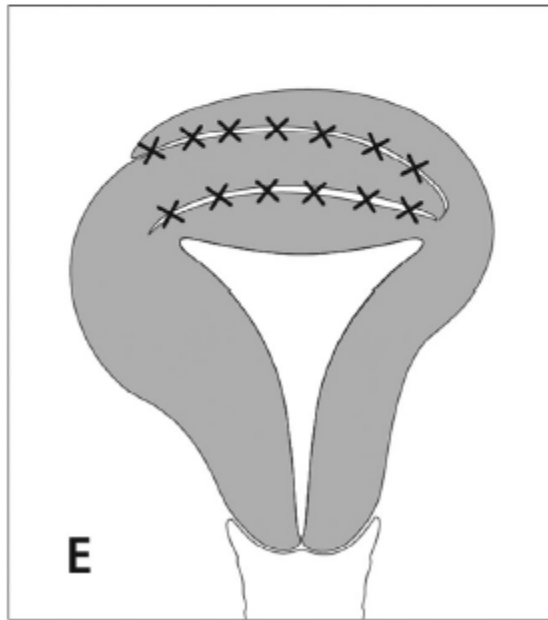
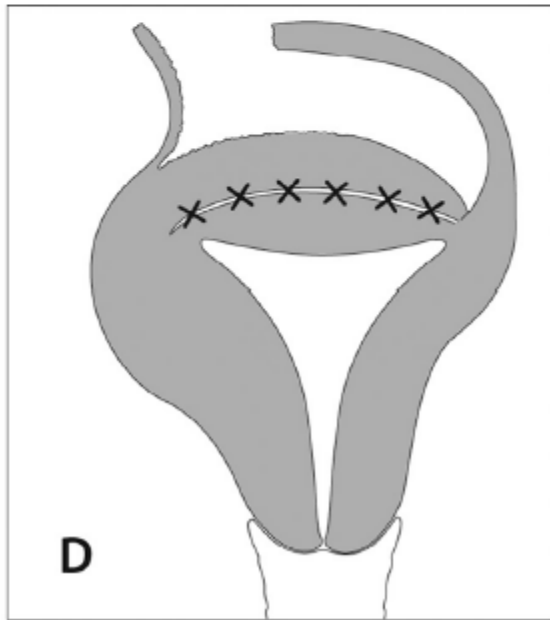
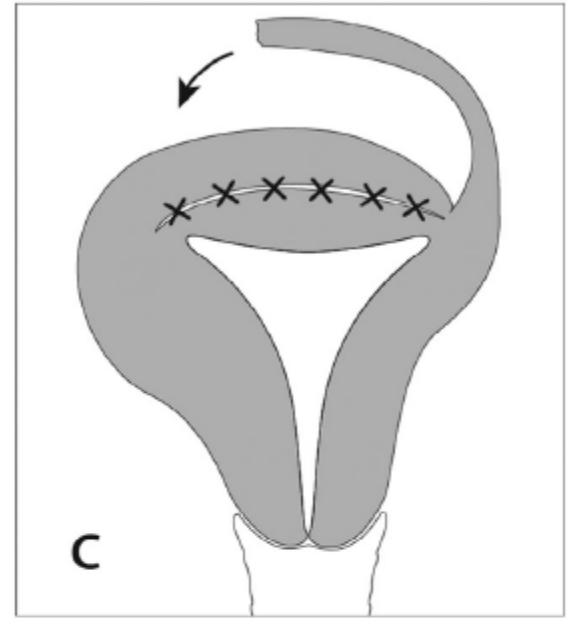
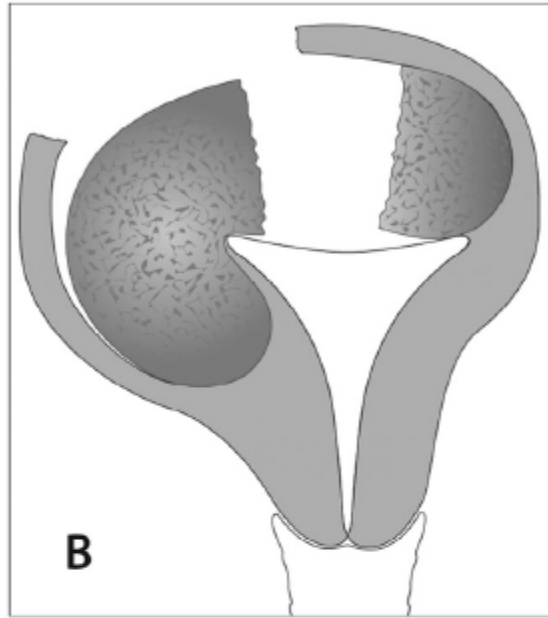
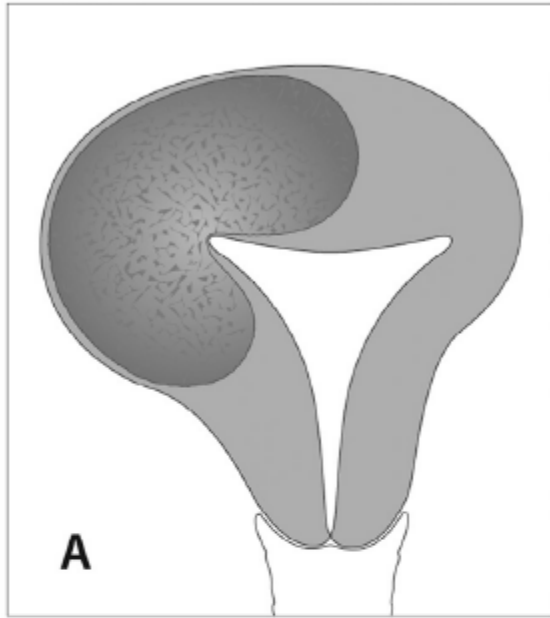


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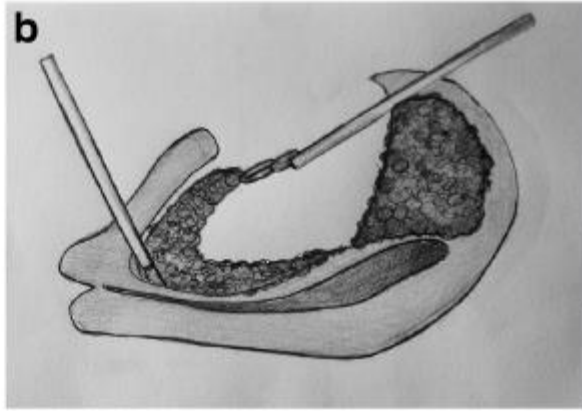
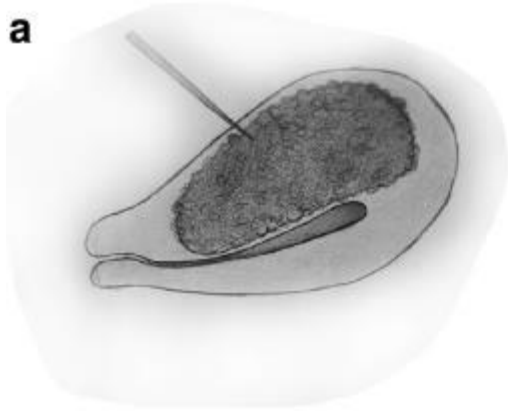
Surgical procedures

- Laparoscopic Vs laparotomic
- Focal Vs diffuse
- Complete excision Vs partial resection
with or without ligation of uterine arteries
or hysteroscopic ablation
- Uteroplasty type:
 - overlapped
 - layer by layer (U-shape) by Y.S. Kwon
 - Triple flap

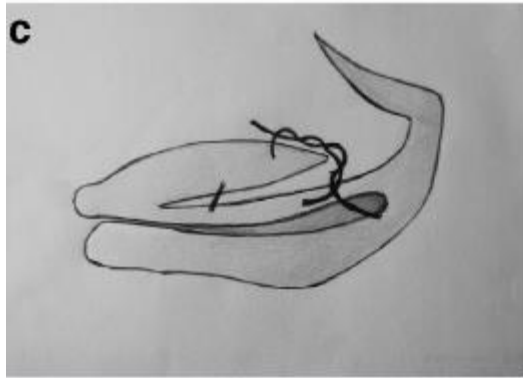
(A) Adenomyoma occupying a half of the uterus. (B) Incision on the uterine wall followed by dissection of the adenomyotic tissue. (C) Suturing of the first flap of the seromuscular layer. (D) Serosa of the first flap is removed. (E) The second flap is sutured to the first flap.



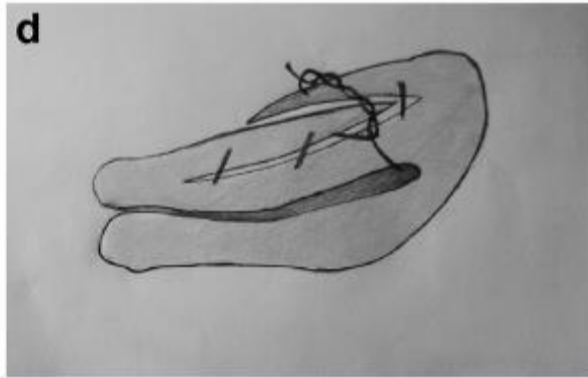
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a



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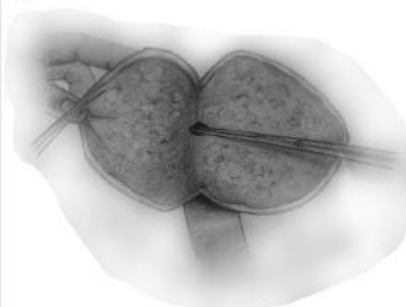


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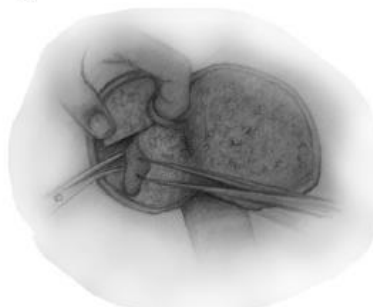


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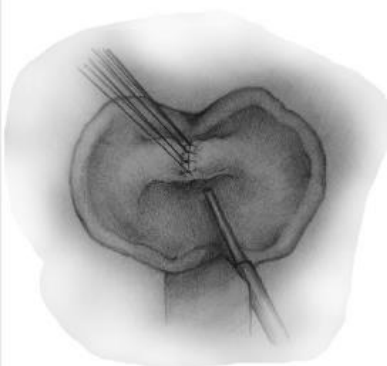
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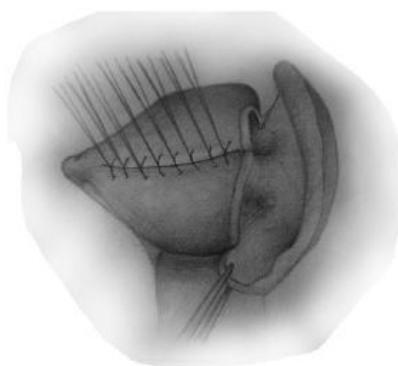
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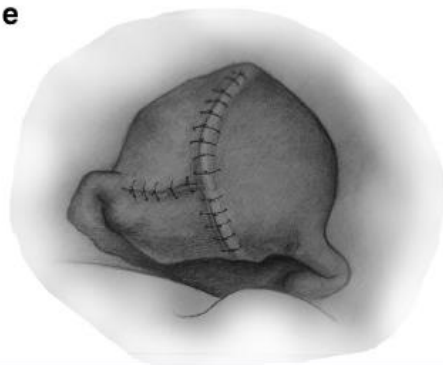
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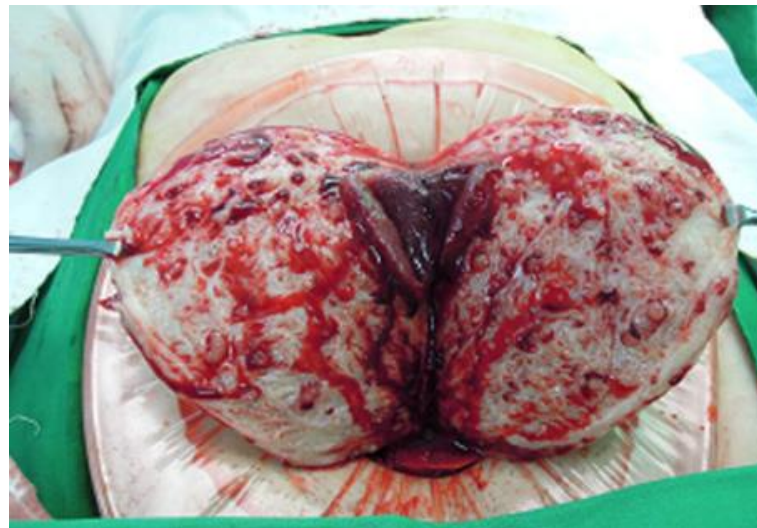
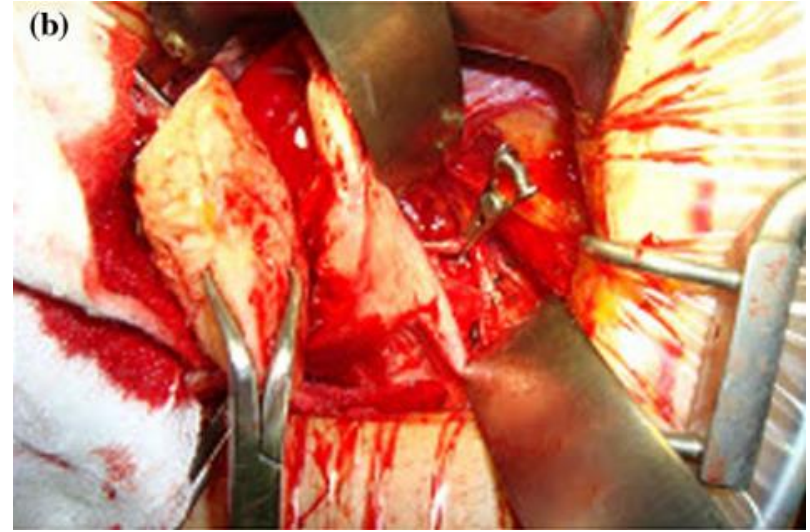
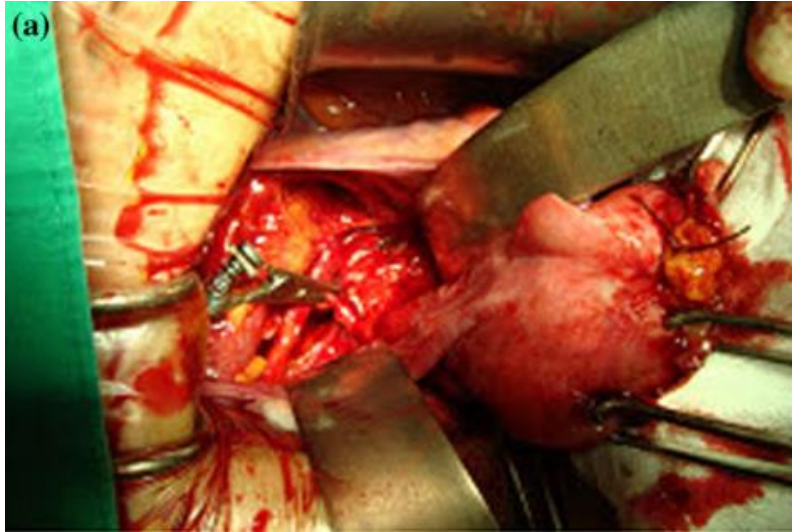


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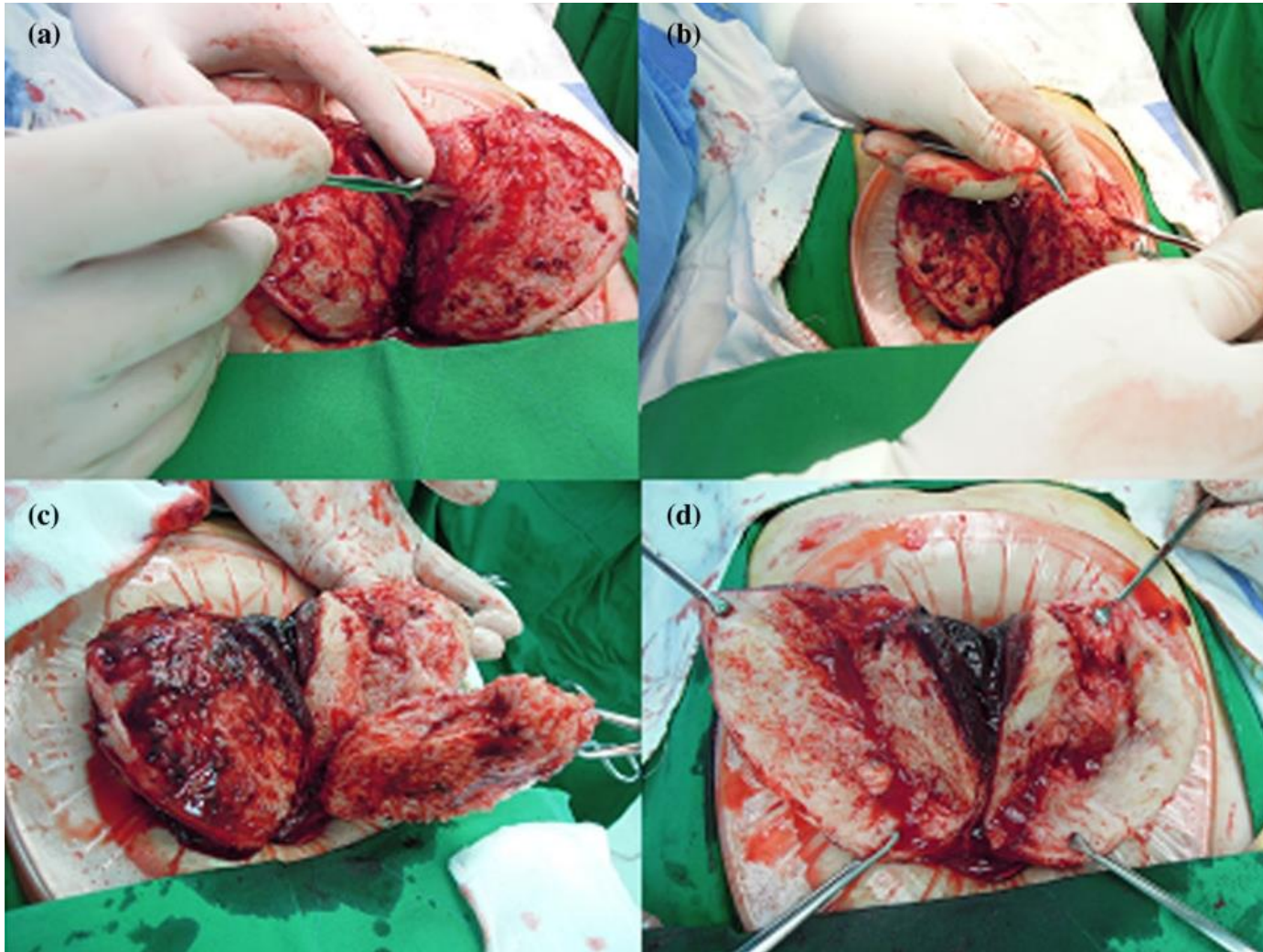
Surgical techniques

- Transient occlusion of uterine arteries(TOUA)



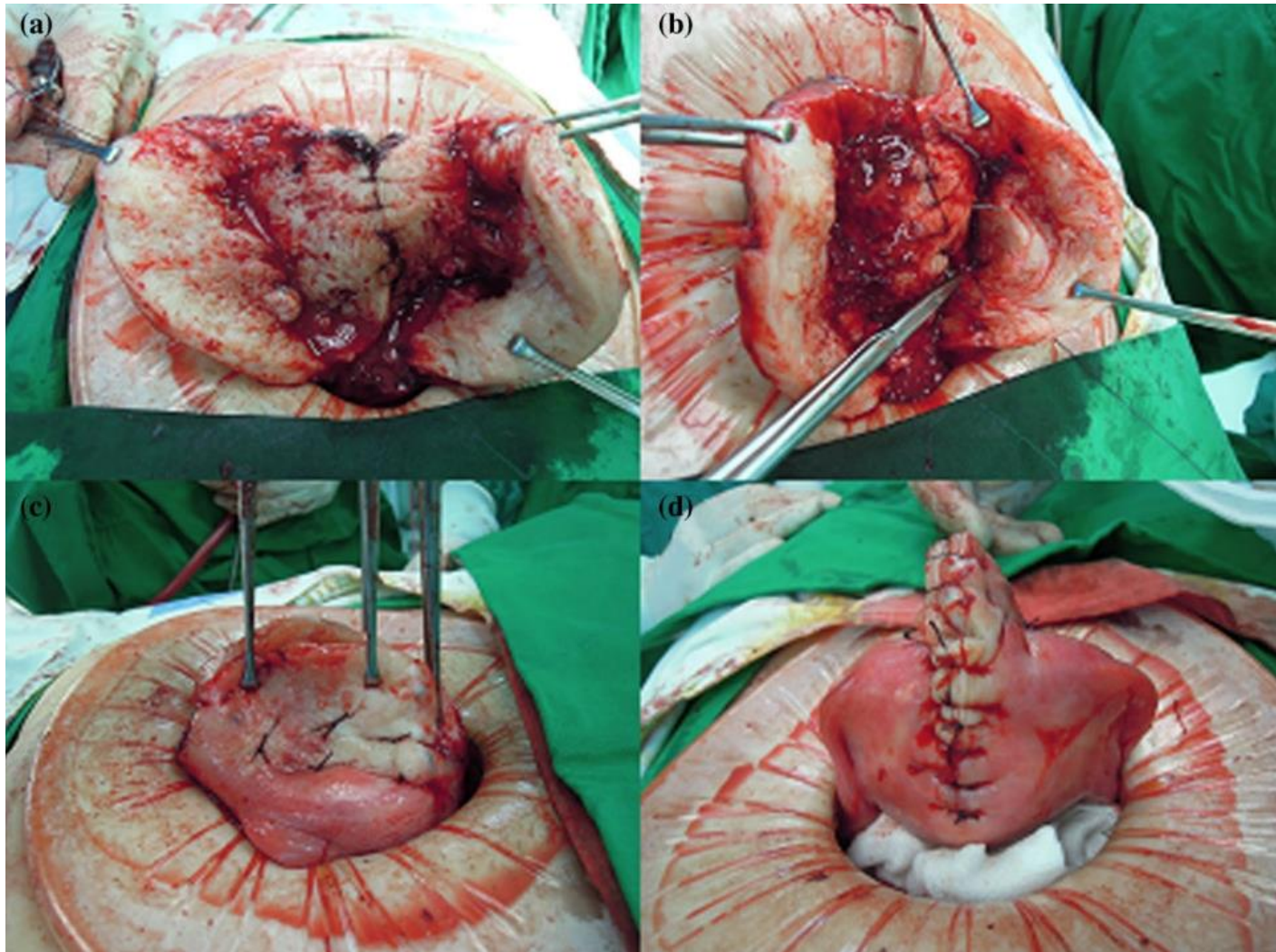
Surgical techniques

- Excision of adenomyosis

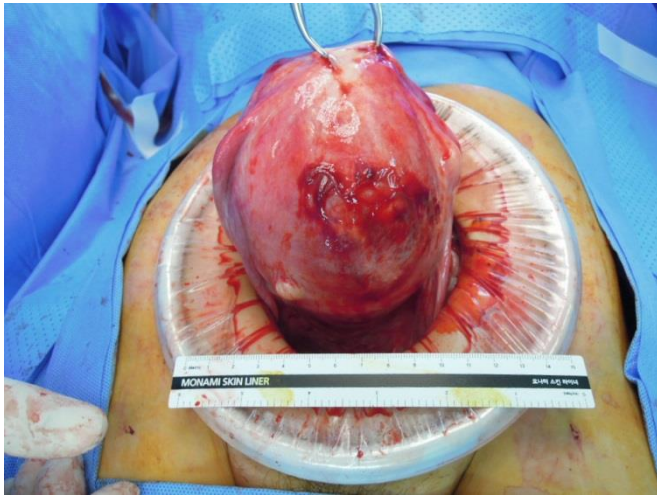


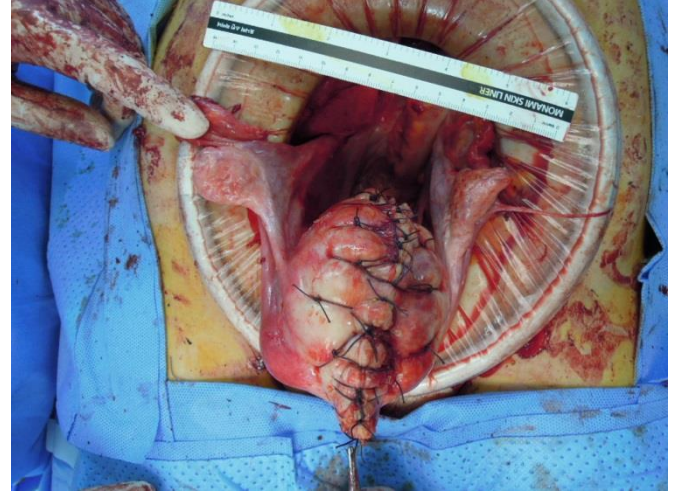
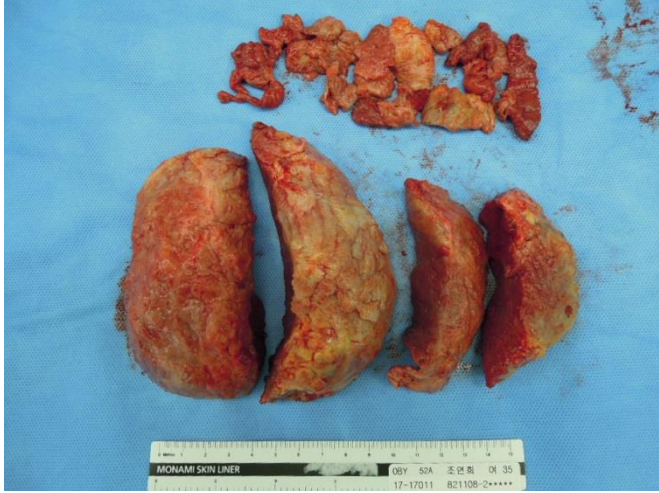
Surgical techniques

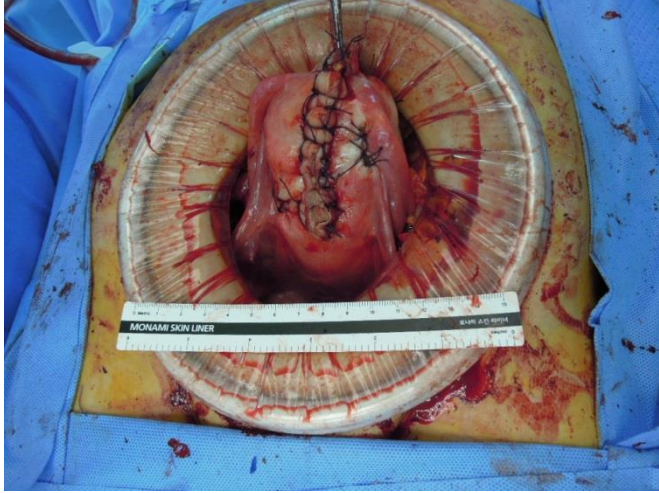
- Repair of uterus



Kwon's operation







Control of Symptoms

Dysmenorrhea

Menorrhagia

Fertility after treatment

Complication

Dysmenorrhea

- After complete excision of adenomyosis,
partial excision of adenomyosis,
complete excision of cystic adenomyomas,
- the reduction of dysmenorrhoea
82.0%, 81.8%, and 84.6%, respectively (P = not statistically significant).
- It seems that the excision of the bulk of adenomyosis controls the pain even if some amount of residual lesion has been left

Grigoris F. Grimbizis, et al Uterus-sparing operative treatment for adenomyosis. Fertility and Sterility 2014

Menorrhagia

- After complete excision of adenomyosis,
partial excision of adenomyosis,
non-excisional technique (destruction of EM)

- the reduction of menorrhagia
68.79%, 50.0%, and 73.7 %, respectively

Partial resection – residual adenomyotic lesion closed to EM – continuous bleeding

Grigoris F. Grimbizis, et al Uterus-sparing operative treatment for adenomyosis. Fertility and Sterility 2014

Fertility after treatment

- Most of the studies were not primarily designed to address the issue.
- Uterus sparing surgery-risks to decline postoperative pregnancy rate
 - pelvic adhesions, uterine deformities, intrauterine adhesions, or reduced uterine capacity
- Nevertheless,
 - the crude delivery rate appears to be higher than 70%.
 - surgical treatment of fibroids appear to be 50% (postoperative pregnancy rate)

Grigoris F. Grimbizis, et al Uterus-sparing operative treatment for adenomyosis. Fertility and Sterility 2014

Fertility after treatment

- *the conception rates*
 - *between partial excision of adenomyosis (46.8%) and complete excision of adenomyosis (60.5%) ($P=.22$).*
- *delivery rate*
 - *partial (73.3%) and complete (83.1%) excision of adenomyosis ($P=.58$)*
- *the miscarriage rate*
 - *partial (26.7%) and complete (16.9%) excision of adenomyosis ($P=.58$).*
- *No comment upon the achievement of pregnancy after nonexcisional techniques can be made because of the lack of reliable data.*
- *Grigoris F. Grimbizis, et al Uterus-sparing operative treatment for adenomyosis. Fertility and Sterility 2014*

Fertility after treatment

- *In most of the studies*
Attempts for conception were permitted at least 3 months after the intervention
- ART methods show increased pregnancy rates compared with natural cycles after an operative intervention for adenomyosis
- Moreover, a single-embryo transfer policy ensures less risk of uterine rupture, because a twin pregnancy generates uterine activity at an earlier gestational age, which may lead to this devastating event

[Obstet Gynecol Sci](#). 2016 Jul;59(4):311-5. doi: 10.5468/ogs.2016.59.4.311. Epub 2016 Jul 13.

Monochorionic twin delivery after conservative surgical treatment of a patient with severe diffuse uterine adenomyosis without uterine rupture.

[Kwack JY¹](#), [Jeon SB¹](#), [Kim K¹](#), [Lee SJ¹](#), [Kwon YS¹](#).

➤ Author information

Abstract

A 31-year-old nulliparous woman with severe diffuse uterine adenomyosis, which replaced nearly the whole uterine myometrium, visited our hospital due to severe dysmenorrhea, menorrhagia, and a desire to have a baby. The patient had a history of two spontaneous abortions. Laparotomic adenomyomectomy with transient occlusion of uterine arteries (TOUA) was performed safely and the patient tried in vitro fertilization and achieved an intrauterine twin pregnancy after recovery time of the operation. At 31+6 weeks of gestation, a male neonate baby weighing 1,620 g and a male neonate baby weighing 1,480 g were born by transverse lower segment cesarean delivery. There was no complication after the operation. The babies were discharged after receiving routine neonatal intensive care for neonatal respiratory distress syndrome. Adenomyomectomy with TOUA technique would be an option for conservative surgical treatment in patients with severe diffuse whole uterine adenomyosis. This is the first report of twin pregnancy after diffuse whole uterine adenomyomectomy with TOUA.

Complications

- Uterine rupture during pregnancy
- Mode of delivery-cesarean section
- Uterine atony after expulsion of placenta
- Placental accreta
- Intrapartum heavy bleeding – need intervention

Kwon's opinions

- Partial excision of adenomyosis- recurrence?
- Non excisional technique (uterine artery ligation or EM ablation)- interrupt fertility by it self.
- Technical diversity- need to be standardized
more reports about it
- Trial operation should be avoided
Expert surgeon should be essential because surgical outcomes is important for fertility, low recurrence rate, and low complication rate.

Conclusions

- Uterine-sparing operative treatment of adenomyosis and its variants appears to be feasible and efficacious.

Grigoris F. Grimbizis, et al Uterus-sparing operative treatment for adenomyosis. Fertility and Sterility 2014

- Conservative surgery for adenomyosis improves pelvic pain, abnormal uterine bleeding, and possibly fertility. The best method of surgery is yet to be seen.

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Extended conservative adenomyomectomy with “TOUA” for diffuse adenomyomectomy: 116 cases by single surgeon’s experience

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Results

Table 2. Surgical outcomes of adenomyomectomy with transient occlusion of uterine arteries.

N=116	Mean	Range	Standard deviation
Maximal diameter (cm)	6.48	3-15	2.15
Weight (gram) (n=38)	108.29	10-610	107.12
Operation time (min)	116.12	60-300	37.27
Estimated blood loss (mL)	207.22	30-1200	161.08
Preoperative Hb (g/dL)	11.42	7.8-15.0	1.52
Postoperative 1 day Hb	9.54	6.1-13.7	1.45
Transfusion with Pack RBC (pints) (n=52/116, 44.8%)	1.41	1-10	2.02
TOUA time (min)	5.73	3-10	1.29
Hospital staying (days)	5.05	4-7	0.68

Results

N=116	Laparotomic adenomyomectomy with TOUA		
Follow-up period (month)	16.67 (6-49, SD=12.77)		
Symptom improvement ^a	CR	PR	SD
Dysmenorrhea(%)	58 (50.0)	58 (50.0)	0 (0)
Menorrhagia (%)	52 (44.83)	53 (45.69)	11 (9.48)

CR, complete remission(100% of symptom improvement rate;

PR, partial remission (>30% of symptom improvement rate);

SD, stable disease (≤30 of symptom improvement rate)

- Symptom improvement was calculated by the decline ratio(%) of the difference between initial symptom and postoperative symptom after 7 months from the date of operation.
- Dysmenorrhea was checked by an 11-point numerical scale (0 = no pain, 10 = the pain is as bad as can be).
- Menorrhagia was evaluated by using the Mansfield-Voda-Jorgensen(MVJ) menstrual bleeding scale.

Results

Relapse rate	10/116 (8.62%)
Period until relapse (month)	17.4±9.57
Only symptomatic	2
Only sonographic	6
Symptomatic and sonographic	2
Eventual Hysterectomy	3
Complication	1

- Eventual hysterectomy
 - One patient received laparotomic hysterectomy 31 month later after adenomyomectomy because of recurrence.
 - another patient received hysterectomy 34 month later
 - the other patient received hysterectomy after 49 months later because of recurrent dysmenorrhea. In those two cases, laparoscopic vaginal hysterectomy was performed.
- Complications
 - small bowel perforation

Thank you for attention