

Ablation For Uterine Diseases

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- No Conflicts of Interest

Adenomyosis-

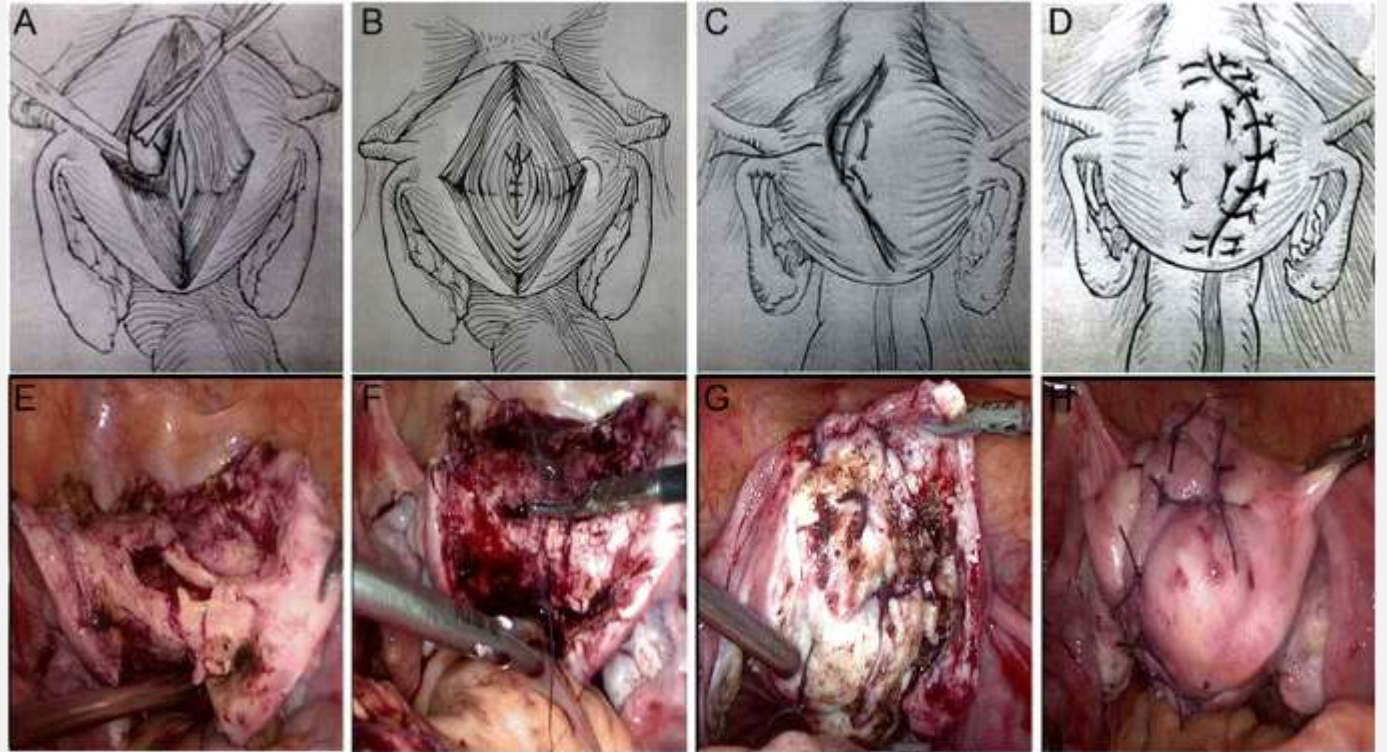
The problem with med management

- Success rate
- Rebound disease
- Compliance



The problem with surgical management

- Expertise
- Residual disease
- Healing
- Complications



**Medical
Management**

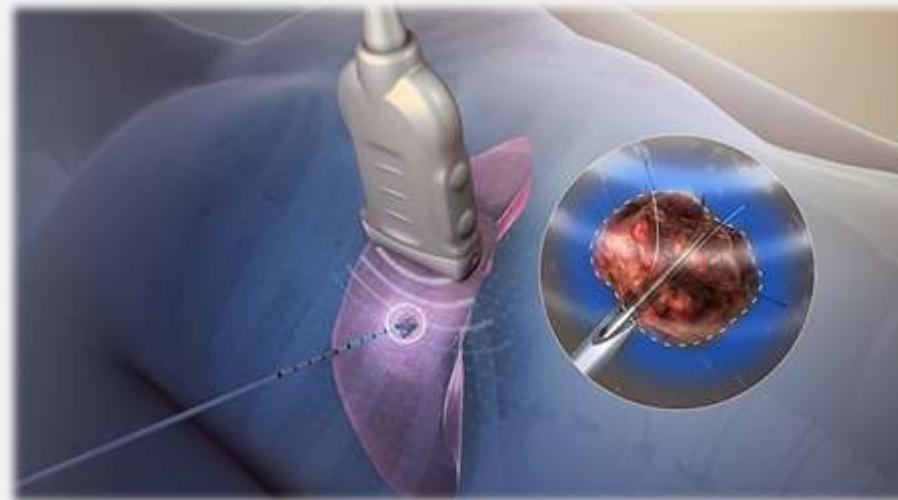
**Ablation
Techniques**

**Surgical
Management**

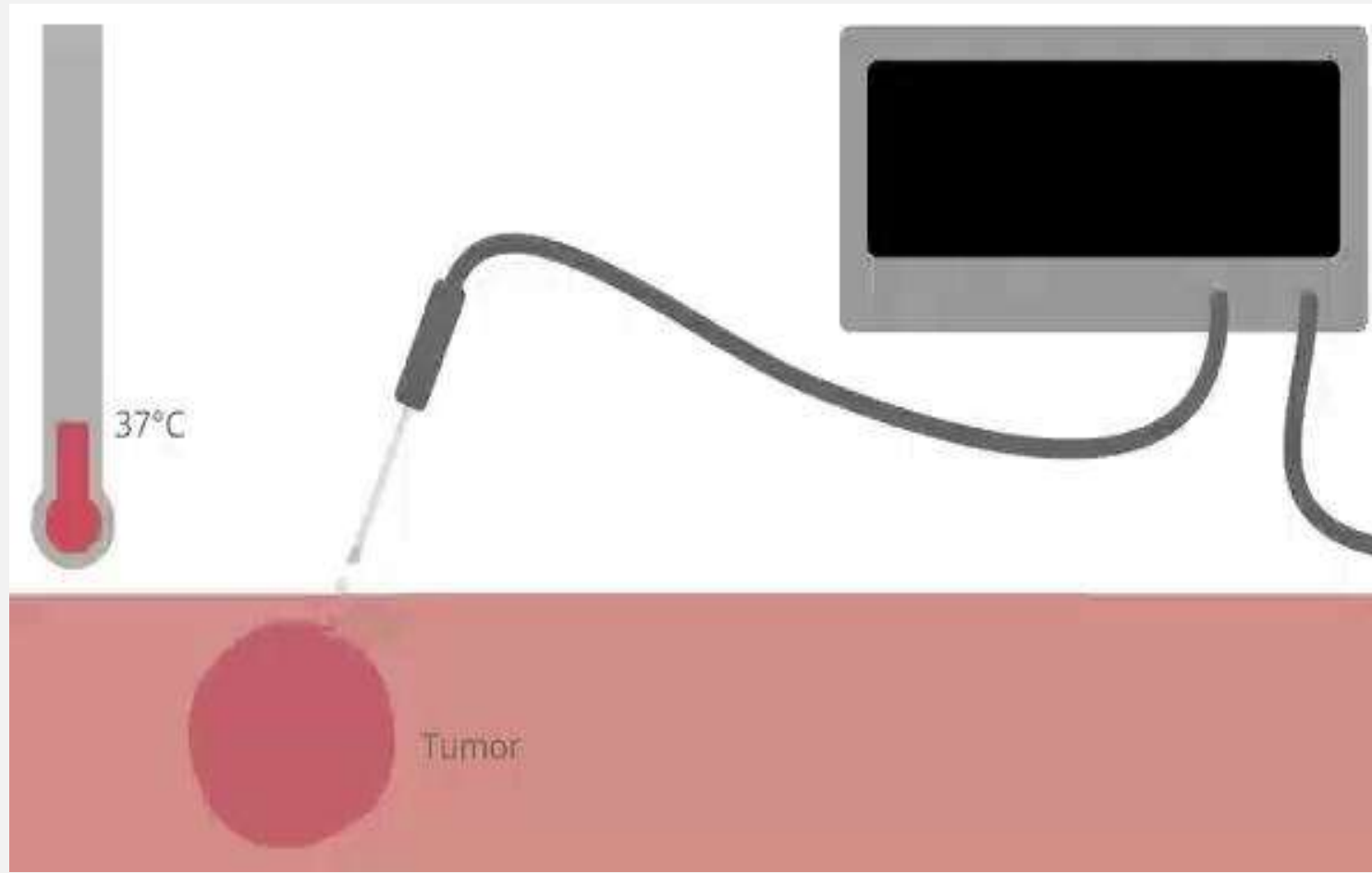


Ablation Techniques

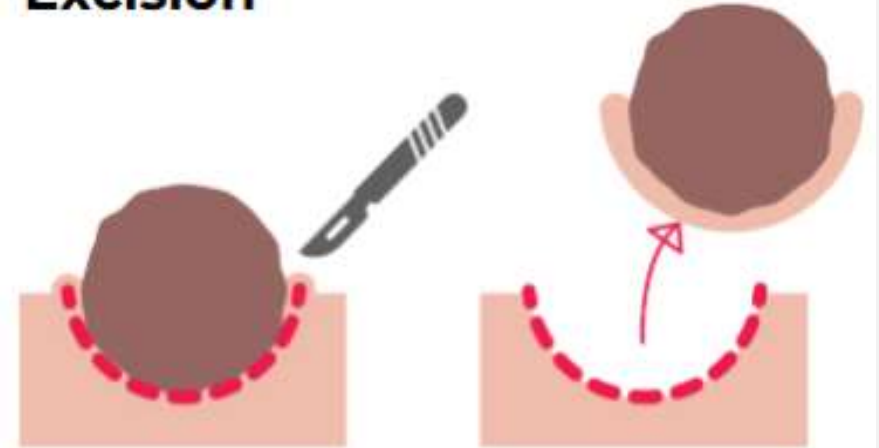
- HIFU
- Radiofrequency
- **Microwave**
- NTIRE (Non-Thermal Irreversible Electroporation)



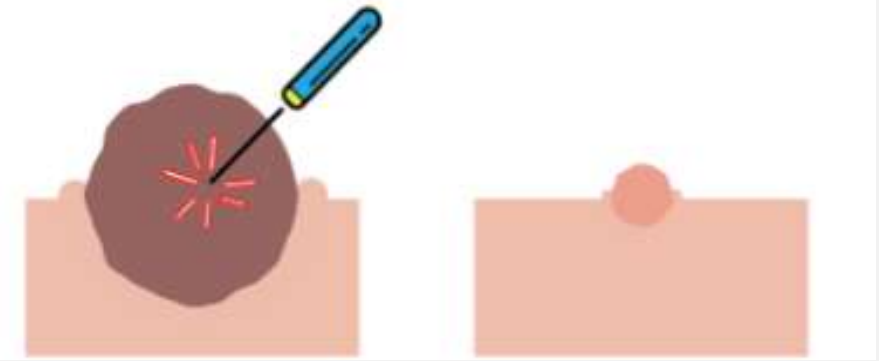
Ablation



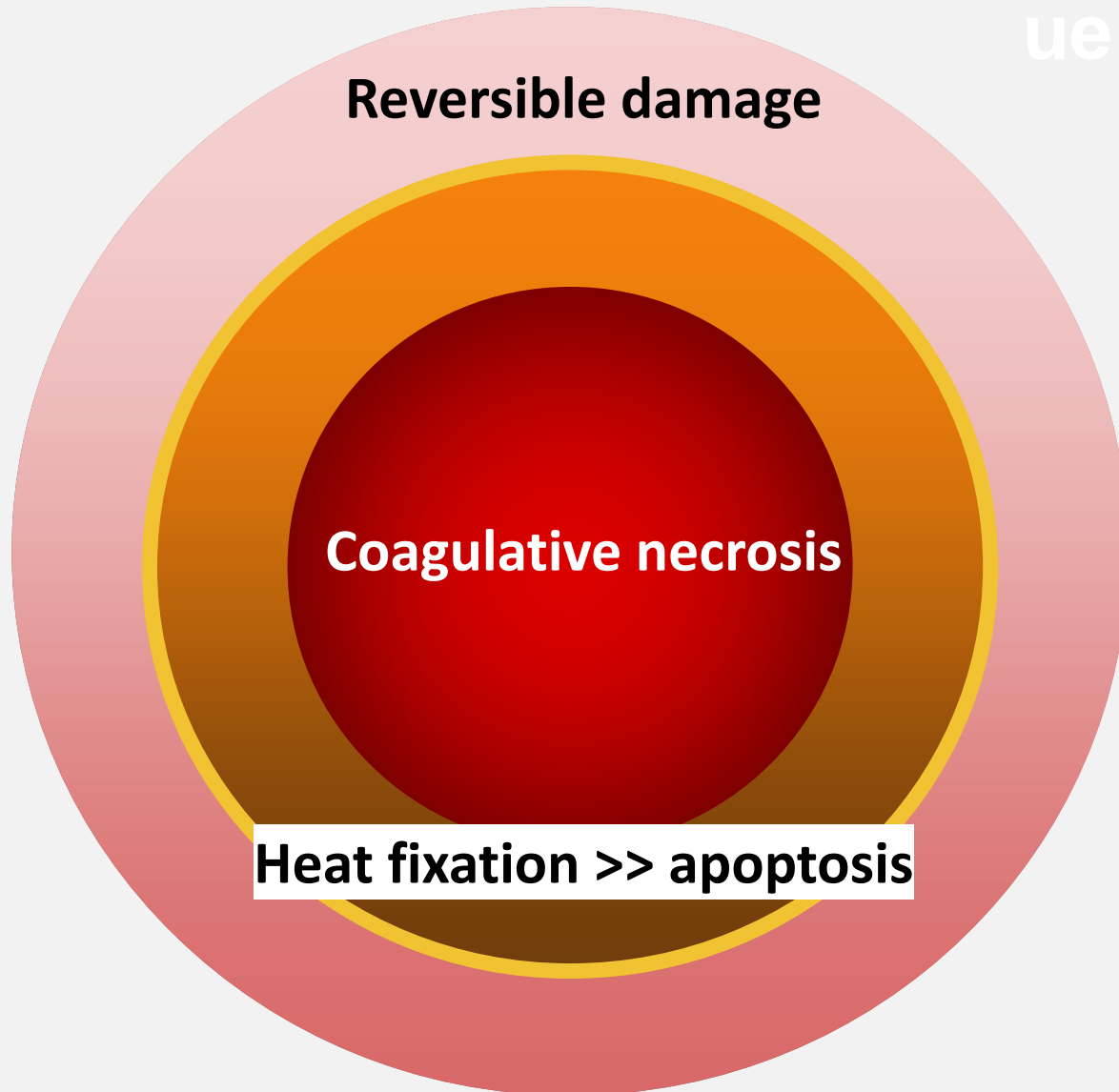
Excision



Ablation



Radiofrequency Ablation



Hyperechoic change

Coagulative necrosis

Heat fixation -> apoptosis

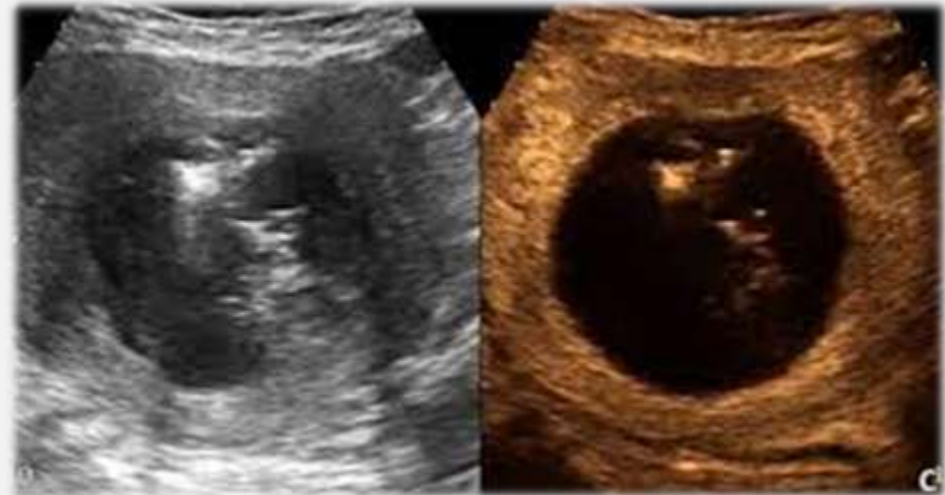
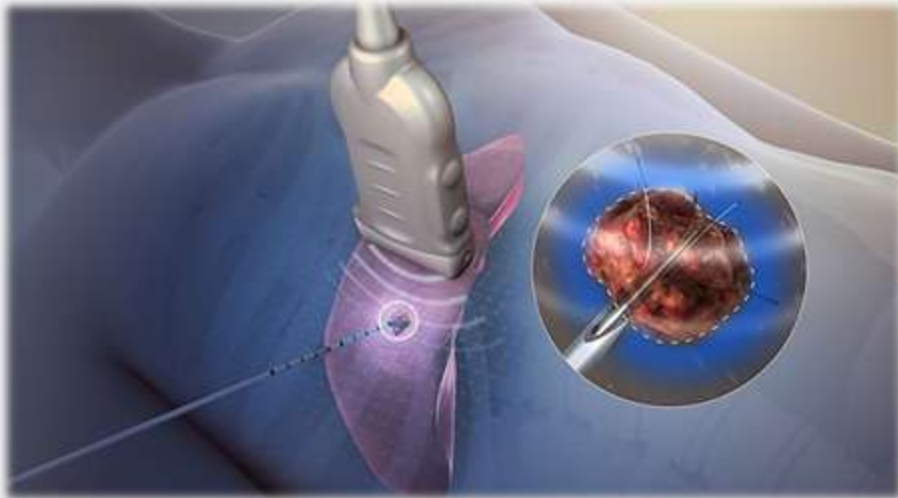
Irreversible damage

Reversible damage

Microwave Ablation

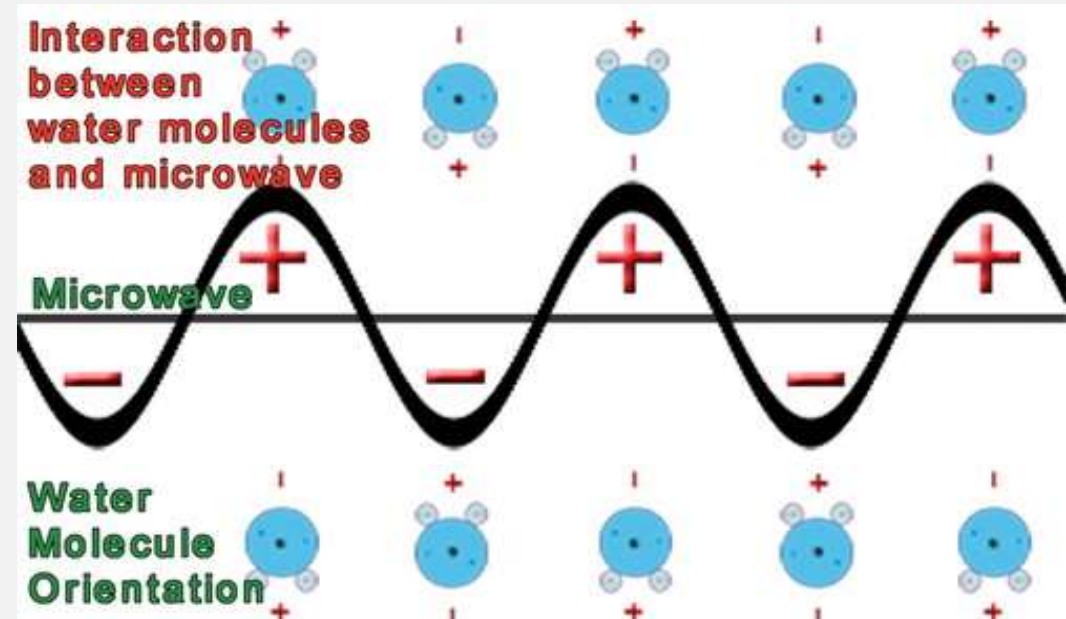
#New

#Microinvasive adenomyosis treatment

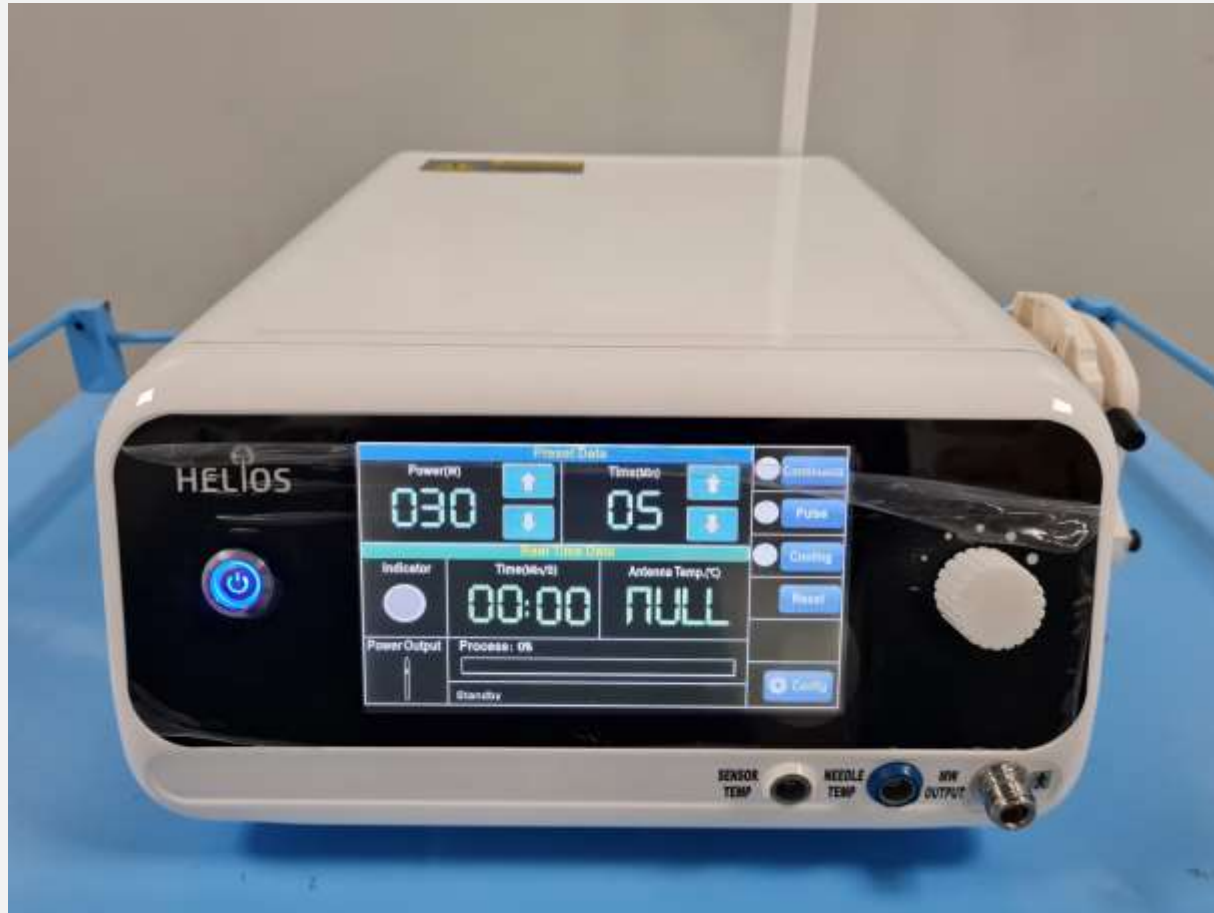


Microwave physics

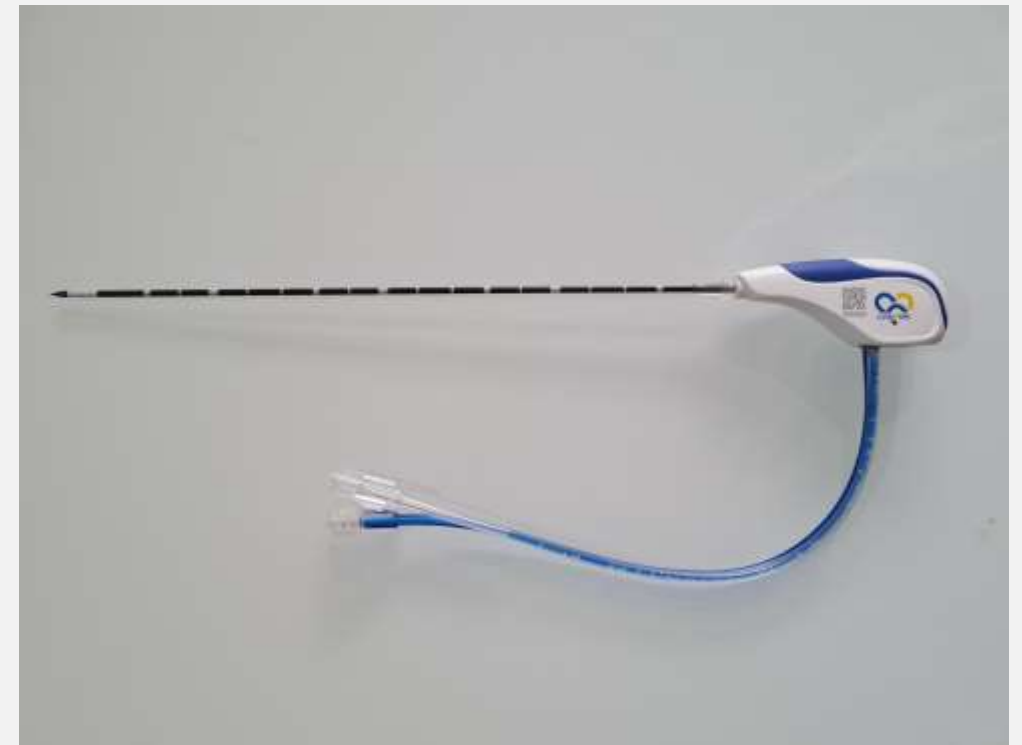
A microwave oscillating at 9.2×10^8 Hz, the charge changes signs nearly 2 billion times a second (9.2×10^8 Hz). When an oscillating electric charge from radiation interacts with a water molecule, it causes the molecule to flip.



Microwave Ablation Equipment

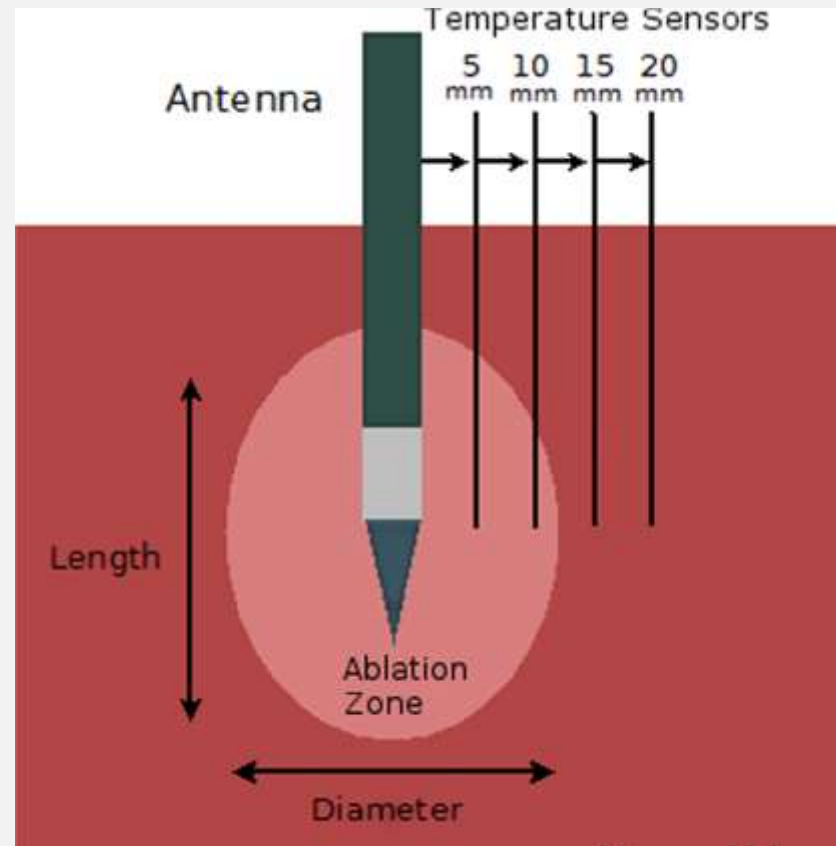


MWA Generator (Canyon Medical)

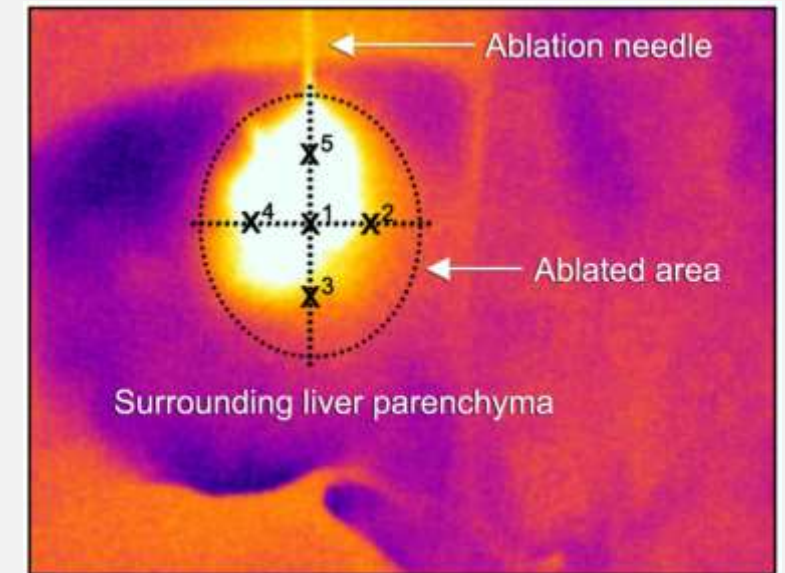
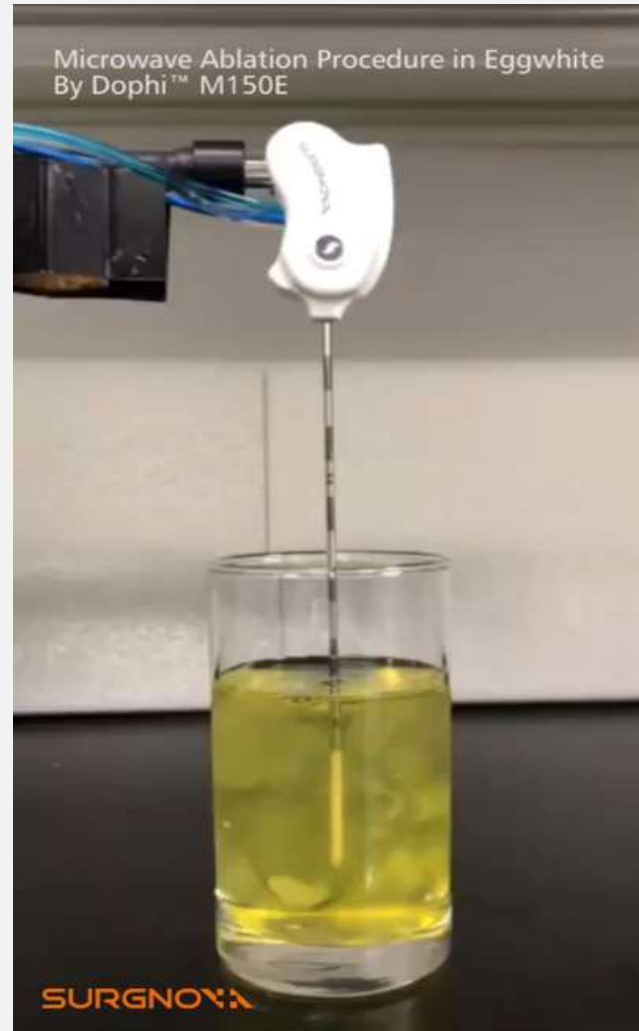
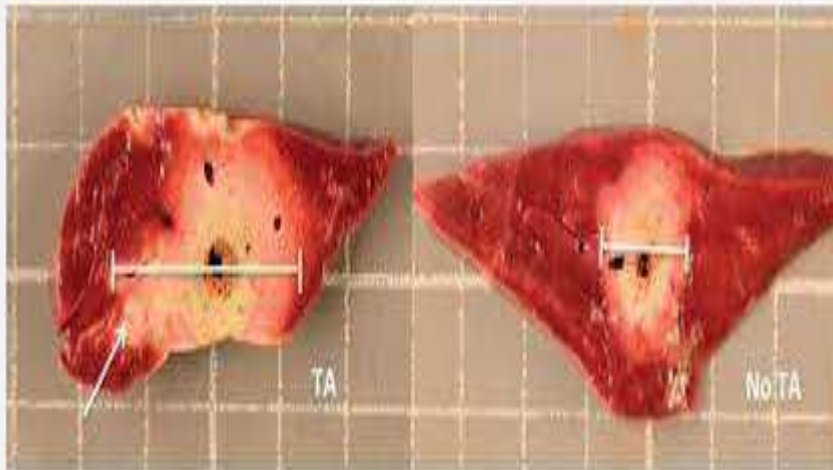


Antenna 15 G, 200 mm

MWA Antenna ablation zone (near spherical & spherical)



Microwave- a powerful & precise energy tool

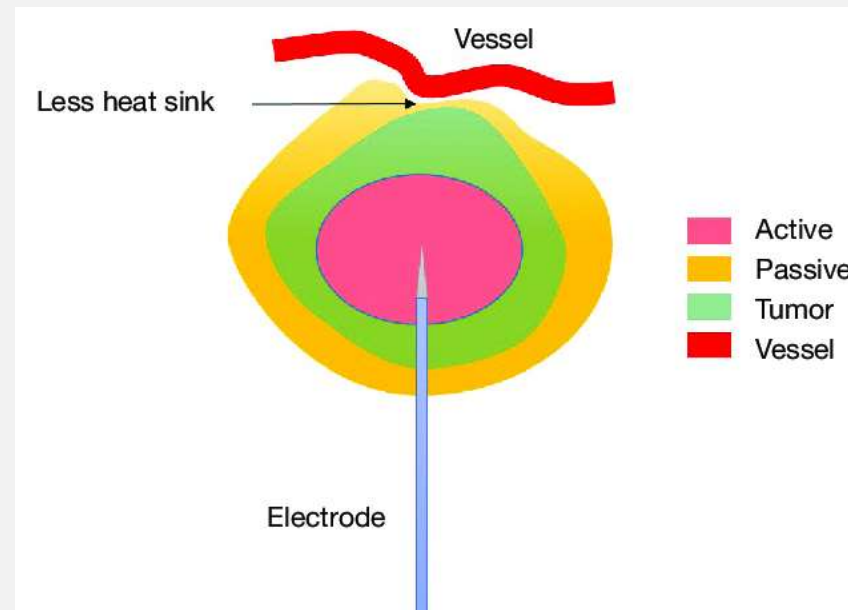


Heat-sink Effect

The "**heat sink effect**" refers to the cooling impact of nearby blood vessels on tissue during **thermal ablation procedures** like **Radiofrequency Ablation (RFA)** or **Microwave Ablation (MWA)**.

When **large blood vessels** (especially >3 mm in diameter) are near the ablation zone, they **carry away heat** via blood flow.

This **dissipates thermal energy** before it can effectively kill nearby tissue.



Ablation approach methods

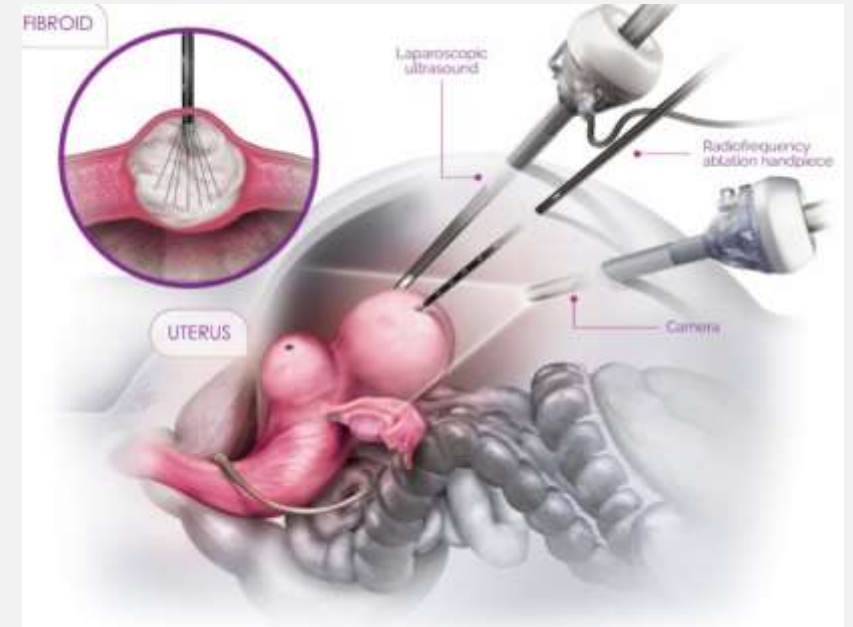
TRANSCERVICAL



TRANSVAGINAL



LAPAROSCOPIC



India's 1st *Microwave Ablation for Fibroid & Adenomyosis

Laparoscopy & USG Guided MWA (LUMWA)



**New microinvasive procedure that saves the uterus from big scar*



Naval Multi Speciality Hospital, Jalgaon

Fibroid Adenomyosis Clinic & Treatments (FACT)

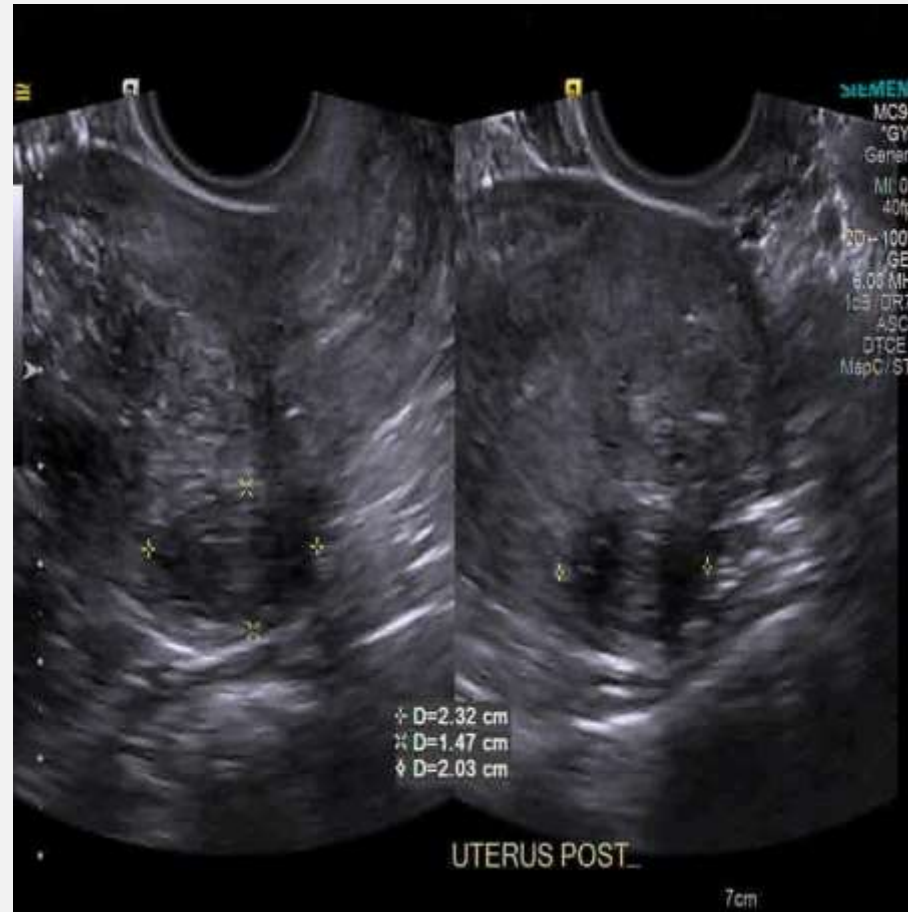
Case

- 37 yrs old female with 2 living children
- h/o menorrhagia
- USG- Figo type 5 fibroid 6.3 cm x 5.8 cm x 4.9 cm
- Patient desired non surgical treatment.

Laparoscopy & USG Guided MWA Ablation (LUMWA) of Post wall myoma FIGO Type 5-6



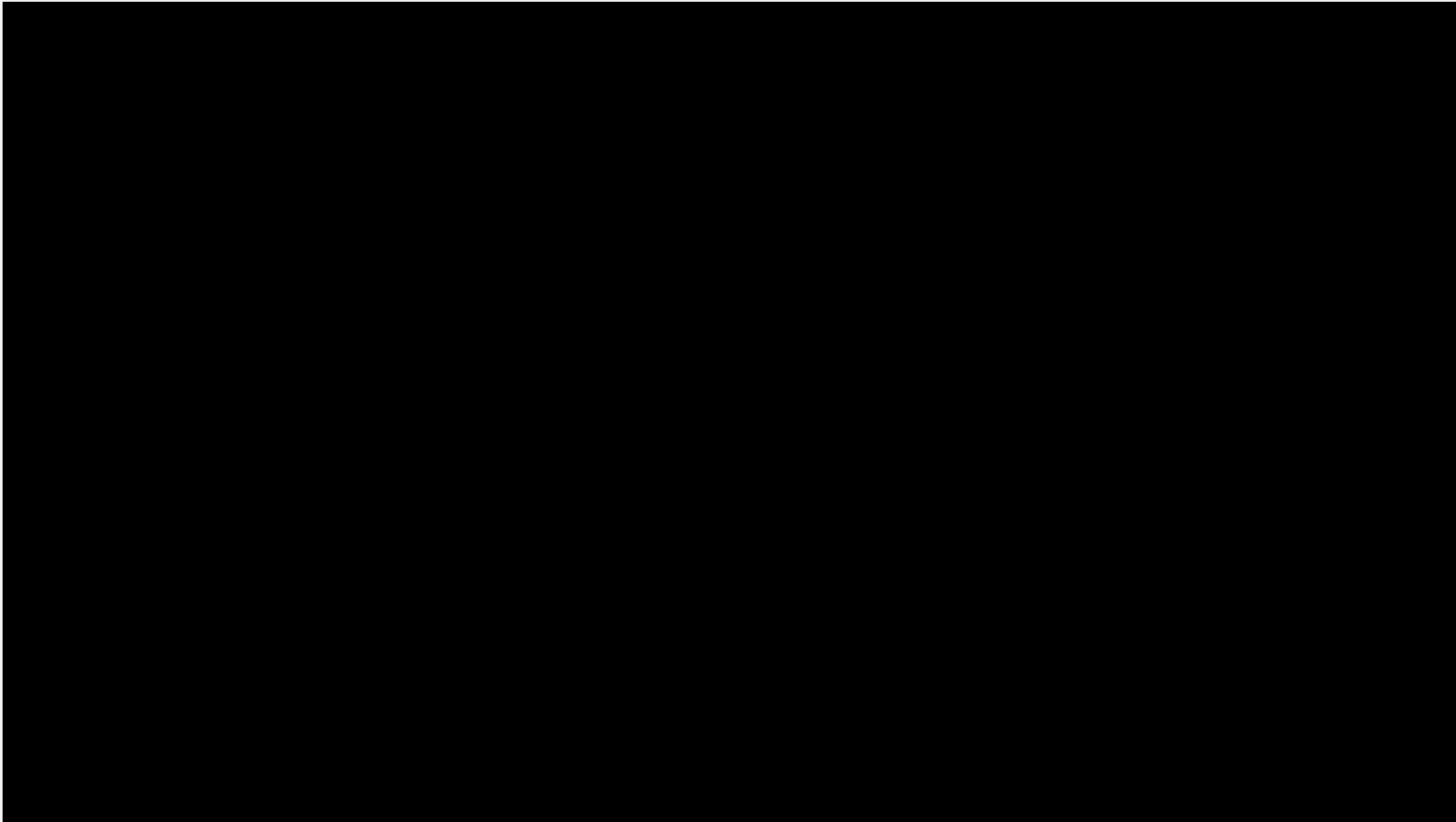
Post operative USG (9 months)



**66.6 % volume
reduction**

LUMWA-

Laparoscopy and USG Guided Microwave Ablation
of Adenomyosis (diffuse)



How much to ablate?

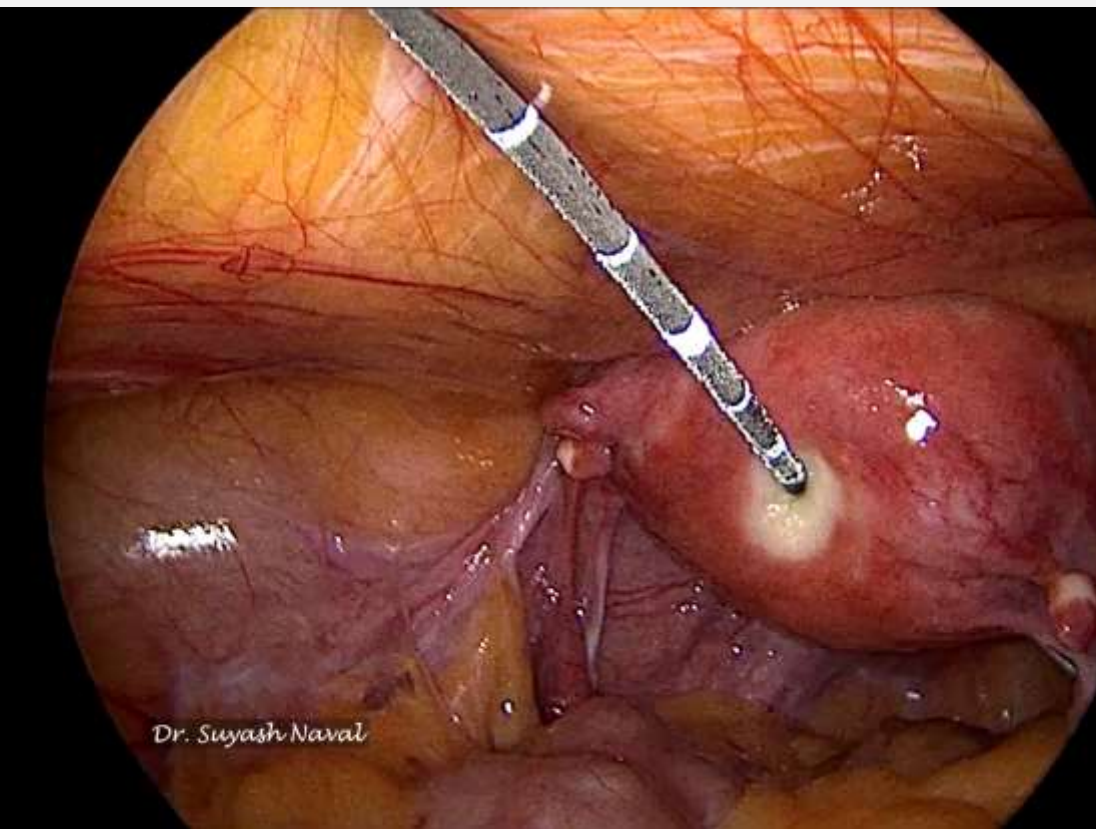
- The ablation rate is one of the main indicators for evaluating the effect of microwave ablation. In principle, the ablation rate for adenomyosis **should exceed 70%**. Most reported ablation rates of microwave ablation surpass **90%**, and thus meet the ablation standard.
- For patients with incomplete ablation, contrast-enhanced ultrasound or enhanced MRI can be used to timely detect and supplement the ablation.

LUMWA for Adenomyosis (Focal)

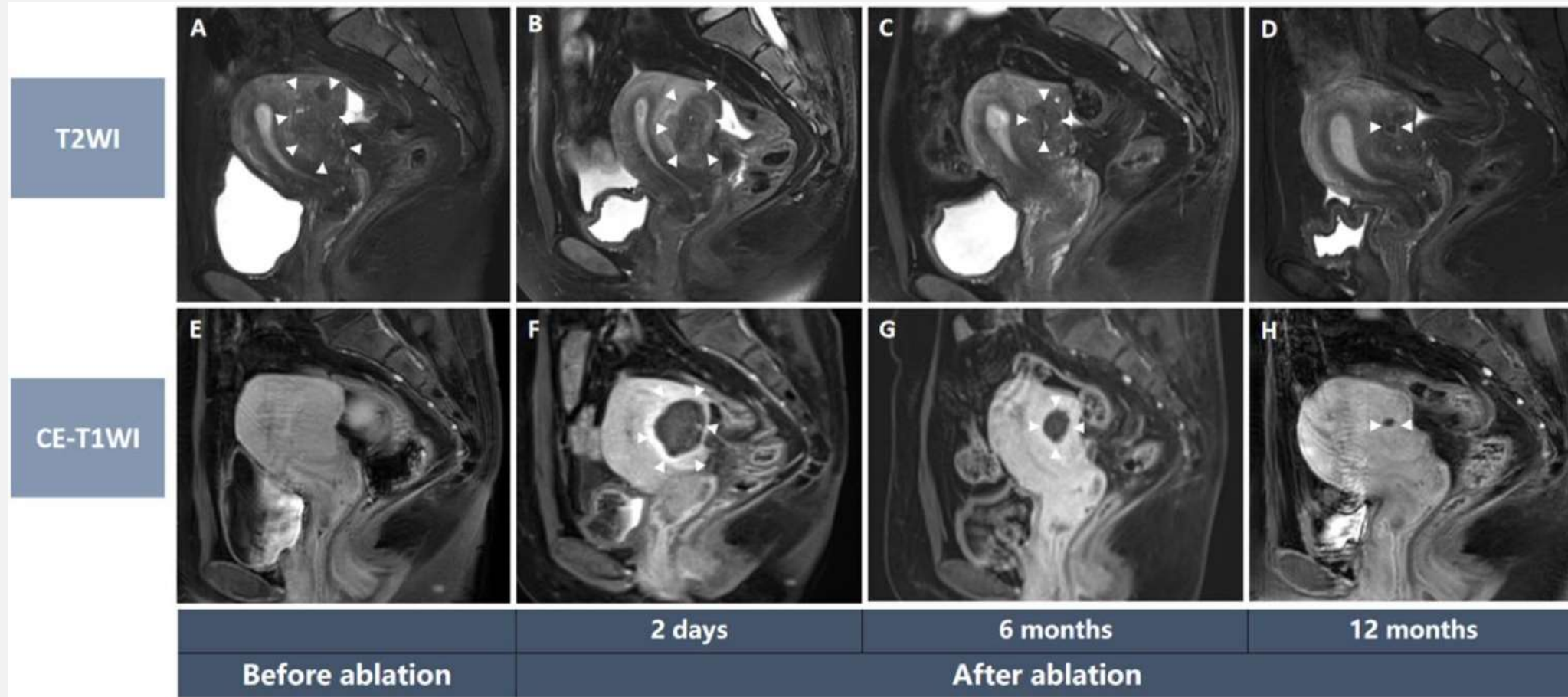
1st Global MWA workshop in India 2024



LUMWA for Adenomyosis

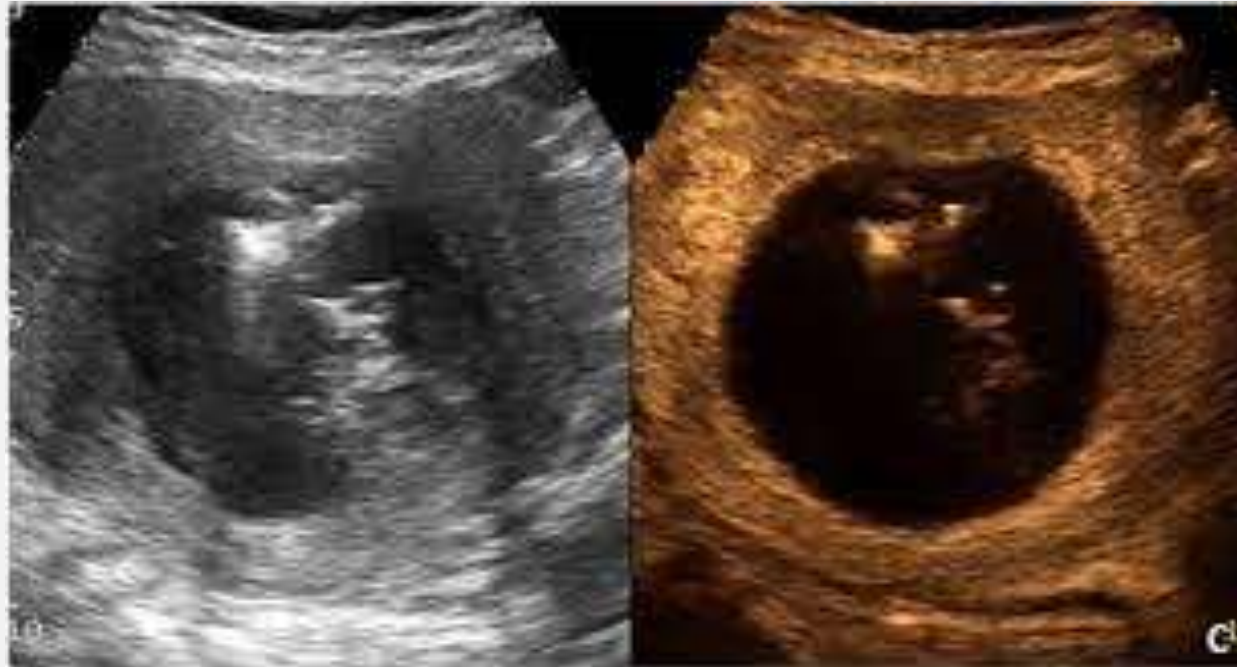


MRI Evaluation and follow up

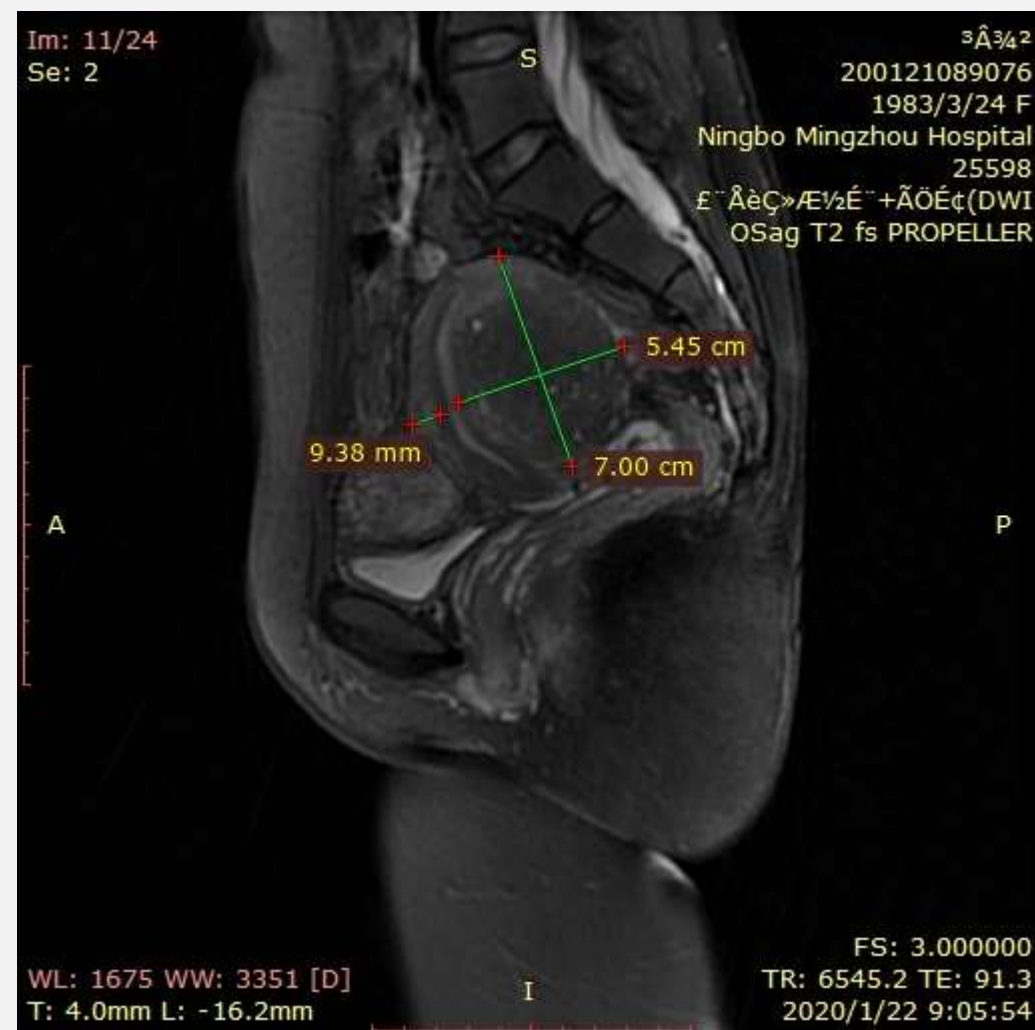
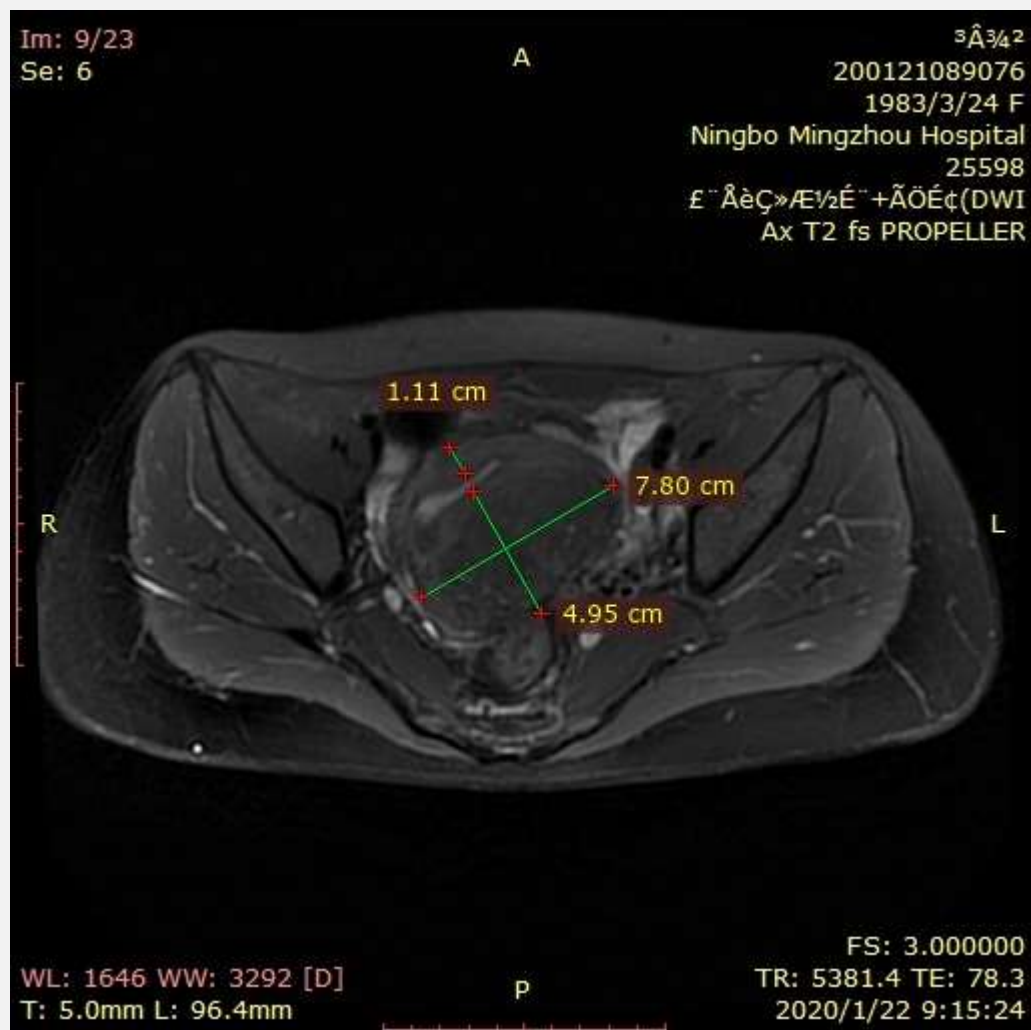


Other evaluation methods- Dysmenorrhoea score, UFS-QOL score, PBAC score, CA-125, Hb levels

Contrast Enhanced USG (CEUS)

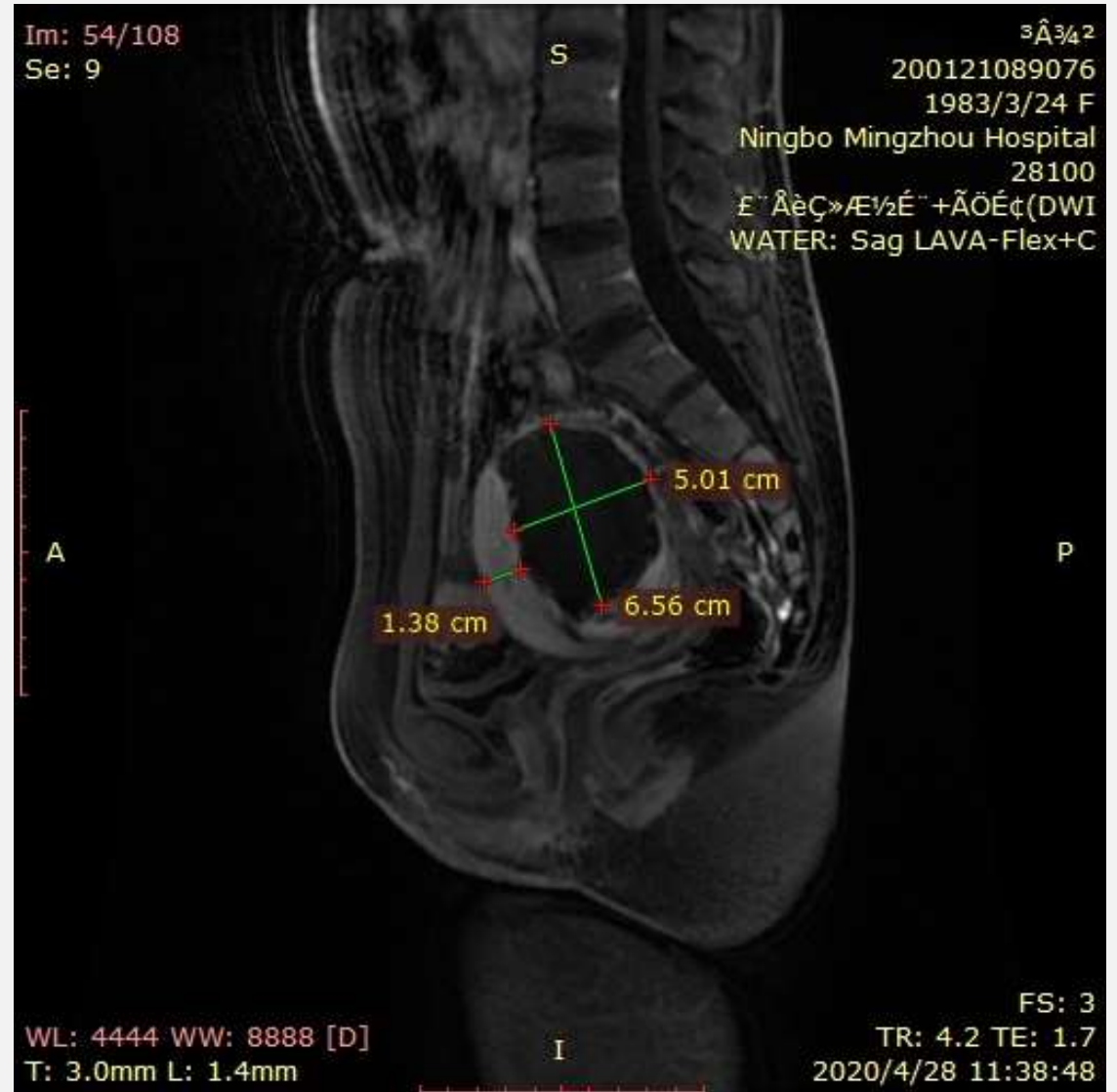


Pre op image



Courtesy- Dr. Xiaoming Gong

2 weeks post op



Courtesy- Dr. Xiaoming Gong

Review Article



Ultrasound-guided percutaneous microwave ablation of adenomyosis: a narrative review

Shuchen Zhang^{1,2#}, Kun Wang^{3,4#}, Anqi Di⁵, Dong Yu⁶, Taotao Yao⁵

- The ablation rate was 79.7–91.34%, the uterine volume reduction rate was 55.2–64.9%, and the nidus volume reduction rate was 64.9–93.1% after 12 months of follow-up.
- After treatment, patients' clinical symptoms significantly improved: the improvement rates of dysmenorrhea, SSS, menstrual disorder, and anemia were 50–81.7%, 20.9–60.2%, 40–80.2%, and 55.6–78.5%, respectively.

[nature](#) > [scientific reports](#) > [articles](#) > [article](#)

Article | [Open access](#) | [Published: 05 May 2015](#)

Ultrasound-guided percutaneous microwave ablation for adenomyosis: efficacy of treatment and effect on ovarian function

[Yang Yu](#), [Zhang Jing](#), [Han Zhi-yu](#), [Ma Xia](#), [Hao Yan-li](#), [Xu Chang-tao](#), [Xu Rui-fang](#) & [Zhang Bing-song](#)

- US-guided PMWA is an effective method in the treatment of adenomyosis, has no significant impact on ovarian function and fertility and should be considered as an alternative to hysterectomy in women of reproductive age.

Ablation and fertility

- In the early days of magnetic resonance-guided (MRg)-HIFU treatment, case reports of pregnancies **showed successful vaginal delivery at term**, and none had complications during pregnancy and labour.
- Some larger studies, including individual and **multicentre collaborative trials**, have also confirmed successful **pregnancies after HIFU ablation for fibroids and adenomyosis**.
- As many studies were from China, the authors had **reported a high rate of induced abortions and miscarriage** in pregnancies after HIFU treatment for fibroids and adenomyosis.
- However, it might be related to the fertility regulation in the past. It is also possible that maternal age and sizable fibroids after HIFU may also influence the miscarriage rate in any study, as both factors can independently adversely impact miscarriages.

Complications

- Pain
- Vaginal Discharge (7-88%)
- Fever
- Infection
- Thermal damage



Ideal patient

- Poor response to med therapy
- Big disease
- No desire for fertility
- Does not want hysterectomy

Combined treatment

- Ablation + Dienogest
- Ablation + LNG-IUD

Probably gives the best results as reflected in upcoming data

Research status today

- Most studies are single armed.
- Lack of level 1 evidence.
- Case series and case reports are plenty.

Conclusion

- *Ablation appears to be a feasible new non-surgical way of treating adenomyosis whilst saving the uterus.*
- *Ablation is not a curative but a palliative therapy.*
- *Role of ablation in improving fertility needs to be evaluated with RCTs.*

Thank You



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**2nd Global MWA Workshop on 1st Nov 2025
Hyderabad with EFI and Nuvarium Academy**