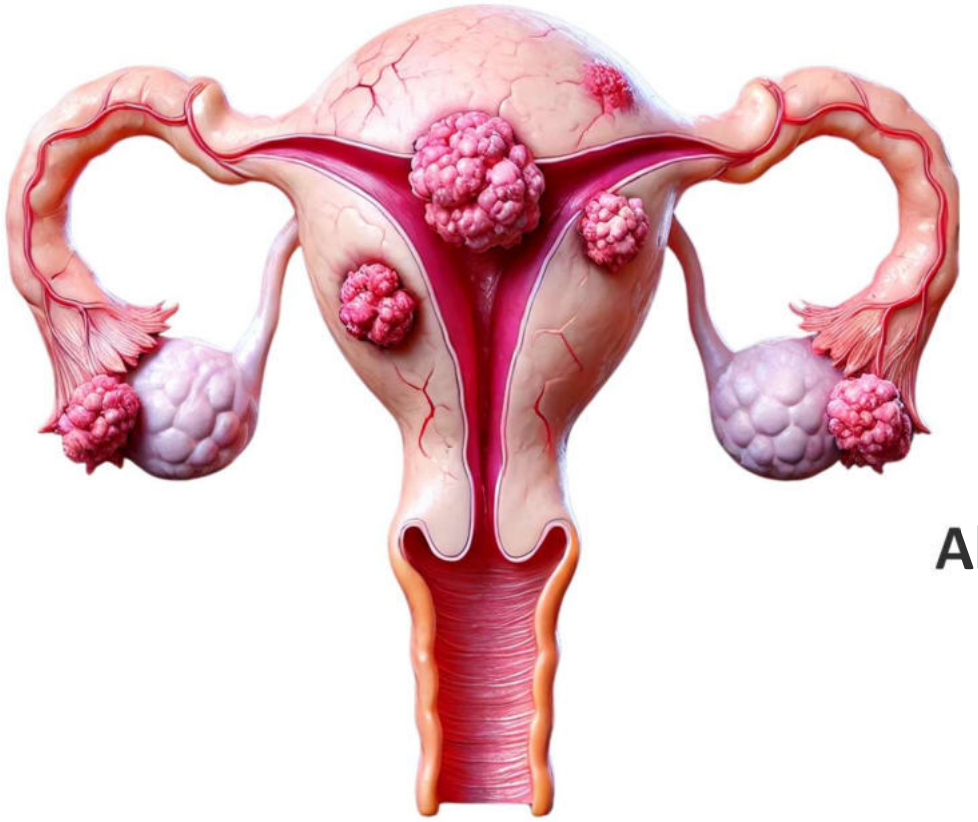
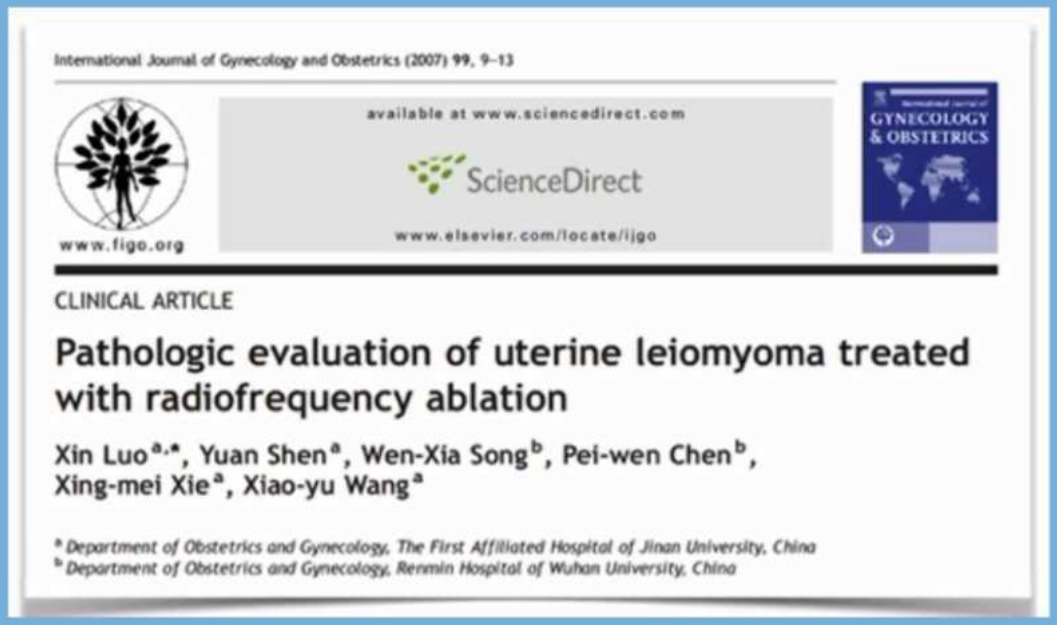


Ablación por radiofrecuencia en fertilidad.

Uso en adenomiosis

Dr. Angel Santalla
Hospital Universitario Virgen de las Nieves. Granada.

¿Cómo funciona la ablación por RF?



International Journal of Gynecology and Obstetrics (2007) 99, 9–13

www.figo.org

available at www.sciencedirect.com

ScienceDirect

www.elsevier.com/locate/ijgo

GYNECOLOGY & OBSTETRICS

CLINICAL ARTICLE

Pathologic evaluation of uterine leiomyoma treated with radiofrequency ablation

Xin Luo[a,*], Yuan Shen[a], Wen-Xia Song[b], Pei-wen Chen[b], Xing-mei Xie[a], Xiao-yu Wang[a]

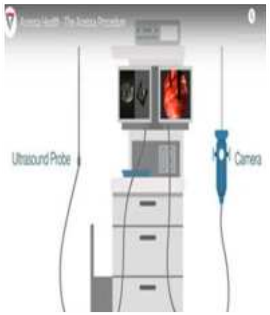
[a] Department of Obstetrics and Gynecology, The First Affiliated Hospital of Jinan University, China
[b] Department of Obstetrics and Gynecology, Renmin Hospital of Wuhan University, China

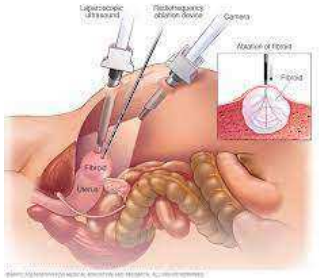
Table. Tissue reaction for various degrees of thermal injury

Temperature (°C)	Tissue reaction
42	More susceptible to chemotherapy or radiation
45	Irreversible cellular damage in several hours
50–55	Irreversible cellular damage in 4–6 min
60–100	Coagulation of tissue
100–110	Vaporization and carbonization of tissue

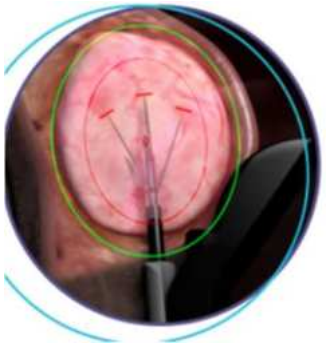
For successful ablation, the tissue temperature should be maintained in the ideal range, which is 60–100°C.

Laparoscopico ACCESA®

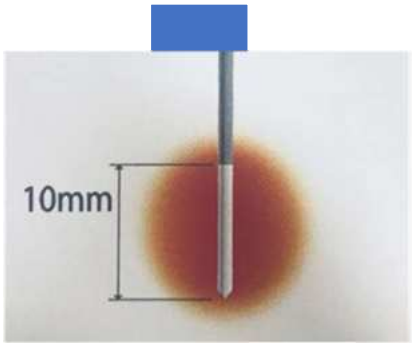




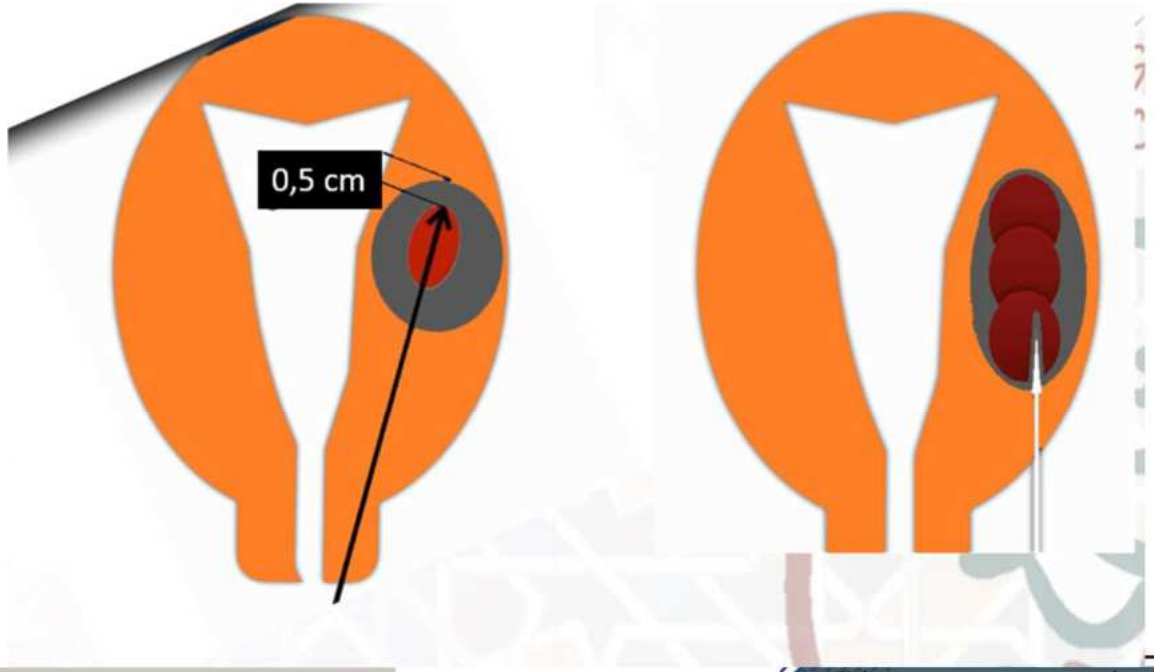
Transcervical SONATA®



Vaginal “Mooving shot”



Elaboración propia


0,5 cm


IC 5-9H GYN
8.9cm / 20Hz
MI 1.2
TIs 0.2
HOSPITAL VIRGEN DE LAS NIEVI
30.07.2020 12:46:56 PM
Penetration
8.80 - 1.80
Pot 100 %
Gn 6
C7 / M5
P2 / E2
SRI II 3
Ejecutar

65 centros públicos
42 centros privados
153 ginecólog@s

2024: 1300 procedimientos

Quality of Life, Adverse Events, and Reintervention Outcomes after Laparoscopic Radiofrequency Ablation for Symptomatic Uterine Fibroids: A Meta-Analysis

Letao Lin, MD, Haocheng Ma, MD, Jian Wang, MD, Haitao Guan, MD, Min Yang, MD, Xiaoqiang Tong, MD, Yinghua Zou, MD*
Department of Interventional Radiology and Vascular Surgery, Peking University First Hospital, Beijing, China (all authors).

Journal of Laparoendoscopic & Advanced Surgical Techniques, Vol. 29, No. 12 | Full Reports

Clinical Performance of Radiofrequency Ablation for Treatment of Uterine Fibroids: Systematic Review and Meta-Analysis of Prospective Studies

Linda D. Bradley, Rasad P. Patel, and Larry F. Miller

Published Online: 3 Dec 2019 | https://doi.org/10.1089/lap.2019.0550

LAP-2018-0293-ver9-Rey_1P.3d 06/25/18 2:01pm Page 1

JOURNAL OF LAPAROENDOSCOPIC & ADVANCED SURGICAL TECHNIQUES
Volume 00, Number 00, 2018
© Mary Ann Liebert, Inc.
DOI: 10.1089/lap.2018.0293

Full Reports

Transvaginal Radiofrequency Ablation of Myomas: Technique, Outcomes, and Complications

Victoria E. Rey, MD, Rocio Labrador, MD, María Falcón, MD, and José Luis García-Bonillez, MD

ELSEVIER

JMIG The Journal of Minimally Invasive Gynecology

Original Article

Efficacy, Complications, and Factors Predictive of Response to Treatment with Transvaginal Radiofrequency Ablation for Symptomatic Uterine Myomas

Ángel Santalla-Hernández, PhD, Mariña Naveiro-Fuentes, PhD, Rebeca Benito-Villena, MD, María Setefilla López-Criado, PhD, Aida González-Paredes, PhD, and Jorge Fernández-Parra, PhD
From the Department of Obstetrics and Gynecology, Virgen de las Nieves University Hospital, Granada, Spain

ELSEVIER

Contents lists available at ScienceDirect

European Journal of Obstetrics & Gynecology and Reproductive Biology: X

journal homepage: www.journals.elsevier.com/european-journal-of-obstetrics-and-gynecology-and-reproductive-biology

Complications of transvaginal radiofrequency ablation of fibroids: A 5-year experience

Angel Santalla-Hernández, Mariña Naveiro-Fuentes, Rebeca Benito-Villena, Jesus Villegas-Alcazar, María Setefilla López-Criado, Ana Lara-Serrano, Jorge Fernández Parra, Juan Luis Alcázar, Irene Pelayo-Delgado

Journal of Gynecology Obstetrics and Human Reproduction

ELSEVIER

Contents lists available at ScienceDirect

Journal of Gynecology Obstetrics and Human Reproduction

journal homepage: www.elsevier.com/locate/jogoh

Original Article

Outcomes of transvaginal radiofrequency ablation for symptomatic leiomyomas

Daniela Escalante Ariza, Isabel Rodríguez García, José Alejandro Ávila Cabreja, Esther Hidalgo Carmona

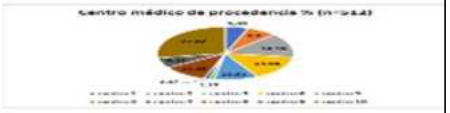
ORIGINAL ARTICLE

AEOG

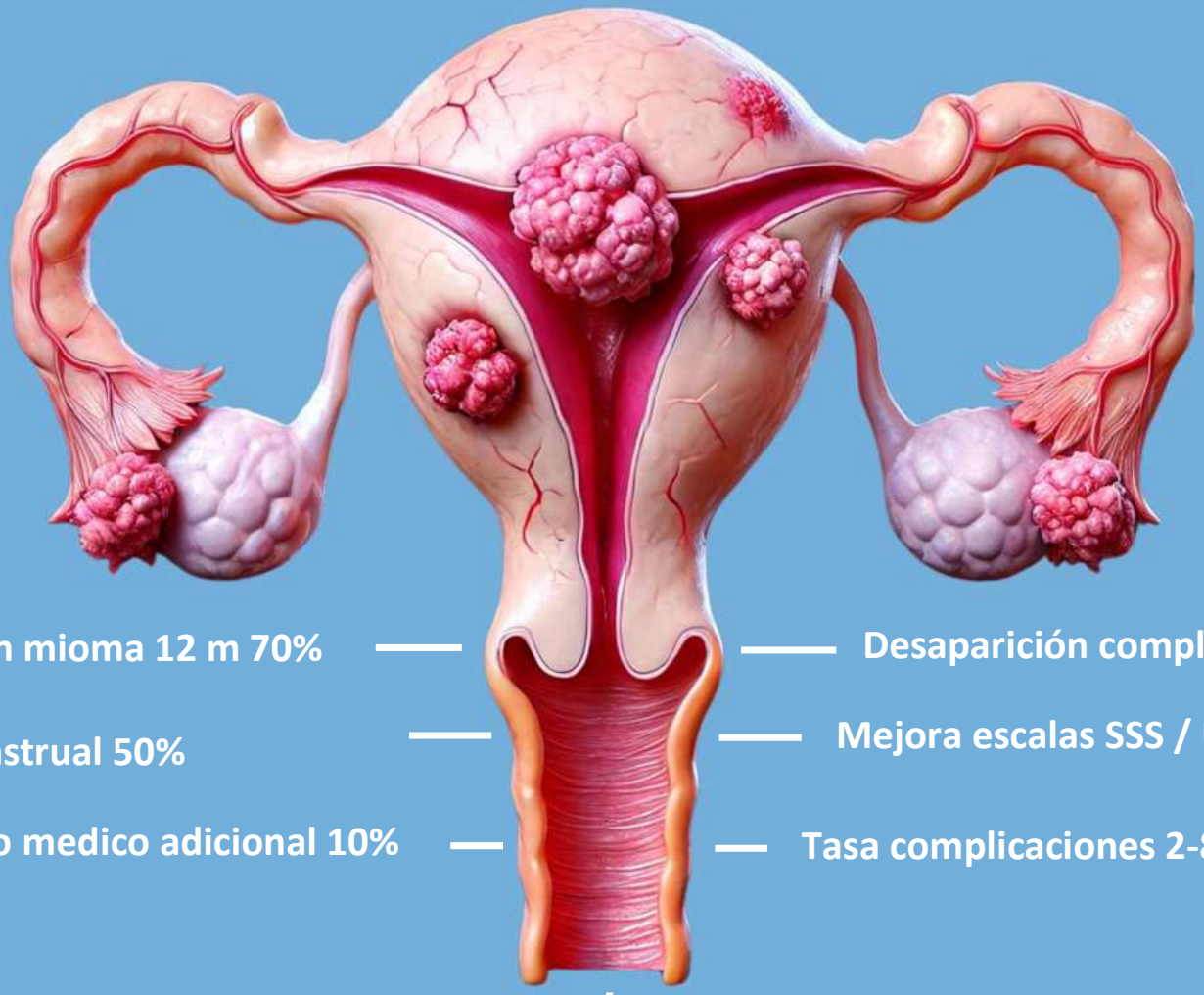
Clinical outcomes after 2-year follow-up of transvaginal radiofrequency ablation of symptomatic uterine fibroids

Ángel Santalla-Hernández[1] | Mariña Naveiro-Fuentes[1] | María Setefilla López-Criado[1] | Roi Naveiro-Flores[2] | Jorge Fernández-Parra[1]

Estudio multicéntrico español para evaluar eficacia, seguridad, reproducibilidad y factores pronósticos de respuesta al tratamiento de la ablación de miomas por radiofrecuencia vía vaginal.



37 EDICIÓN NACIONAL FORMACIÓN SEGO



Reducción media volumen mioma 12 m 70%

Reducción sangrado menstrual 50%

Necesidad de tratamiento medico adicional 10%

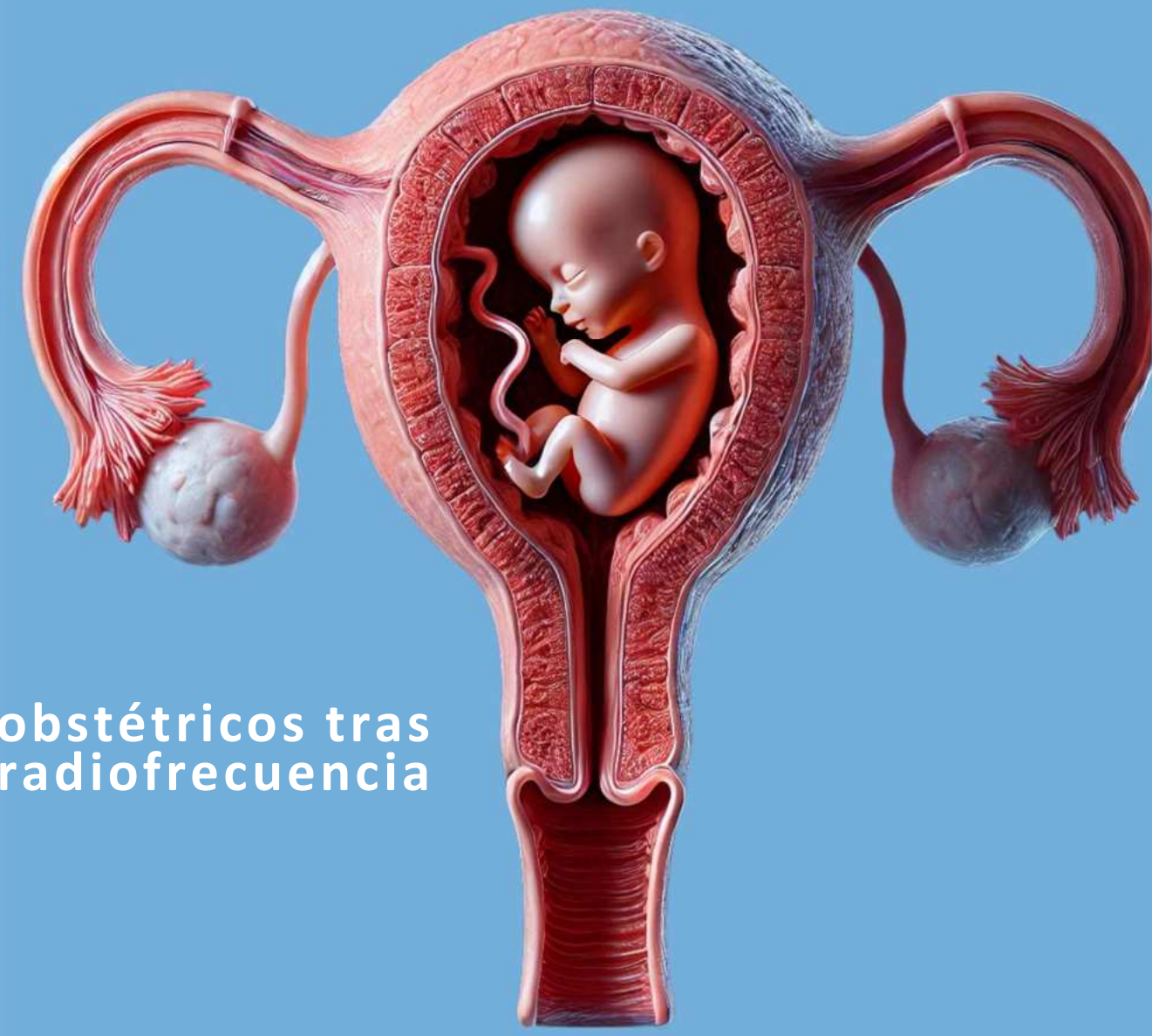
Desaparición completa 40%

Mejora escalas SSS / UFS-QoL

Tasa complicaciones 2-8% (95% CI-Dindo I)

Edad y volumen inical del mioma factores pronosticos de respuesta al tratamiento

Resultados obstétricos tras ablación por radiofrecuencia



ELSEVIER

JMIG The Journal of Minimally Invasive Gynecology

Original Article

Case Series of Reproductive Outcomes after Laparoscopic Radiofrequency Ablation of Symptomatic Myomas

Jay M. Berman, MD, Abraham Shashoua, MD, Christopher Olson, MD, Sara Brucker, MD, John A. Thiel, MD, and Bala Bhagavath, MD

RBMO

ELSEVIER

REVIEW

Systematic review of pregnancy outcomes after fertility-preserving treatment of uterine fibroids

BIOGRAPHY

Shen Chuen Khaw is a final year medical student at the University of Edinburgh. His fields of interests include reproductive medicine and benign gynaecology.

Shen Chuen Khaw[1,*], Richard A. Anderson[2], Man-wa Lui[2]

Original Research

Pregnancy Outcomes After Laparoscopic Radiofrequency Ablation of Uterine Leiomyomas Compared With Myomectomy

Antoinette Allen, MD, Michael Schembri, BS, Ram Parvataneni, MD, MPH, L. Elaine Waetjen, MD, Shira Varon, MD, Naghmeh Salamat-Saberi, MD, Shawn Tassone, MD, PhD, Nicole Williams, MD, Kimberly A. Kho, MD, MPH, and Vanessa L. Jacoby, MD, MAS

OBSTETRICS & GYNECOLOGY VOL. 143, NO. 5, MAY 2024

Journal of *Clinical Medicine*

Article

Transcervical Fibroid Ablation (TFA): Update on Pregnancy Outcomes

Leslie Hansen-Lindner [1], Juliette Schmid-Lossberg [2] and David Toub [3,*]

MedCrave Step into the World of Research

Obstetrics & Gynecology International Journal

Research Article

Open Access

CrossMark

Obstetric outcome after ultrasound guided transvaginal radiofrequency ablation of uterine myomas

Abstract

Purpose: The objective is to report the obstetric outcome of 8 pregnancies with uterine fibroids who conceived after RFA.

Methods: A study was conducted on 115 women with symptomatic uterine fibroids undergoing transvaginal RFA using a bipolar radiofrequency generator and an internally cooled electrode. Data on pregnancies and outcomes were collected.

Volume 14 Issue 6 - 2023

Santalla-Hernández Angel, Manzanares Sebastián, Naveiro-Fuentes Mariña, López-Criado María Setefilla, Fernández-Parra Jorge

Obstetrics & Gynecology Department, Virgen de las Nieves University Hospital, Granada, Spain

OPEN

Original Research

Pregnancy Outcomes After Transvaginal Radiofrequency Ablation of Leiomyomas

Victoria E. Rey, MD, Maria M. Falcon, MD, Ida Ferrara, MD, and Gabriel Yanes, MD

ACOG PRACTICE BULLETIN

Clinical Management Guidelines for Obstetrician–Gynecologists

NUMBER 228 *(Replaces Practice Bulletin Number 96, August 2008)*

Committee on Practice Bulletins—Gynecology. This Practice Bulletin was developed by the ACOG Committee on Practice Bulletins–Gynecology in collaboration with Elizabeth A. Stewart, MD; Marisa R. Adelman, MD; and Vanessa L. Jacoby, MD, MAS.

Management of Symptomatic Uterine Leiomyomas

Radiofrequency Ablation

Laparoscopic radiofrequency ablation can be considered as a minimally invasive treatment option for the management of symptomatic leiomyomas in patients who desire uterine preservation and are counseled about the limited available data on reproductive outcomes. Radiofrequency ablation (RFA) can be delivered by a laparoscopic, transvaginal, or transcervical approach, using ultrasound guidance to induce coagulative necrosis in targeted uterine leiomyomas. All of the approaches are similarly effective in reducing uterine leiomyoma volume and in improving quality of life metrics, but the laparoscopic approach has been studied the most rigorously (61). Although RFA is a

long-term follow up (up to 36 months) (61). Complication reporting was highly inconsistent, but no serious procedural complications such as death or injury to visceral structures was reported in any of the included studies. Neither meta-analysis reported outcomes on menstrual bleeding.

In a case-series of 30 pregnancies after laparoscopic RFA, there were 26 full-term live births and four pregnancy losses (64). Although in this small case series there were no cases of preterm delivery, uterine rupture, placental abruption, placenta accreta, or intrauterine growth restriction (64), sample size precludes any definitive conclusions about risk or incidence of pregnancy complications.

AAGL practice commitee (2025)

ELSEVIER

JMIG The Journal of Minimally Invasive Gynecology

AAGL

Review Article

Radiofrequency Ablation for the Treatment of Uterine Fibroids: A Systematic Review and Meta-Analysis by the AAGL Practice Committee

Innie Chen, MD, MPH, Jay M. Berman, MD, Ethan M. Balk, MD, MPH, Ian J. Saldanha, MBBS, MPH, PhD, Emilie Kowalczewski, MSc, Johnny Yi, MD, Salena Zanotti, MD, Mariam Al Hilli, MD, and Kimberly A. Kho, MD, MPH

PRECIS

Despite limitations in the body of evidence, radiofrequency ablation for the treatment of uterine fibroids has potential to improve uterine bleeding, bulk symptoms, and quality of life.

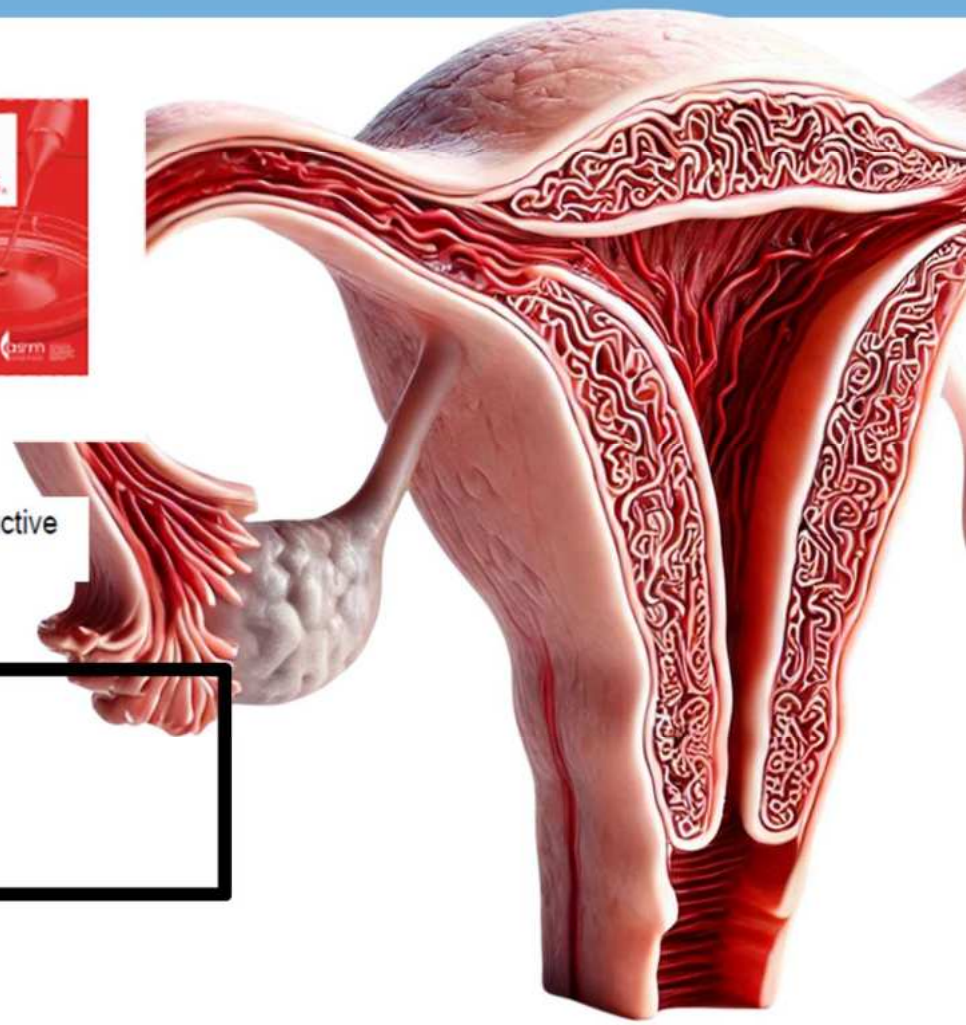

Ablacion de miomas
por radiofrecuencia en fertilidad

¿Puede la ablación del mioma por RF afectar al endometrio?

Journal Pre-proof

Transvaginal radiofrequency ablation: a therapeutic option for managing symptomatic uterine fibroids in women with reproductive desires.

M[a] Eugenia Marín Martínez, MD, Sara Cruz-Melguizo, MD PhD, Gema Vaquero Argüello, MD, Virginia Engels Calvo, MD PhD, M[a] Luisa De la Cruz Conty, PhD, Tirso Pérez Medina, MD PhD



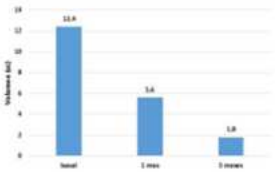
-19 pacientes deseos genésicos inmediatos 14 (73,68%) embarazos 2 años.
- Tiempo medio hasta embarazo 12 meses
-12% abortos.
-Resultados obstétricos y neonatales normales.

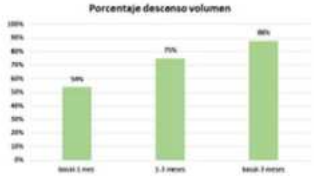
Ablación po RF vaginal y FIV /ICSI: Dra Maria Cerrillo (IVI Madrid)

RF vaginal

34 patients FIGO 2-3 de < 4 cm

Resultados





Se confirmó una media de descenso al mes de un 54%
y de un 88% a los 3 meses

33° Congreso Nacional Sociedad Española de Fertilidad
Bilbao 2022 del 4 al 6 de mayo Palacio Euskalduna

8° Congreso Nacional de Enfermería de la Reproducción

#SEF22

Resultados

- Un 60% (9/15 pacientes) realizaron tratamientos.
- 5 realizaron tratamiento con ovocitos propios y 4 ovodonación

Resultados Ciclos	
Tasa gestación	55%
Tasa de aborto	18%
Tasa de gestación evolutiva	39%

- **2024: 34 PACIENTES (IVF/OD)**

3 meses tras RF

-No diferencias tasa de embarazo

-No diferencias tasa de aborto.

Afectación endometrial tras RF

(U.H Virgen de las Nieves, Granada)

Ablación de mioma por RF

Miomectomía hsc

Biopsia endometrial 0, 3 y 6 meses

Evaluacion cambios endometrio :
Hematoxilina-eosina
Tasa endometritis crónica
Inmunohistoquímica

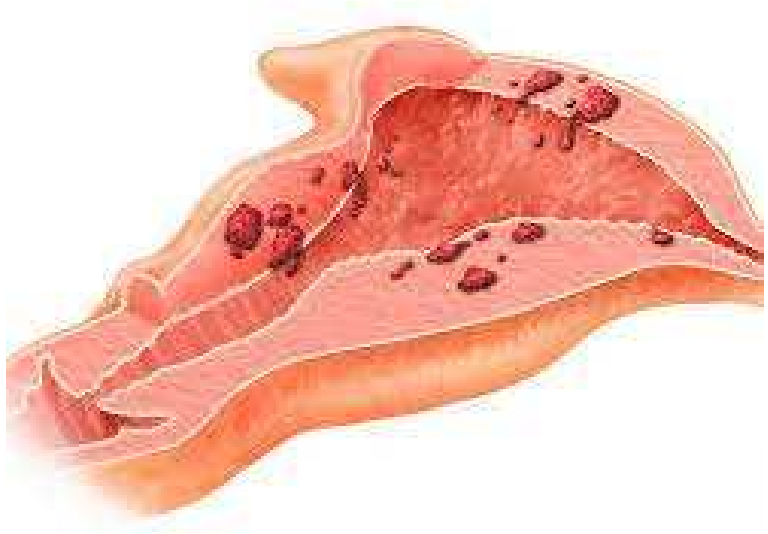
Cycle pase
Distribution and shape of glands
Apocrine discharge
Focal/diffuse stromal edema
Endometrial hyperplasia

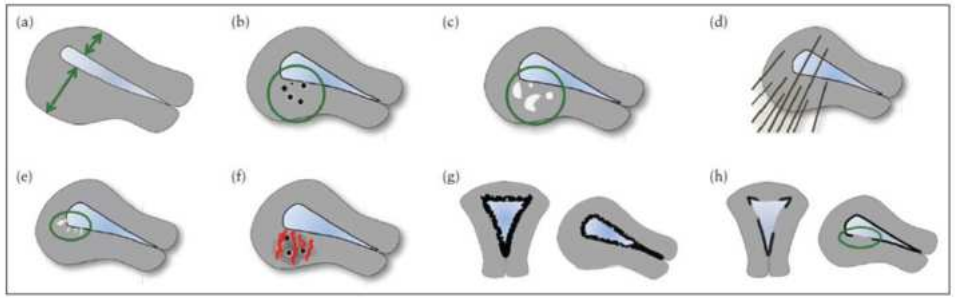
MUM1
CD138
Estrogen recpetors
Progetserone receptors
CD56
CD34
Ki67
VEGF
p53
BCL2

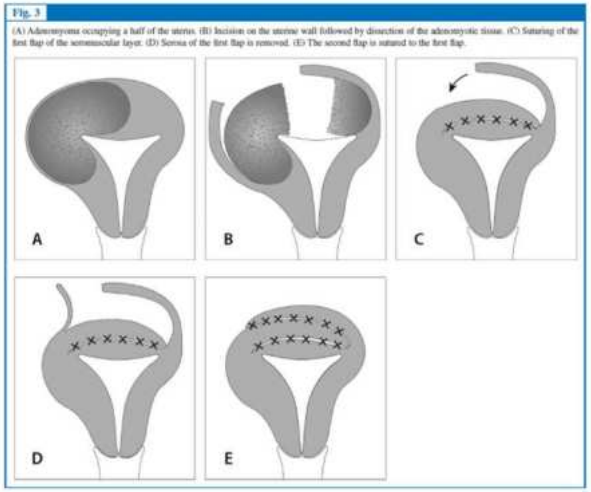
Febrero 2025: 40 casos grupo RF:

0 pacientes mostraron cambio en los parámetros histológicos e inmunohistoquímicos evaluados tras ablación por radiofrecuencia

ABLACIÓN POR RADIOFRECUENCIA EN ADENOMIOSIS







THE JOURNAL OF
Obstetrics and Gynaecology Research
doi:10.1111/jog.14145 J. Obstet. Gynaecol. Res. 2019

Pregnancy and symptomatic relief following ultrasound-guided transvaginal radiofrequency ablation in patients with adenomyosis

Jang-Hyun Nam
Naam Clinic for Women's Health, Seoul, Republic of Korea

SCIENTIFIC PAPER JSLS

Laparoscopic Radiofrequency Thermal Ablation for Uterine Adenomyosis

Stefano Scarperi, MD, Giovanni Pontrelli, MD, Colette Campana, MD, Martin Steinkasserer, MD, Alfredo Ercoli, MD, Luca Minelli, MD, Valentino Bergamini, MD, Marcello Ceccaroni, MD, PhD

Surgical Endoscopy (2022) 36:5803–5811
https://doi.org/10.1007/s00464-021-08984-z

Heat can treat: long-term follow-up results after uterine-sparing treatment of adenomyosis with radiofrequency thermal ablation in 60 hysterectomy candidate patients

Anna Katarzyna Stepniewska[1] · Silvia Baggio[1] · Roberto Clarizia[1] · Francesco Bruni[1] · Giovanni Roviglione[1] · Matteo Ceccarello[1] · Maria Manzone[1] · Massimo Guerriero[2,3] · Marcello Ceccaroni[1]

Chu et al. Journal of Ovarian Research (2024) 17:16
https://doi.org/10.1186/s13048-023-01320-0
Journal of Ovarian Research
RESEARCH Open Access

Effects of different treatment methods on clinical efficacy and fertility outcomes of patients with adenomyosis

Zhaoping Chu[1*], Ligang Jia[1], Jun Dai[2], Qi Wu[1], Fei Tian[1] and Suning Bai[1]

International Journal of Hyperthermia
ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/ihyt20

Comparison between microwave ablation and radiofrequency ablation for treating symptomatic uterine adenomyosis

Xiao Liang Lin, Ning Hai, Jing Zhang, Zhi Yu Han, Jie Yu, Fang Yi Liu, Xue Juan Dong & Ping Liang

CEOG Clinical and Experimental Obstetrics & Gynecology

Clinical evaluation of three methods in the treatment of adenomyosis

Sha A Dai Ti, Wu Fu Er, Zhao Lei, A Yi Nu Er, Mai Su Ti, Gu Li Na, A Ba Bai Ke Li
First Affiliated Hospital of Xinjiang Medical University Gynecology, Urumqi (China)

International Journal of Hyperthermia
ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/ihyt20

Transcervical radiofrequency ablation of focal adenomyosis: pilot results

International Journal of Women's Health
ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/djwh20

An Updated Review of Thermal Ablation Technology for Uterine Fibroids and Adenomyosis: Focusing on Protecting Fertility

Qing Zhang, Xiaowen Liang & Zhiyi Chen

Journal of Clinical Medicine

MDPI

Systematic Review

Radiofrequency Ablation for Adenomyosis

Ioannis Dedes [1,*], Georgios Kolovos [1], Fruscalzo Arrigo [2], David Toub [3], Cloé Vaineau [1], Susanne Lanz [1], Sara Imboden [1], Anis Feki [2] and Michael D. Mueller [1]

J. Clin. Med. 2023, *12*, 3069. https://doi.org/10.3390/jcm12093069

7 estudios: 396 pacientes. (Tc / LPS RF).
Seguimiento 12-50 meses.
75% adenomiosis focal
Complicaciones leves (Clavien Dindo I) 9%

Table 1. Study Characteristics.

Study	No. of Patients	Loss to Follow Up	NIH Quality Assessment
Lin, X.L., 2020 [21]	65	0%	good
Nam, J.H., 2020 [24]	81	33.8%	fair
Hai, N., 2017 [23]	81	6.9%	good
Hai, N., 2021 [25]	64	12.3%	good
Scarperi, S., 2015 [22]	15	33%	fair
Stepniewska, A.K., 2022 [19]	60	0%	good
Dai Ti, S.A., 2018 [20]	30	n/a	poor

Table 2. Main outcome on pain.

Outcome Parameter	Weighted Mean	SD	No. of Patients
Pain Score, adj. (0–10)	−63.4%	±9.0%	n = 366
SSS [1]	−59.1%	±16.6%	n = 210

[1] Symptom Severity Score.

Reducción media volumen lesiones - 61% (±20%)
Reducción media volumen uterino 46% (± 11,9%)
Tasa de reintervención (18% -38.5%) (HT 10,8%)
41 embarazos tras tratamiento (TE : 50%)
Resultados obstétricos y neonatales normales.

INTERNATIONAL JOURNAL OF HYPERTHERMIA
2021, VOL. 38, NO. 1, 948–962
https://doi.org/10.1080/02656736.2021.1939443

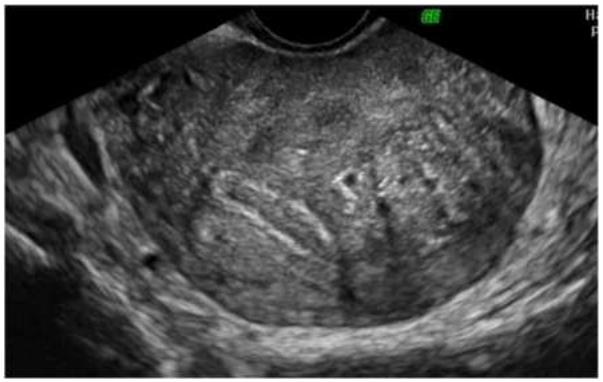
Taylor & Francis
Taylor & Francis Group

Image-guided thermal ablation in the management of symptomatic adenomyosis: a systematic review and meta-analysis

Lu Liu, Tianfu Wang and Baiying Lei

Table 2. Meta-analysis results of the VAS, SSS, QoL and menorrhagia severity scores of HIFU, PMWA and RFA for symptomatic adenomyosis.

Outcome measures	No. of studies	SMD (95% CI) Baseline vs. post-operation	*p* Value	I^2, %	No. of patients
VAS scores					
HIFU	14	2.59 (2.11, 3.06)	<.0001	93.7	1026
PMWA	5	4.27 (2.87, 5.68)	<.0001	97.1	371
RFA	3	3.64 (1.71, 5.57)	<.0001	95.9	161
Overall	22	3.14 (2.65, 3.63)	<.0001	95.8	1558
SSS scores					
HIFU	9	2.14 (1.56, 2.72)	<.0001	90.2	1091
PMWA	3	1.45 (0.47, 2.44)	.004	94.4	188
RFA	2	2.15 (−0.03, 4.33)	.053	98.1	146
Overall	14	1.96 (1.53, 2.39)	<.0001	92.9	1425
Reduction rate of uterine volume					
HIFU	7	0.336 (0.180, 0.491)	<.0001	95.9	1412
PMWA	3	0.468 (0.179, 0.758)	.002	96.0	255
RFA	2	0.440 (0.360, 0.520)	<.0001	0	146
Overall	12	0.388 (0.274, 0.501)	<.0001	95.2	1813
Reduction rate of adenomyosis volume					
HIFU	7	0.451 (0.354, 0.549)	<.0001	84.4	1272
PMWA	2	0.749 (0.677, 0.821)	<.0001	0	138
RFA	3	0.613 (0.525, 0.702)	<.0001	22.8	161
Overall	11	0.546 (0.472, 0.620)	<.0001	83.4	1537
Relief rate of dysmenorrhea					
HIFU	5	0.842 (0.808, 0.876)	<.0001	30.3	665
PMWA	3	0.897 (0.827, 0.967)	<.0001	61.9	188
RFA	2	0.892 (0.799, 0.985)	<.0001	42.7	95
Overall	10	0.868 (0.833, 0.904)	<.0001	61.1	948



Surgical Endoscopy (2022) 36:5803–5811
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Heat can treat: long-term follow-up results after uterine-sparing treatment of adenomyosis with radiofrequency thermal ablation in 60 hysterectomy candidate patients

Anna Katarzyna Stepniewska[1] · Silvia Baggio[1] · Roberto Clarizia[1] · Francesco Bruni[1] · Giovanni Roviglione[1] · Matteo Ceccarello[1] · Maria Manzone[1] · Massimo Guerriero[2,3] · Marcello Ceccaroni[1]

-60 pacientes . Seguimiento 50 meses
- Focal o adenomioma: 77%
- 65% adenomiosis + endometriosis (análisis multivariante)

- Reducción adenomiosis : 64%
- Desaparición completa: 20%
- 2 embarazos

- Histerectomía: 13% (media 48 meses)

- Subgrupo solo adenomiosis (24 pac):
  - Pacientes con SMA 67%----24%
  - Reducción media puntuación NRS 7,06---- 4

Chu et al. Journal of Ovarian Research (2024) 17:16
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Journal of Ovarian Research

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Effects of different treatment methods on clinical efficacy and fertility outcomes of patients with adenomyosis

Zhaoping Chu[1*], Ligang Jia[1], Jun Dai[2], Qi Wu[1], Fei Tian[1] and Suning Bai[1]

140 pacientes con adenomiosis
4 grupos:
- LPS
- LPS + Gnrh an.
- RF
- RF + GnRh an.

Table 2 Comparison of VAS scores, menstrual volume, and uterine volume

Groups	Time	VAS score	Menstrual volume (ml)	Uterine volume (cm^3)
Group A (n = 35)	Before treatment	5.46 ± 1.29	296.76 ± 31.19	216.17 ± 10.80
	After treatment	2.89 ± 0.93*	104.72 ± 12.86*	155.91 ± 7.24*
Group B (n = 35)	Before treatment	5.66 ± 1.26	291.52 ± 30.66	218.32 ± 11.78
	After treatment	1.80 ± 0.68*#	85.43 ± 8.26*#	135.08 ± 6.23*#
Group C (n = 35)	Before treatment	5.69 ± 1.43	296.28 ± 30.84	217.13 ± 10.26
	After treatment	1.89 ± 0.63*#	86.34 ± 8.11*#	136.46 ± 6.20*#
Group D (n = 35)	Before treatment	5.43 ± 1.31	294.21 ± 31.05	218.12 ± 10.87
	After treatment	0.66 ± 0.48*#$&	52.55 ± 5.03*#$&	103.30 ± 5.21*#$&

Note: * $P<0.05$ vs. before treatment; # $P<0.05$ vs. group A; $ $P<0.05$ vs. group B; & $P<0.05$ vs. group C

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Table 3 Comparison of curative effects

Groups	Obviously effective	Effective	Ineffective	Total effective rate
Group A (n = 35)	12 (34.29%)	13 (37.14%)	10 (28.57%)	71.43
Group B (n = 35)	16 (45.71%)	12 (34.29%)	7 (20.00%)	80
Group C (n = 35)	17 (48.57%)	12 (34.29%)	6 (17.14%)	82.86
Group D (n = 35)	24 (68.57%)	11 (31.43%)	0	100.00*#$

Note: * $P<0.05$ vs. group A; # $P<0.05$ vs. group B; $ $P<0.05$ vs. group C

Conclusiones

- RF en adenomiosis focal buena eficacia y presenta mínimas complicaciones.
- Embarazos no han mostrado complicaciones obstétricas o neonatales.
- Necesidad de más información acerca resultados a largo plazo.
- La falta de alternativas eficaces para tratar la adenomiosis merece que sigamos explorando resultados.

MUCHAS GRACIAS