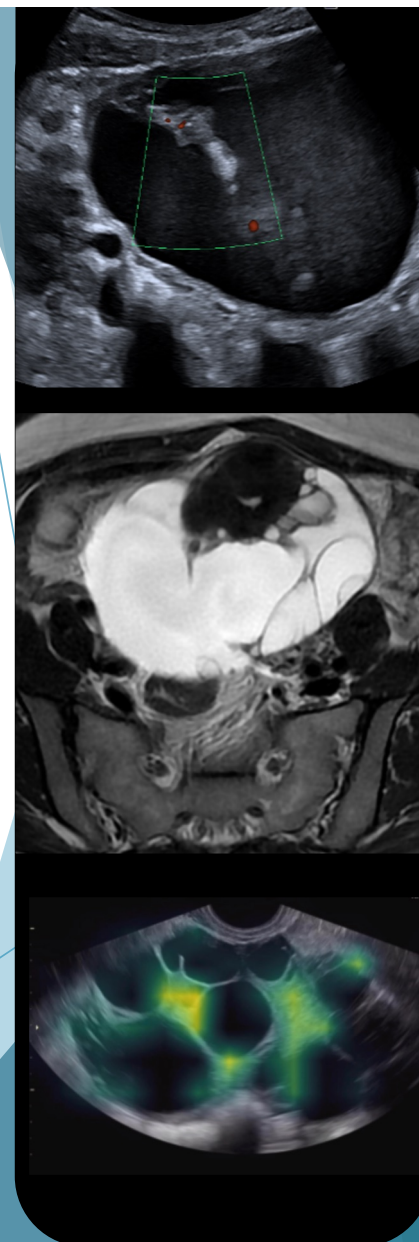


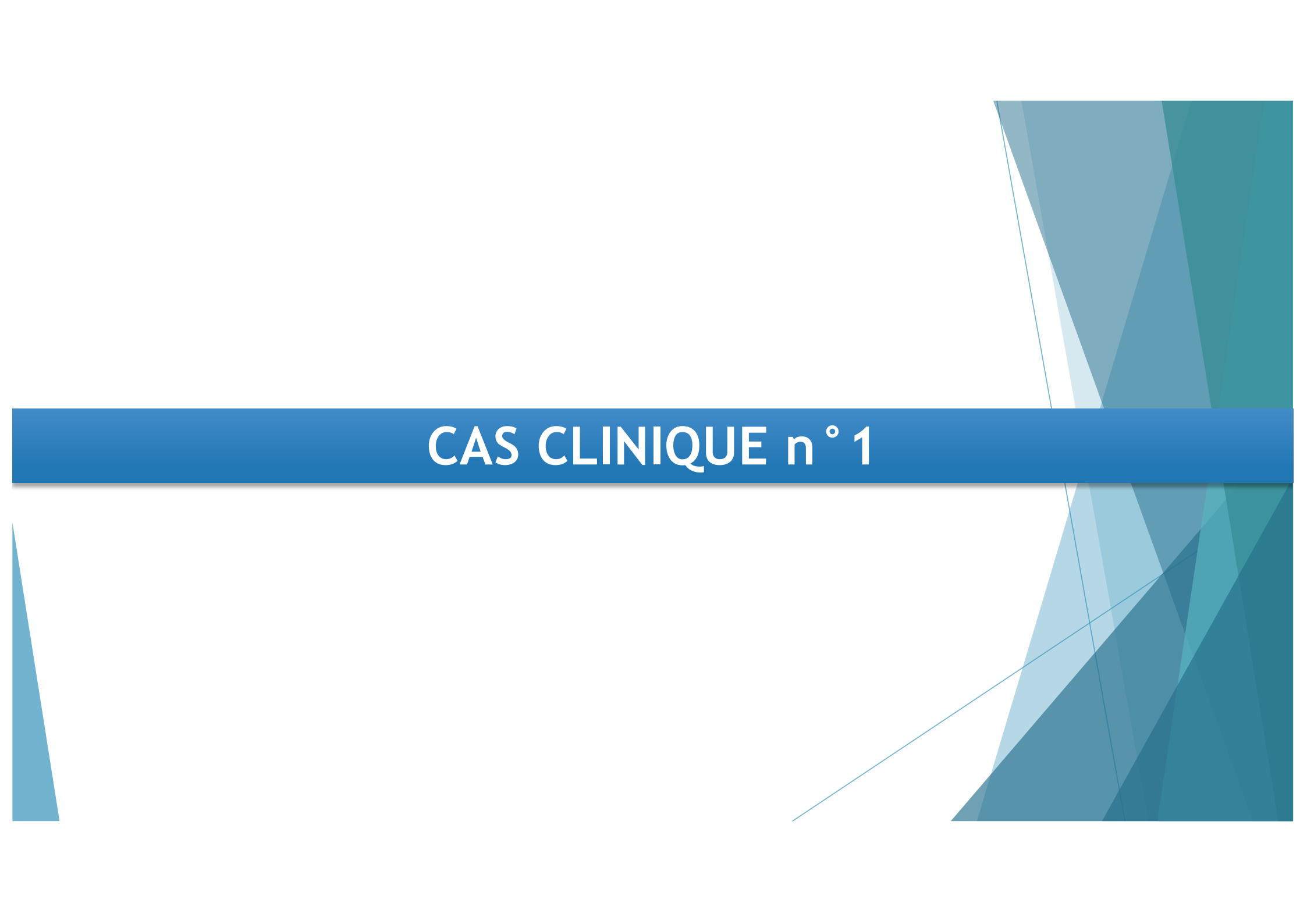


Diagnostic des masses annexielles - Actualités en 2026

Docteur Mégane Collin (PH)

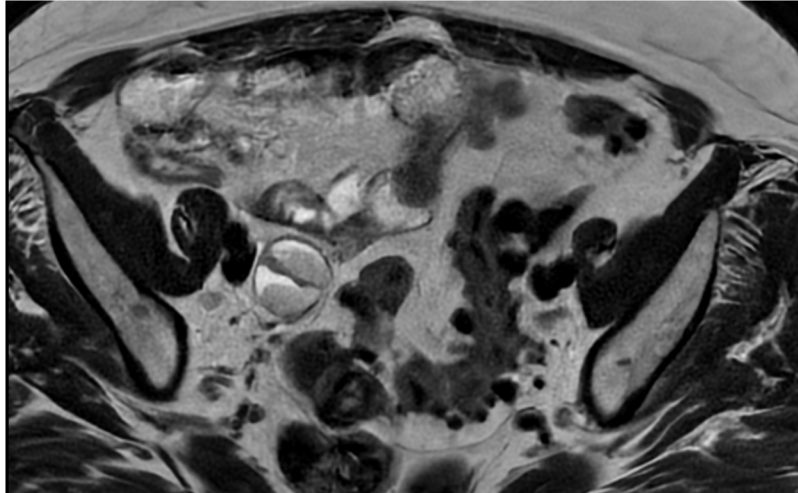
Service de radiologie du Centre Antoine Lacassagne (Nice) - Dr Baudin



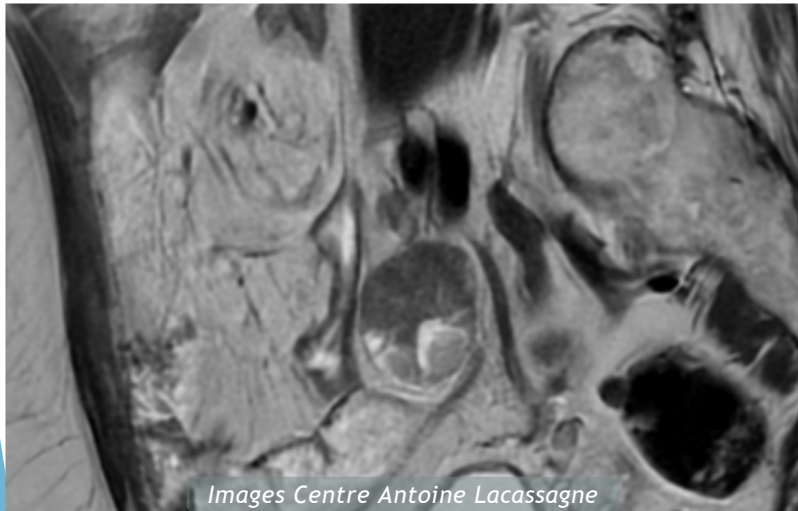


CAS CLINIQUE n° 1

CAS CLINIQUE n° 1

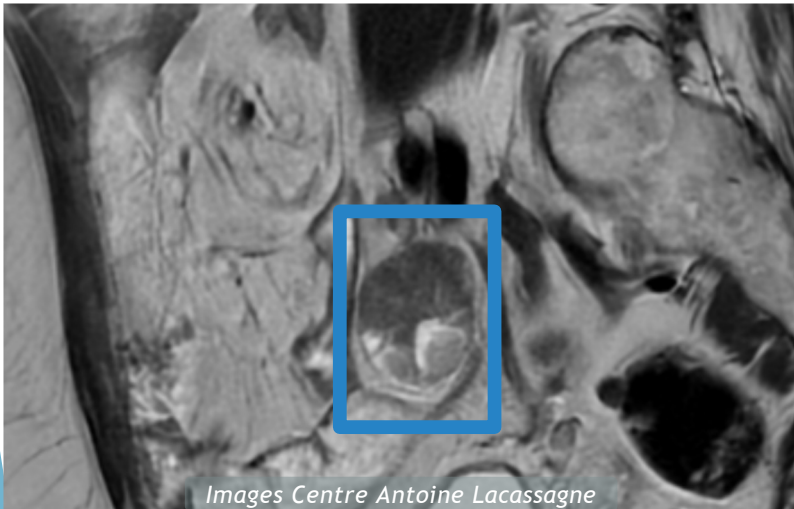
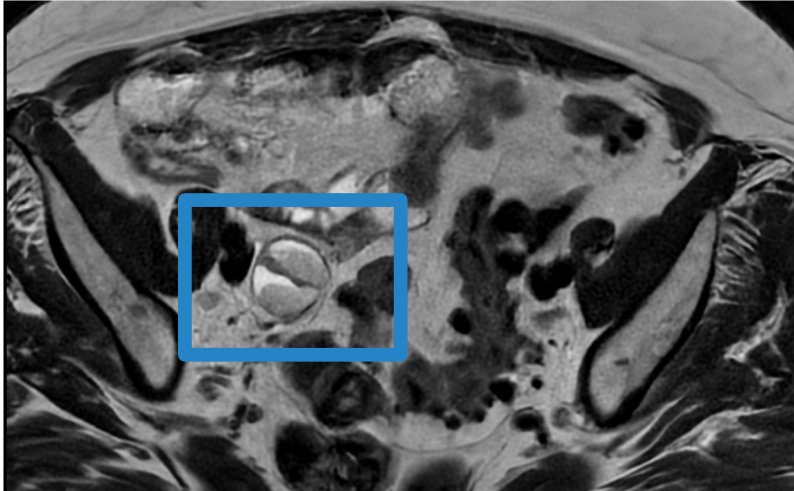


Patiente de 77 ans en cours de prise en charge pour une néoplasie **rectale**, adressée pour **caractérisation d'une masse ovarienne droite**



Images Centre Antoine Lacassagne

CAS CLINIQUE n° 1

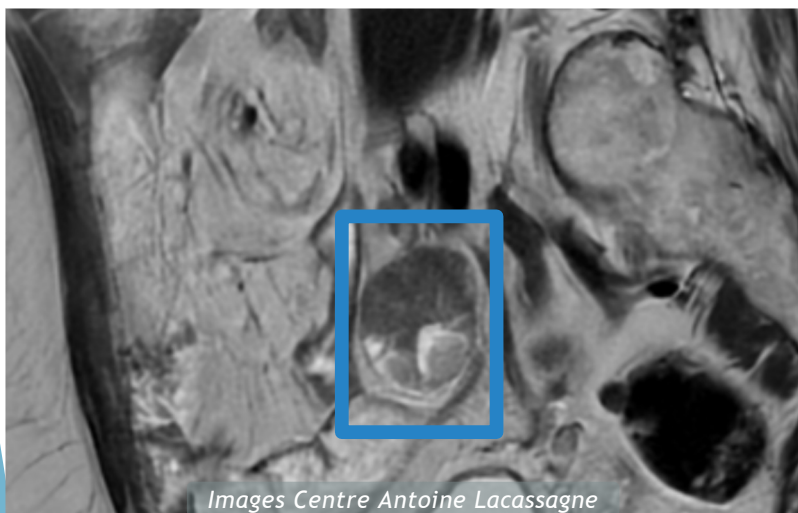
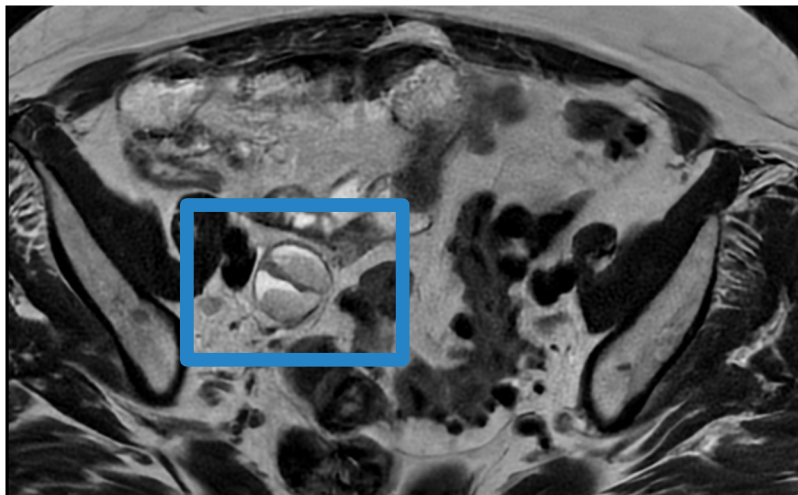


Images Centre Antoine Lacassagne

Patiente de 77 ans en cours de prise en charge pour une néoplasie **rectale**, adressée pour **caractérisation d'une masse ovarienne droite**

- ? **Masse nécrotique**
- ? **Solido kystique**
- ? **T2 intermédiaire**
- ? **Fossette ovarienne**

CAS CLINIQUE n° 1



Images Centre Antoine Lacassagne

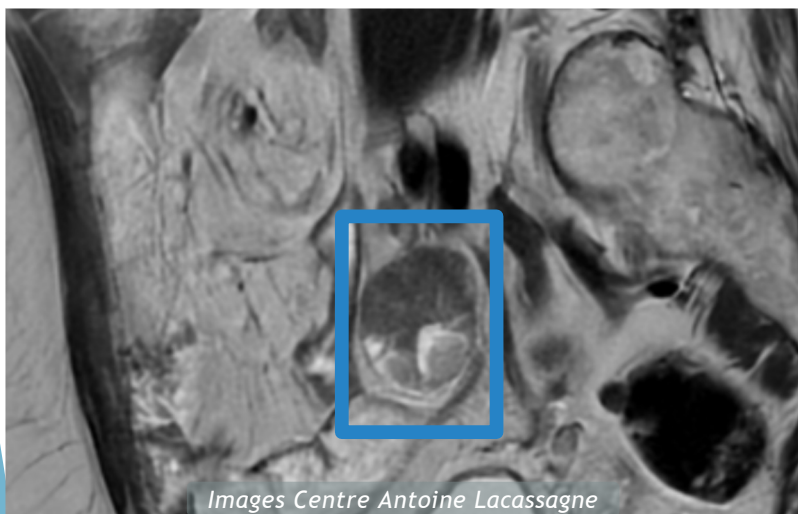
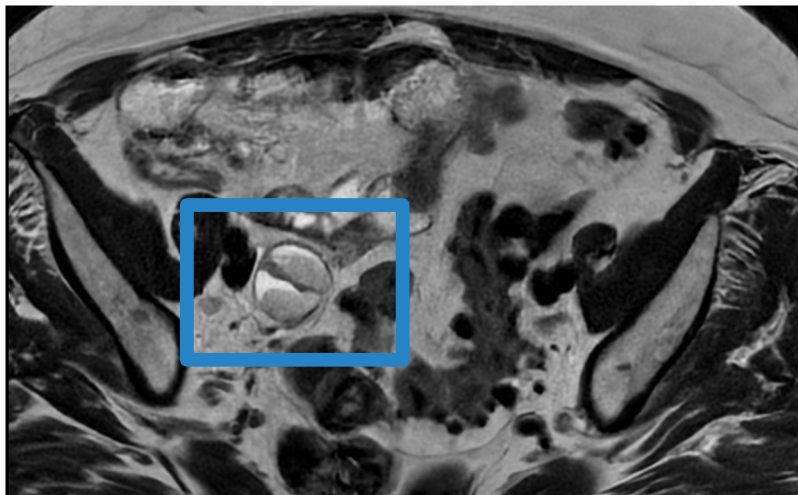
Patiente de 77 ans en cours de prise en charge pour une néoplasie **rectale**, adressée pour **caractérisation d'une masse ovarienne droite**

- ? **Masse nécrotique**
- ? **Solido kystique**
- ? **T2 intermédiaire**
- ? **Fossette ovarienne**

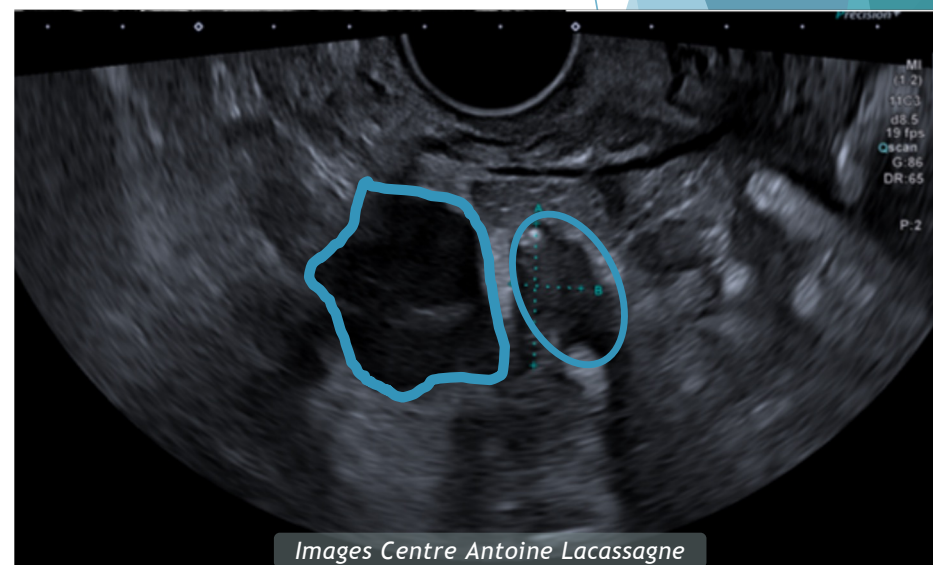


Annexectomie ?

CAS CLINIQUE n°1

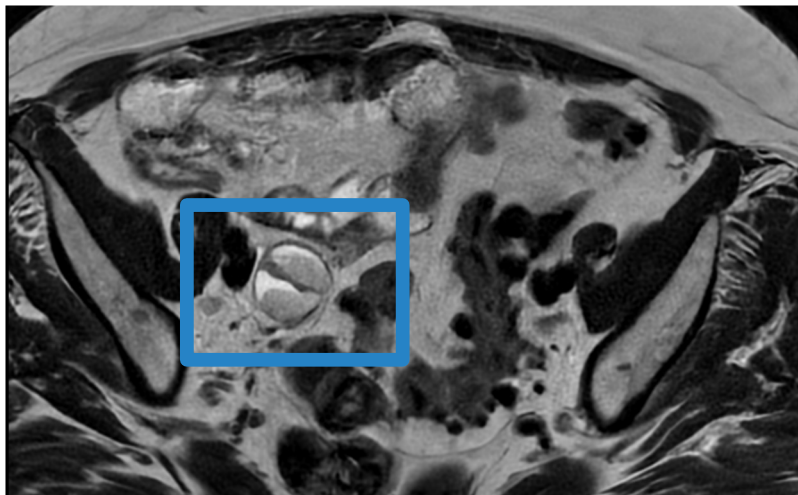


Images Centre Antoine Lacassagne

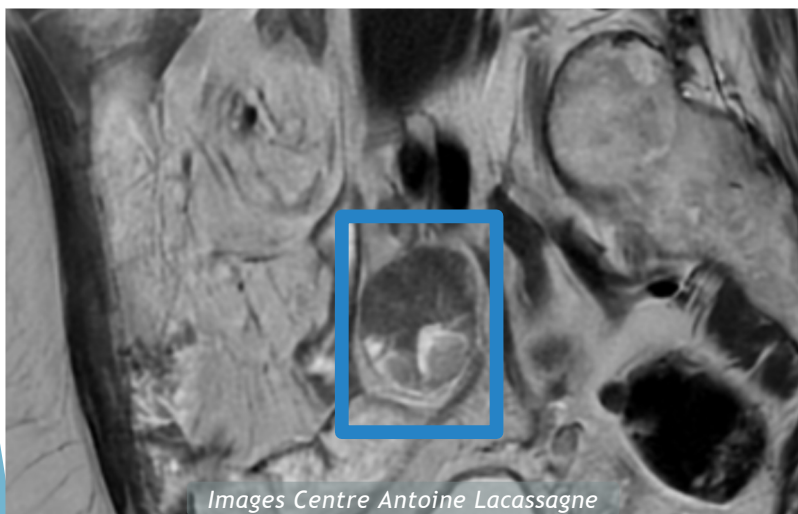


Images Centre Antoine Lacassagne

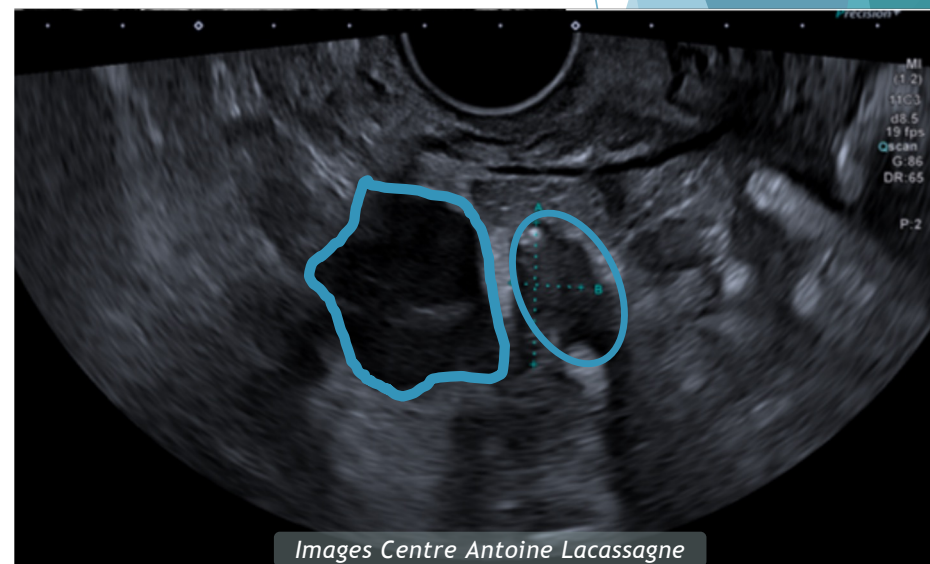
CAS CLINIQUE n° 1



Adénopathie iliaque externe
droite en rupture capsulaire



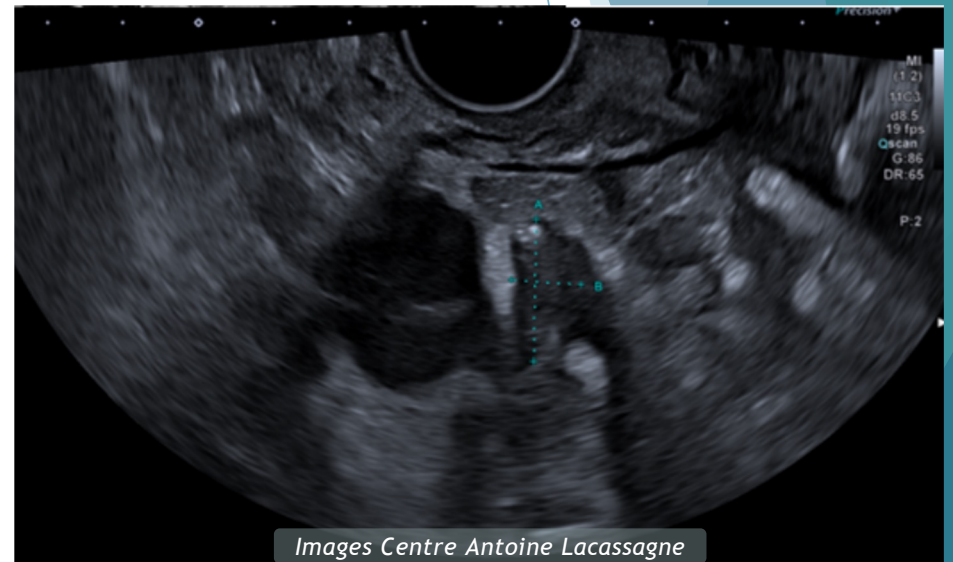
Images Centre Antoine Lacassagne

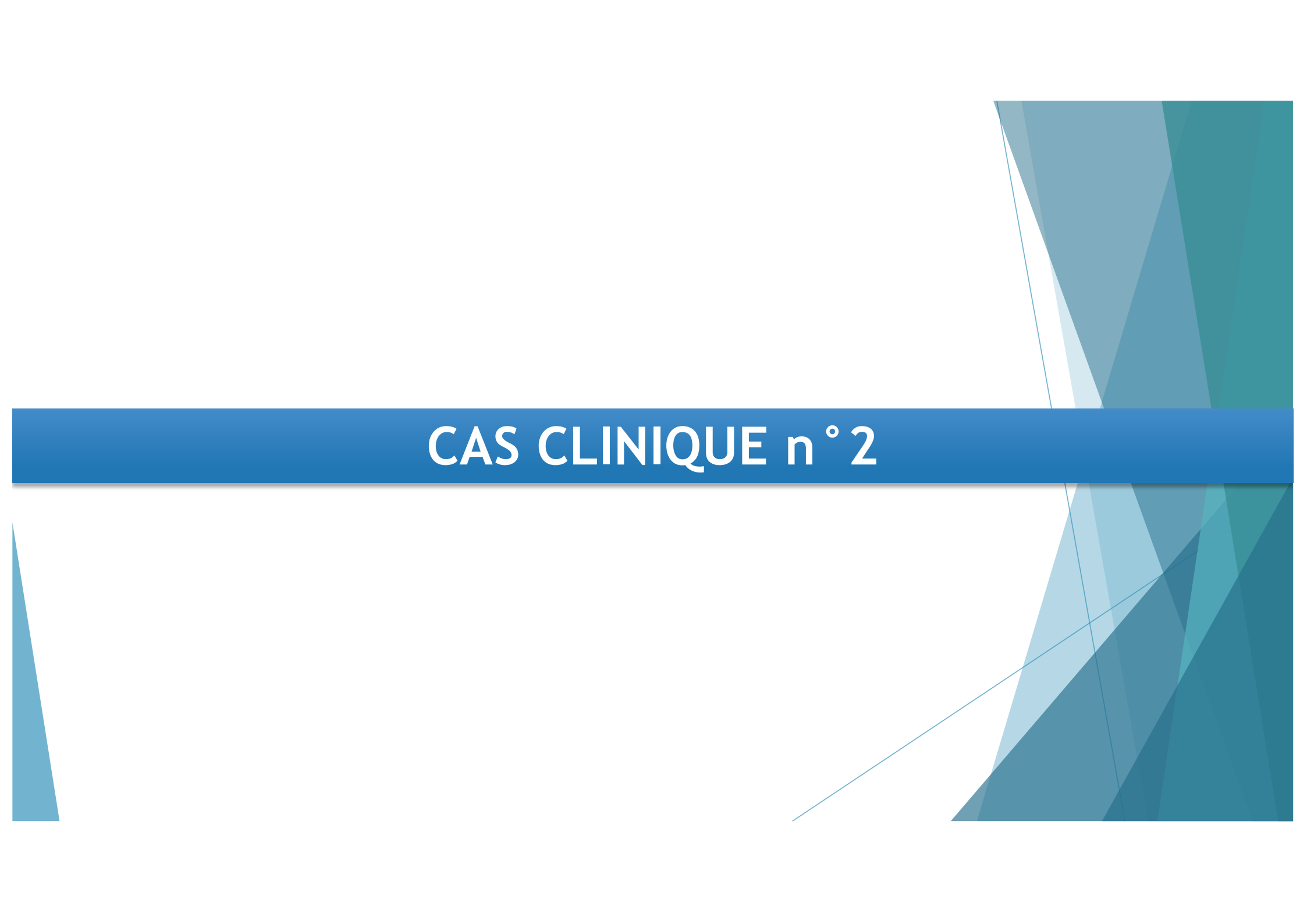


Images Centre Antoine Lacassagne

CAS CLINIQUE n°1

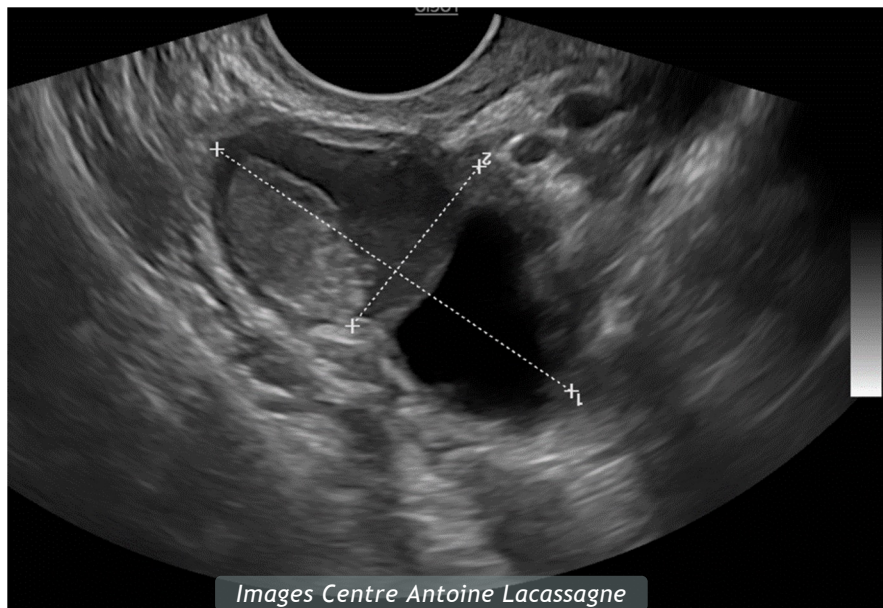
Intérêt de l'échographie
pelvienne dans toutes démarches
de caractérisation de masse
ovarienne !



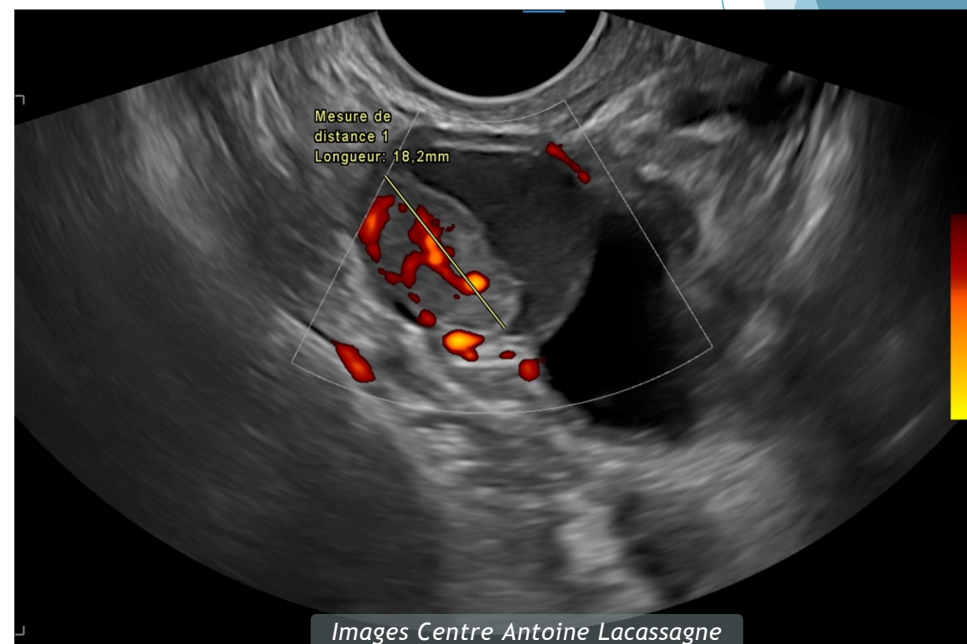


CAS CLINIQUE n° 2

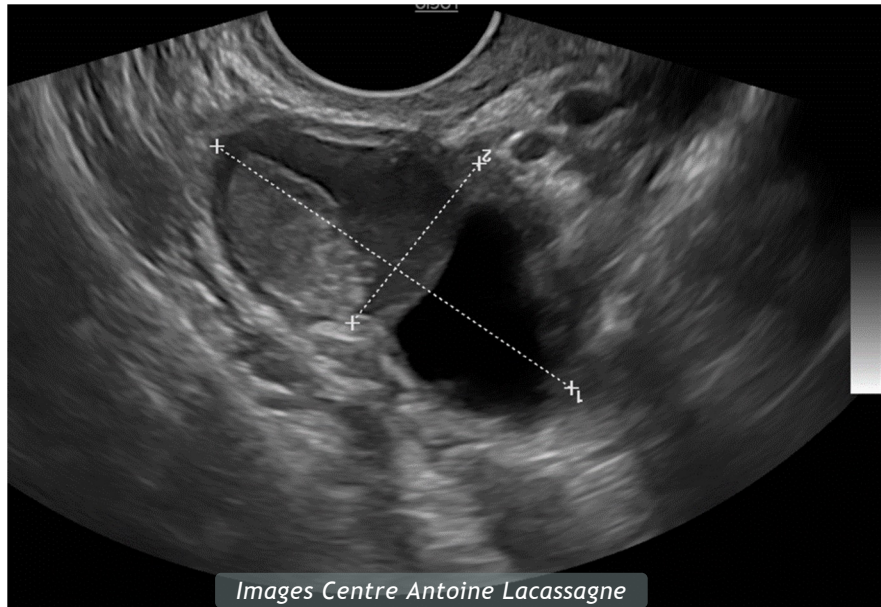
CAS CLINIQUE n°2



Patiente de 45 ans, **endométriose** pelvienne profonde et ovarienne connue, adressée pour **épaississement endométrial** sous Tamoxifène (néoplasie mammaire)

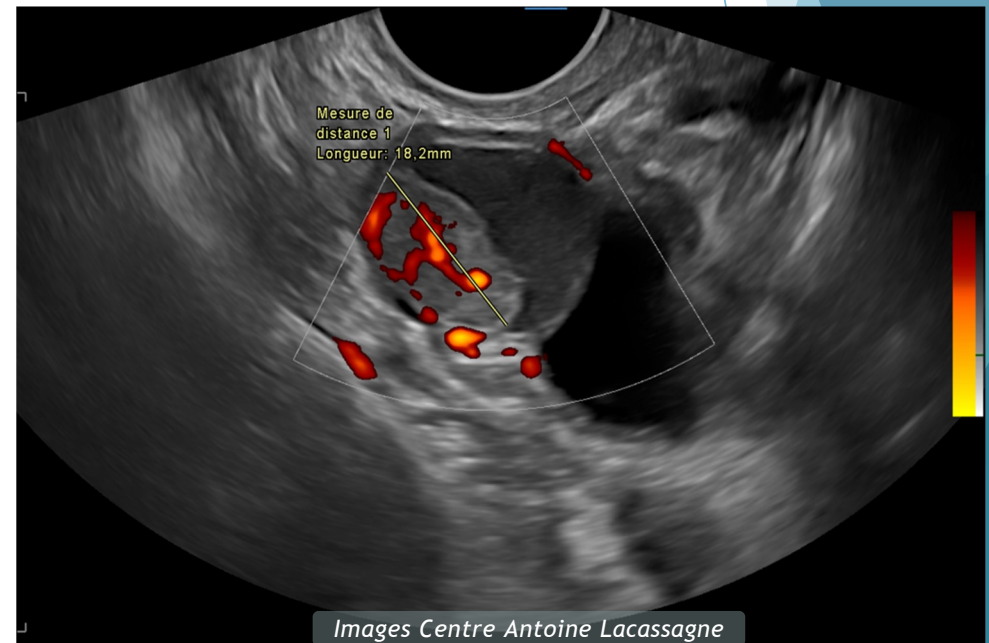


CAS CLINIQUE n°2

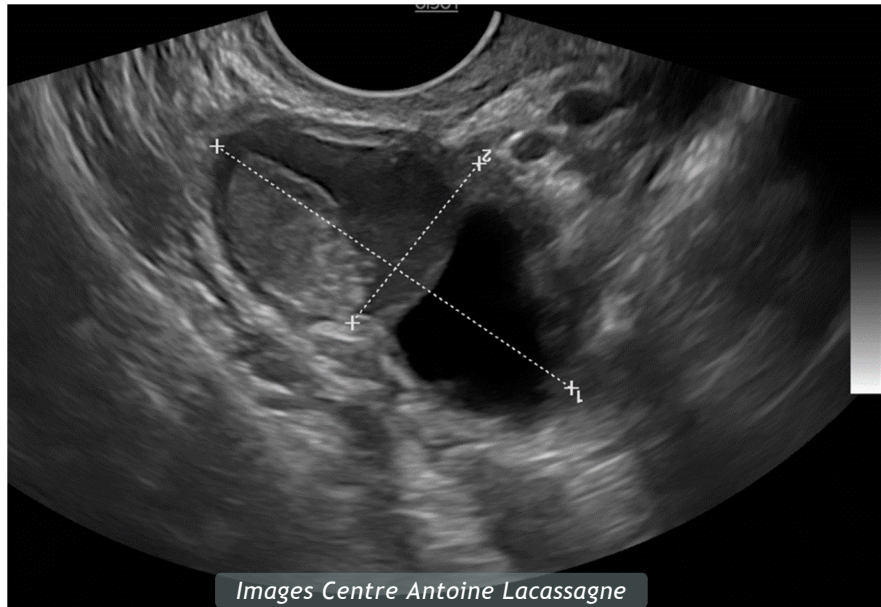


Patiente de 45 ans, **endométriose** pelvienne profonde et ovarienne connue, adressée pour **épaississement endométrial** sous Tamoxifène (néoplasie mammaire)

- ? **Masse solido kystique**
- ? **Paroi externe régulières**
- ? **Portion solide irrégulières avec importante vascularisation Doppler**



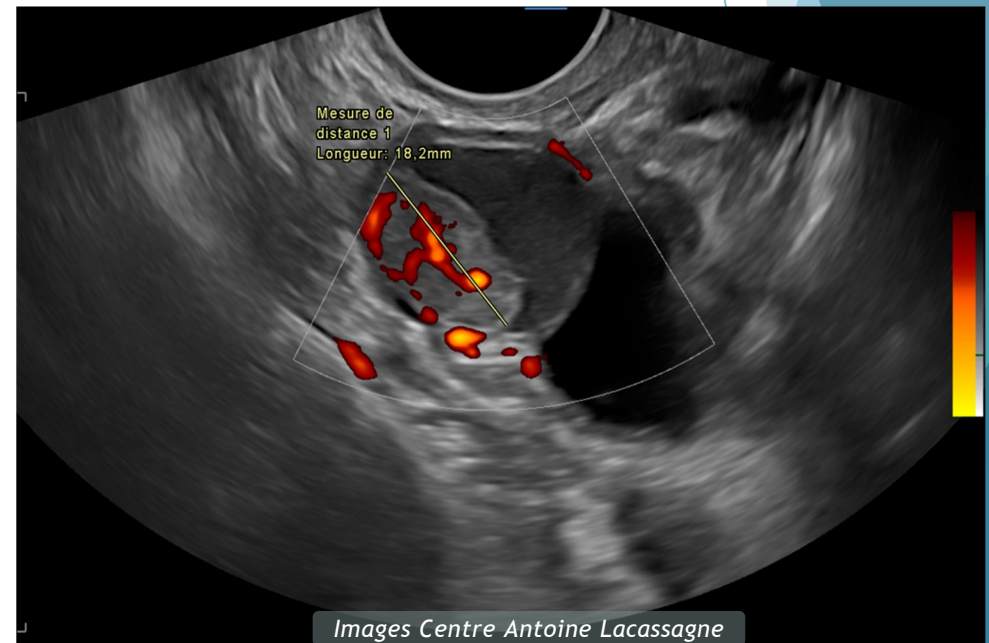
CAS CLINIQUE n°2



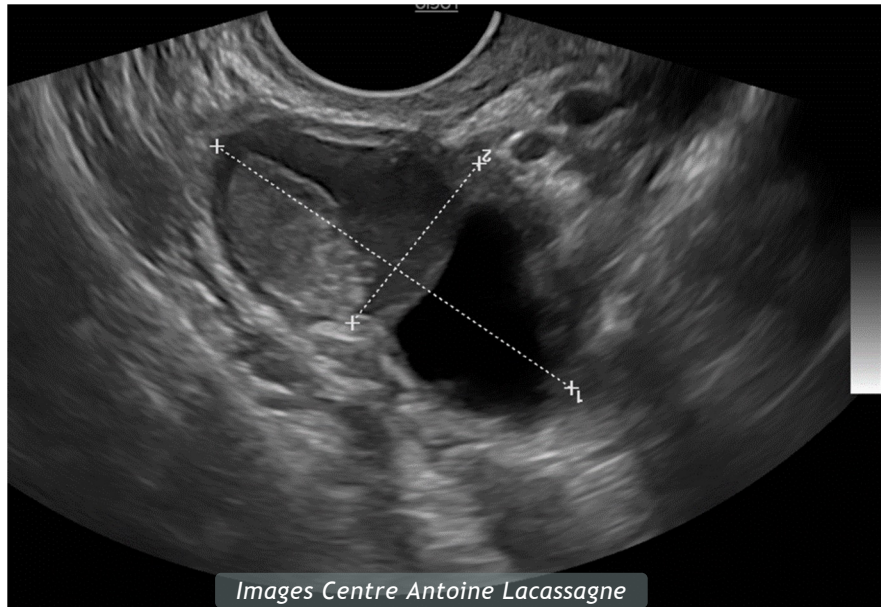
Patiente de 45 ans, **endométriose** pelvienne profonde et ovarienne connue, adressée pour **épaississement endométrial** sous Tamoxifène (néoplasie mammaire)

- ❑ **Masse solido kystique**
- ❑ **Paroi externe régulières**
- ❑ **Portion solide irrégulières avec importante vascularisation Doppler**

ORADS 4/5 US



CAS CLINIQUE n°2

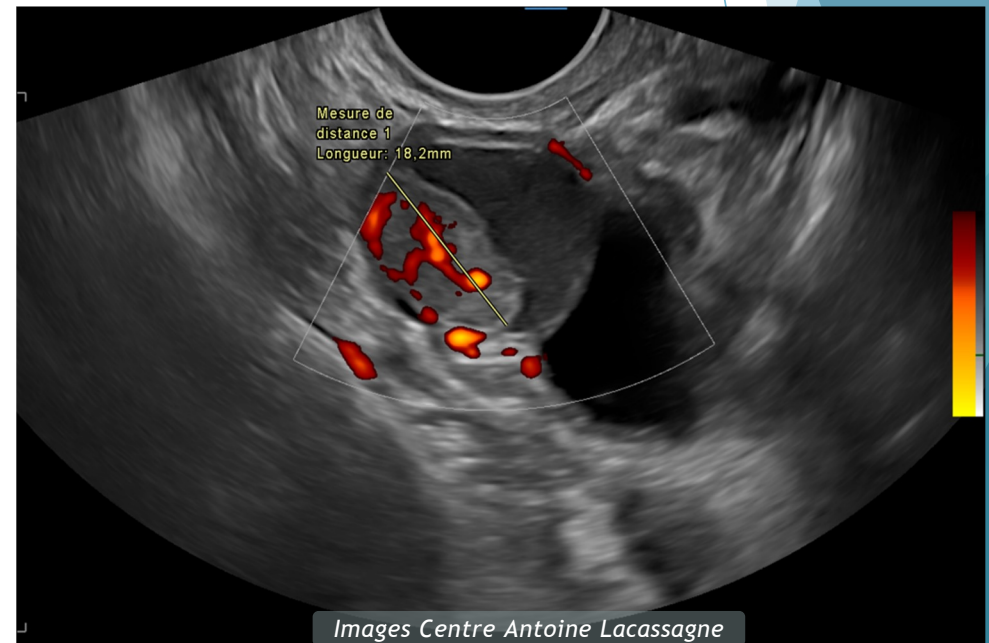


Patiente de 45 ans, **endométriose** pelvienne profonde et ovarienne connue, adressée pour **épaississement endométrial** sous Tamoxifène (néoplasie mammaire)

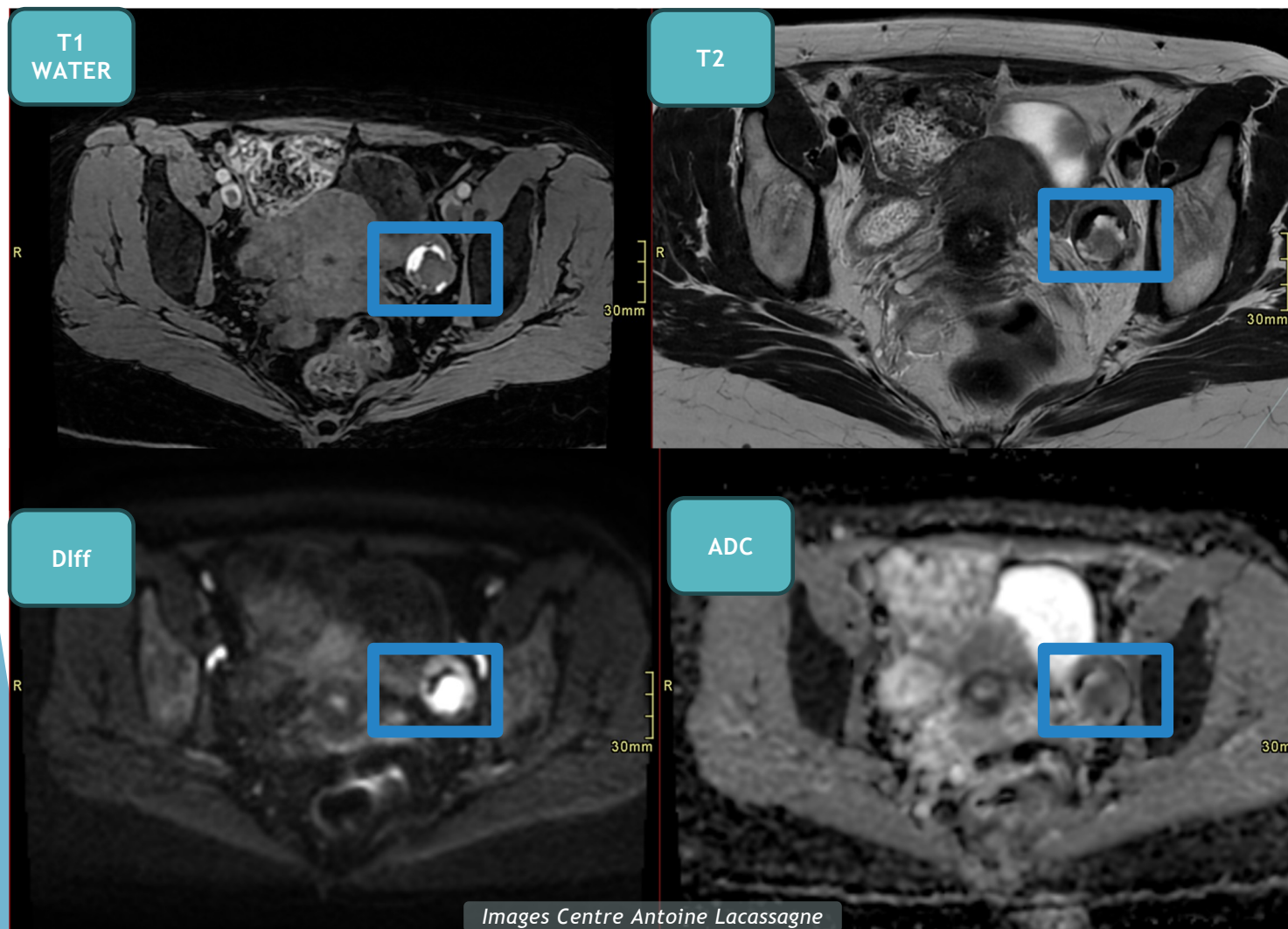
- ❓ **Masse solido kystique**
- ❓ **Paroi externe régulières**
- ❓ **Portion solide irrégulières avec importante vascularisation Doppler**

ORADS 4/5 US

IRM pelvienne



CAS CLINIQUE n° 2



Images Centre Antoine Lacassagne

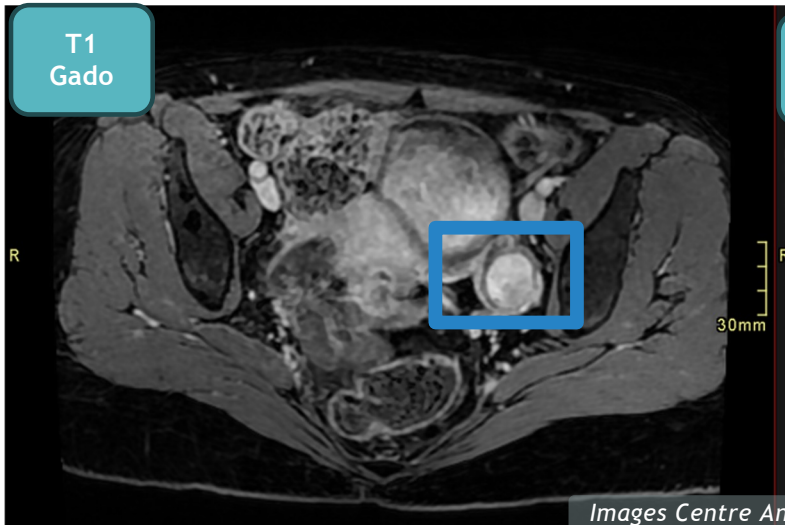
Masse ovarienne gauche :

- Hétérogène
- Signal T2 intermédiaire
- Partiellement hémorragique (hypersignal T1 WATER)
- Hypersignal diffusion franc avec restriction de l'ADC

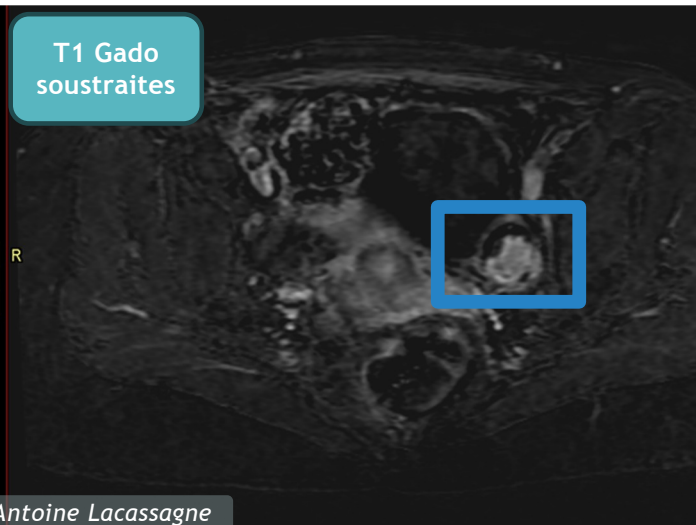
ORADS 3/4/5

CAS CLINIQUE n° 2

T1
Gado

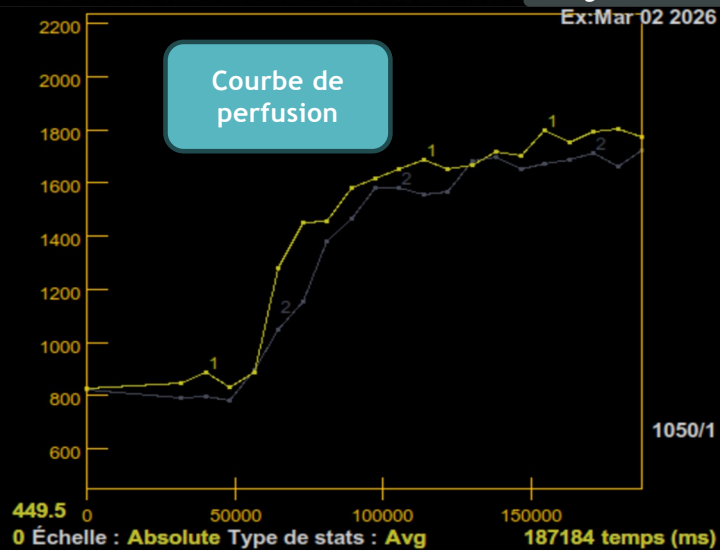


T1 Gado
soustraites



Images Centre Antoine Lacassagne

Courbe de
perfusion



Courbe jaune (1) : ROI zone tissulaire
de la masse ovarienne

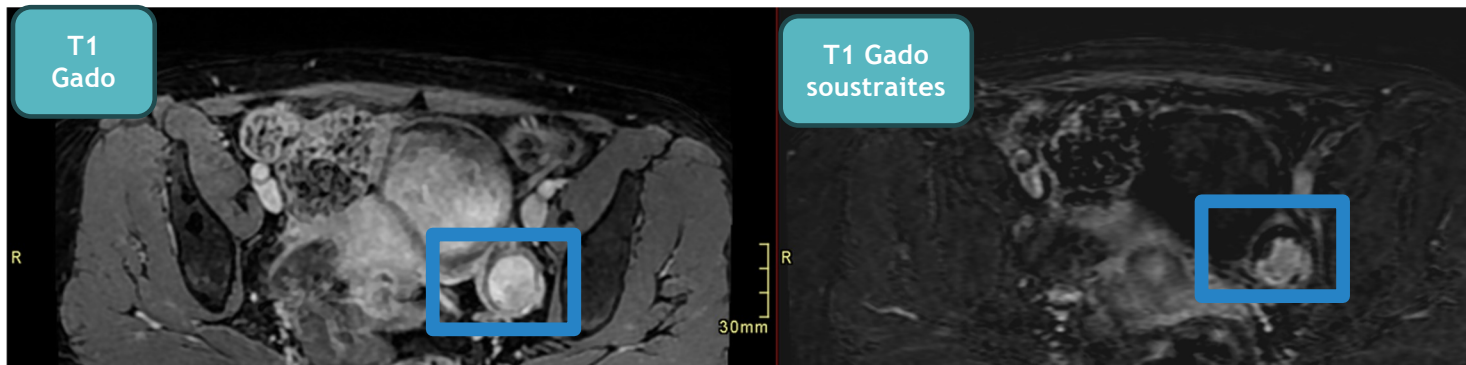
Courbe bleu (2) : ROI myomètre sain

Masse ovarienne gauche :

- Hétérogène
- Signal T2 intermédiaire
- Partiellement hémorragique (hypersignal T1 WATER)
- Hypersignal diffusion franc avec restriction de l'ADC
- **Portion tissulaire rehaussée avec une courbe de type 3**

ORADS 5 MR

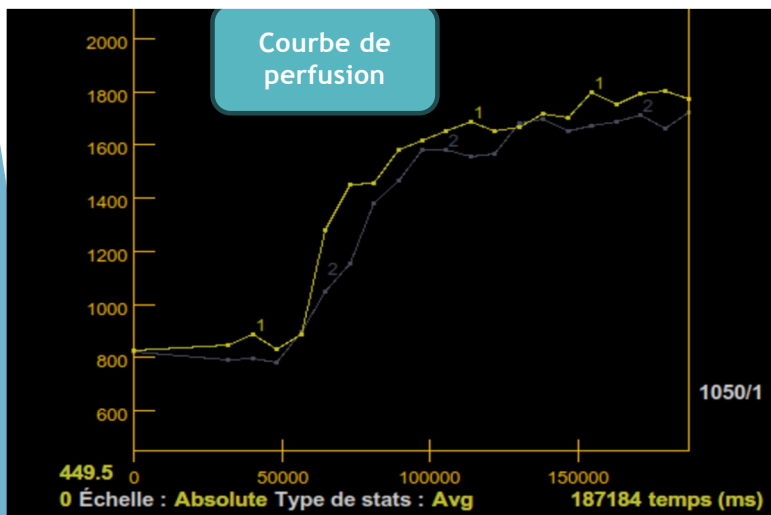
CAS CLINIQUE n°2



Masse ovarienne gauche :

- Hétérogène

Annexectomie gauche : Lésion kystique de 4cm avec portion solide de 2cm dont les aspects sont évocateurs d'une tumeur endométriode de malignité incertaine (tumeur endométriode borderline). Absence de territoire micro-invasif. Absence d'effraction.



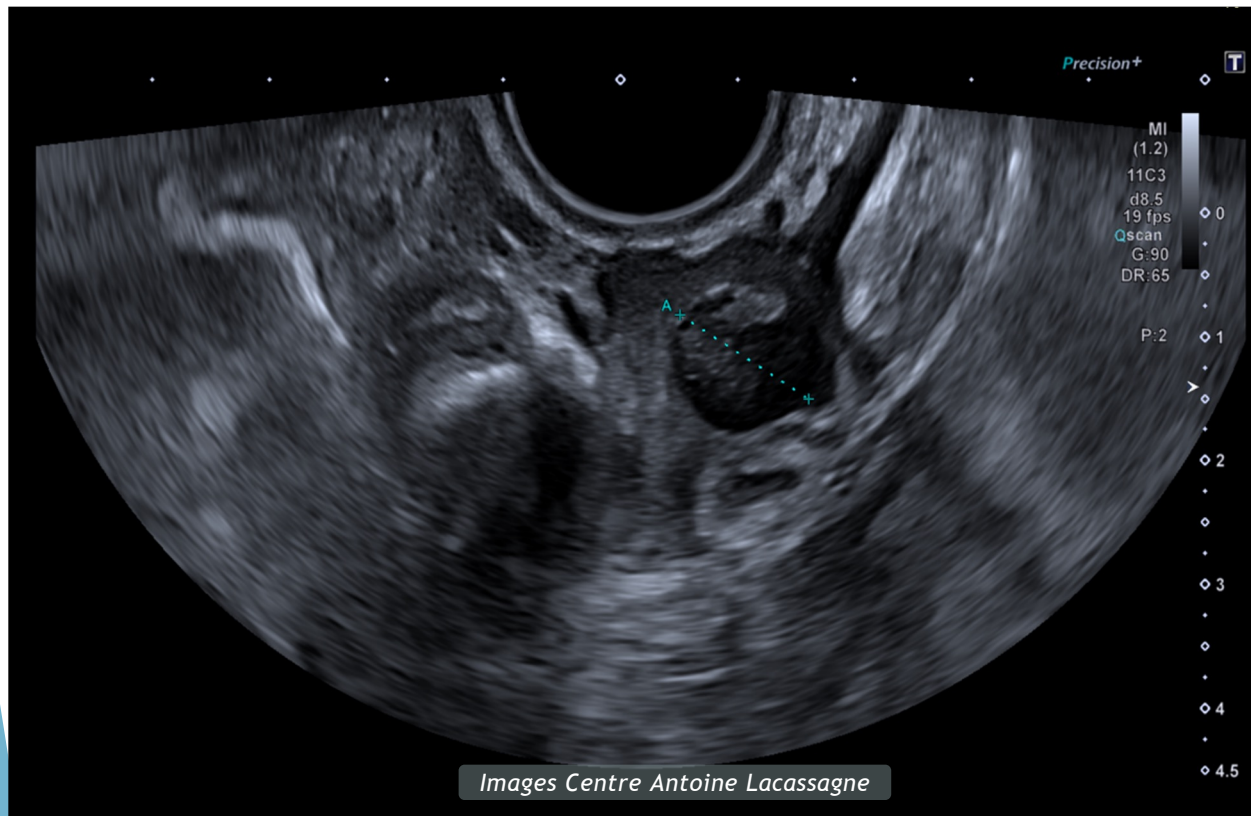
Courbe jaune (1) : ROI zone tissulaire de la masse ovarienne

Courbe bleu (2) : ROI myomètre sain

- Portion tissulaire rehaussée avec une courbe de type 3

ORADS 5 MR

CAS CLINIQUE n° 2

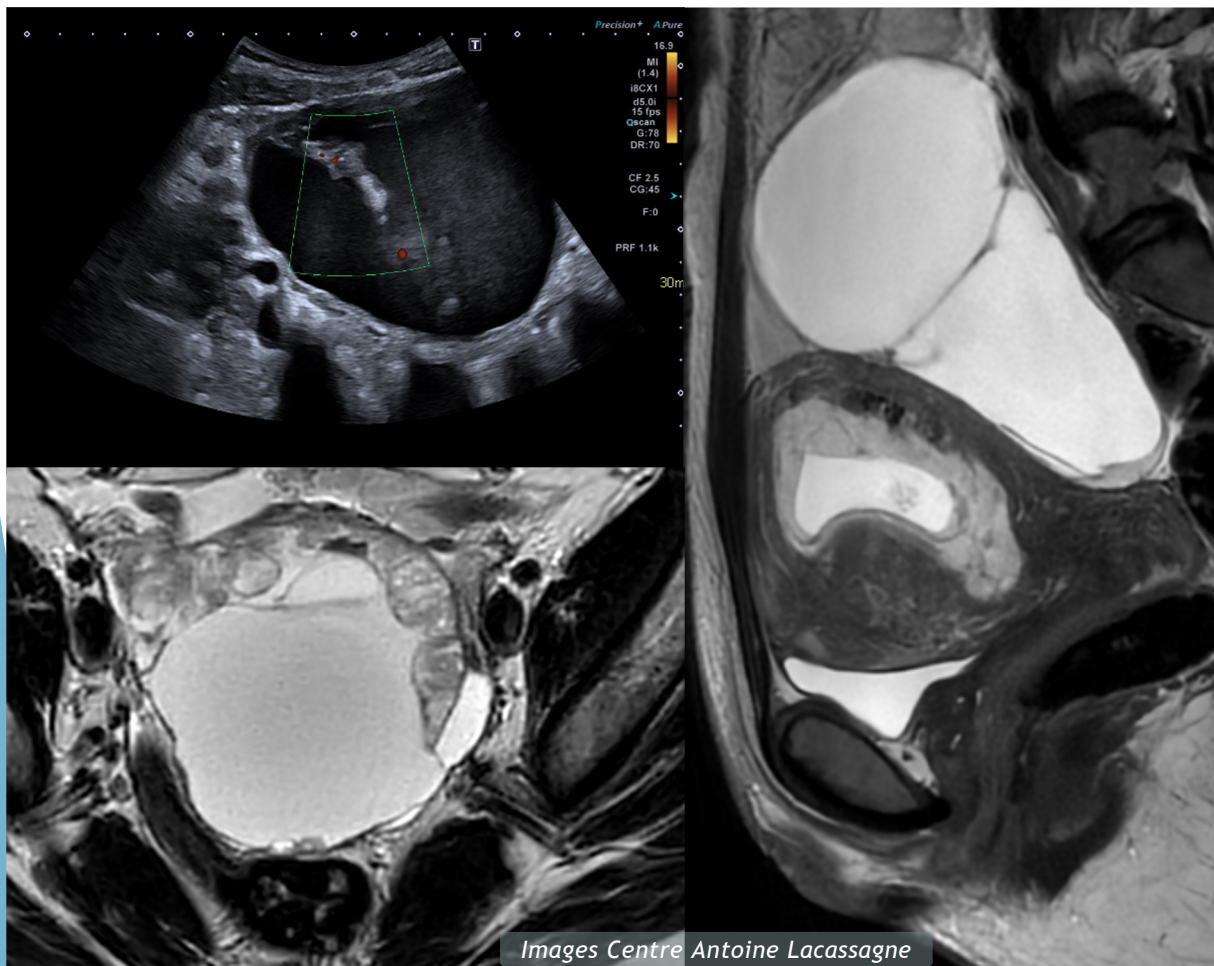


Echographie réalisée 2 mois avant : avons nous allumé le Doppler ?



Masses annexielles : Comment raisonner ?

Masses annexielles : Comment raisonner ?

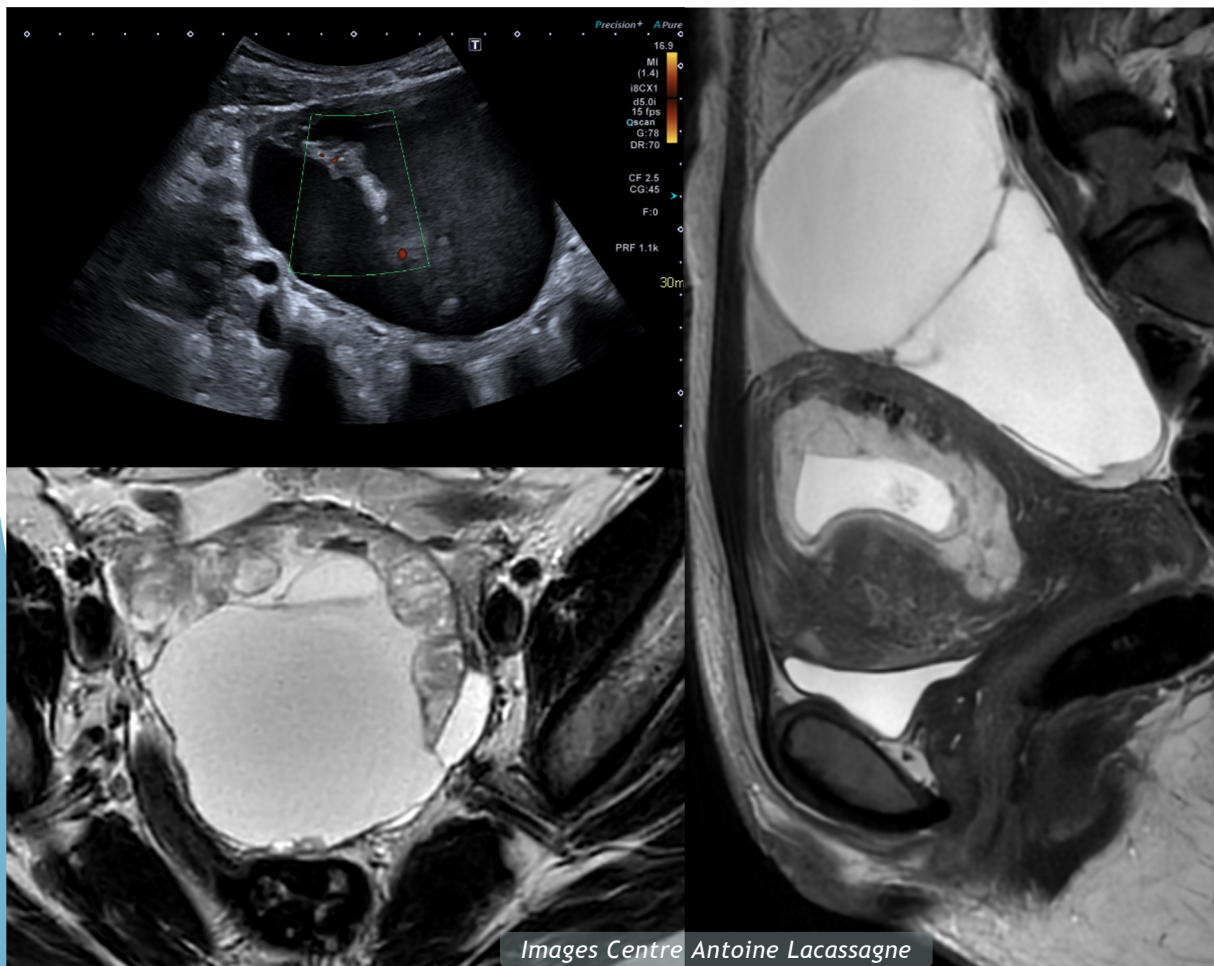


Echographie endovaginale

18 à 31%
indéterminées

IRM pelvienne avec injection
dynamique

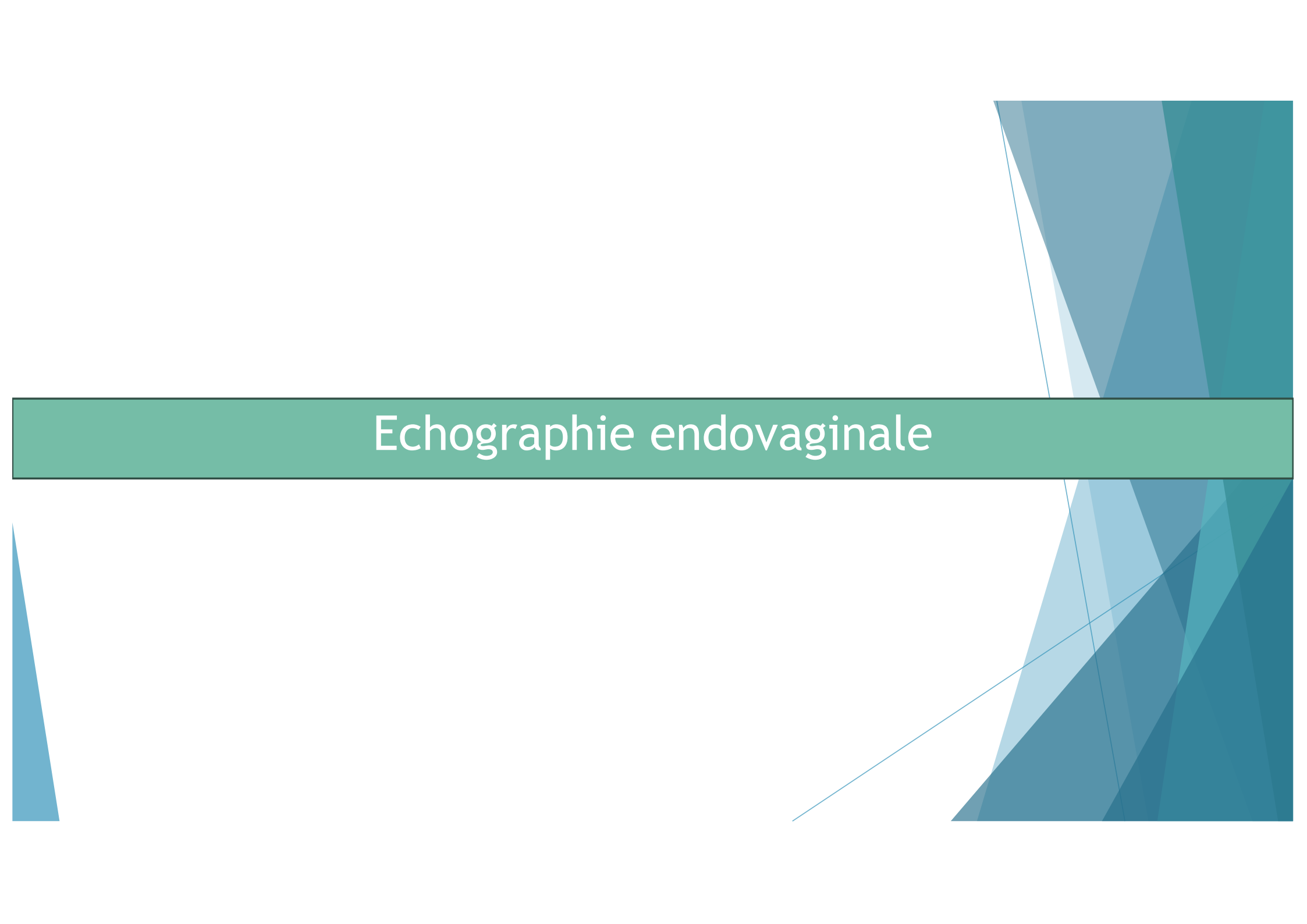
Masses annexielles : Comment raisonner ?



Echographie endovaginale

18 à 31%
indéterminées

IRM pelvienne avec injection
dynamique



Echographie endovaginale

ECHOGRAPHIE ENDOVAGINALE - HISTORIQUE

2008

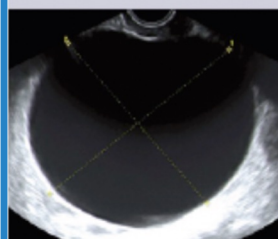
Ultrasound Obstet Gynecol 2008; 31: 681–690
Published online in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/ug.5365

Simple ultrasound-based rules for the diagnosis of ovarian cancer

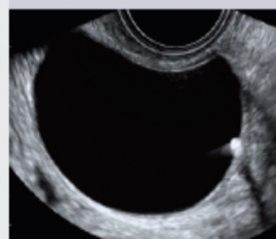
D. TIMMERMAN*, A. C. TESTA†, T. BOURNE*, L. AMEYE‡, D. JURKOVIC§, C. VAN HOLSBEKE*, D. PALADINI¶, B. VAN CALSTER‡, I. VERGOTE*, S. VAN HUFFEL‡ and L. VALENTIN**

*Department of Obstetrics and Gynecology, University Hospitals KU Leuven †Department of Electrical Engineering, ESAT-SCD, Katholieke Universiteit Leuven, Leuven, Belgium, ‡Istituto di Clinica Ostetrica e Ginecologica, Università Cattolica del Sacro Cuore, Rome, §Università degli Studi di Napoli, Naples, Italy, ¶Department of Obstetrics and Gynaecology, King's College Hospital London, UK and **Department of Obstetrics and Gynecology, Malmö University Hospital, Lund University, Malmö, Sweden

B1 Unilocular



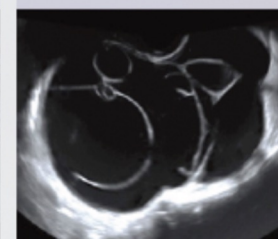
B2 Presence of solid components with largest diameter < 7 mm



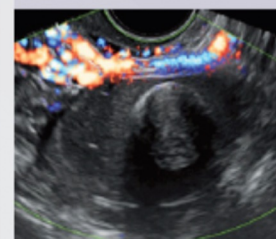
B3 Presence of acoustic shadows



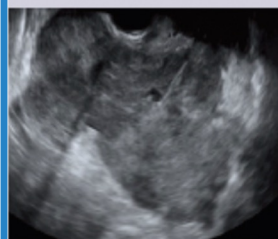
B4 Smooth multilocular tumor with largest diameter < 100 mm



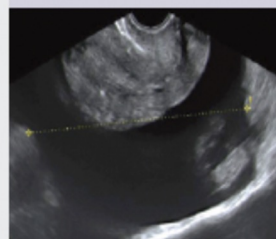
B5 No blood flow (color score 1)



M1 Irregular solid tumor



M2 Presence of ascites



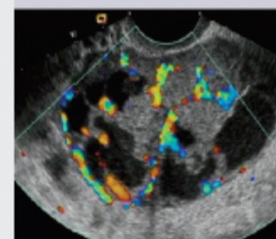
M3 At least 4 papillary structures



M4 Irregular multi-locular-solid tumor with largest diameter > 100 mm



M5 Very strong blood flow (color score 4)



ECHOGRAPHIE ENDOVAGINALE - HISTORIQUE

2014

BMJ 2014;349:g5920 doi: 10.1136/bmj.g5920 (Published 16 October 2014)

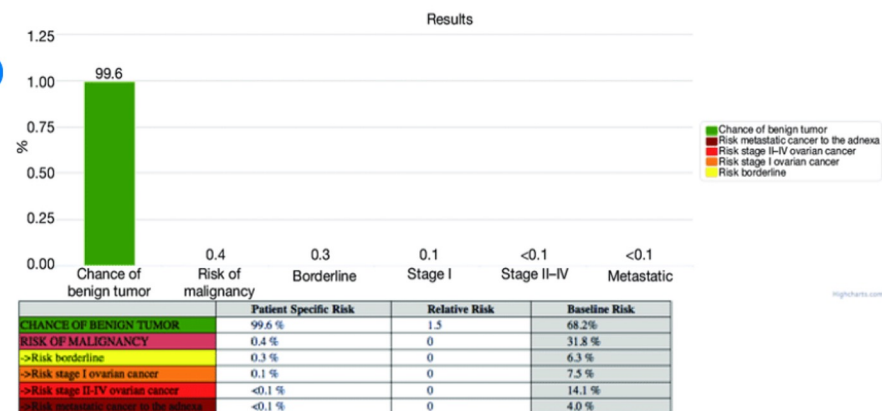
Page 1 of 14

RESEARCH

Evaluating the risk of ovarian cancer before surgery using the ADNEX model to differentiate between benign, borderline, early and advanced stage invasive, and secondary metastatic tumours: prospective multicentre diagnostic study

OPEN ACCESS

1. Age of the patient at examination (years) 53
2. Oncology center (referral center for gyn-oncol)? no
3. Maximal diameter of the lesion (mm) 55
4. Maximal diameter of the largest solid part (mm) 3
5. More than 10 locules? no
6. Number of papillations (papillary projections) one
7. Acoustic shadows present? yes
8. Ascites (fluid outside pelvis) present? no
9. Serum CA-125 (U/ml) 7.8



imgcharts.com



ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

2022

Radiology

REVIEWS AND COMMENTARY • STATEMENTS AND GUIDELINES

O-RADS US v2022: An Update from the American College of Radiology's Ovarian-Adnexal Reporting and Data System US Committee

Lori M. Strachowski, MD • Priyanka Jha, MBBS • Catherine H. Phillips, MD • Misty M. Blanchette Porter, MD • Wouter Froyman, MD • Phyllis Glanc, MD, FACR • Yang Guo, MD • Maitray D. Patel, MD, FACR • Caroline Reinbold, MD • Elizabeth J. Sub-Burgmann, MD • Dirk Timmerman, MD • Rochelle F. Andreotti, MD

From the Department of Radiology and Biomedical Imaging and Department of Obstetrics, Gynecology and Reproductive Sciences, University of California, San Francisco, 1001 Potrero Ave, 1X57, San Francisco, CA 94110 (L.M.S.); Department of Radiology, Stanford University School of Medicine, Palo Alto, Calif (P.J.); Department of Radiology and Radiologic Sciences, Vanderbilt University Medical Center, Nashville, Tenn (C.H.P.); Department of Obstetrics, Gynecology, and Reproductive Sciences, Larner College of Medicine at the University of Vermont, Burlington, Vt (M.M.B.P.); Department of Obstetrics and Gynecology, University Hospitals and Department of Development and Regeneration, KU Leuven, Leuven, Belgium (W.F., D.T.); Department of Medical Imaging, Sunnybrook Health Science Centre, University of Toronto, Toronto, Canada (P.G.); Department of Radiology, Brigham and Women's Hospital, Harvard Medical School, Boston, Mass (Y.G.); Department of Radiology, Mayo Clinic Arizona, Phoenix, Ariz (M.D.P.); Department of Radiology, McGill University Health Centre, Montreal, Canada (C.R.); Department of Gynecologic Oncology, Kaiser Permanente Northern California, Walnut Creek, Calif (E.J.S.B.); and Department of Radiology and Radiological Sciences and Department of Obstetrics and Gynecology, Vanderbilt University College of Medicine, Nashville, Tenn (R.F.A.). Received March 17, 2023; revision requested April 10; final revision received July 6; accepted July 14. Address correspondence to L.M.S. (email: lori.strachowski@ucsf.edu).

Conflicts of interest are listed at the end of this article.

Radiology 2023; 308(3):e230685 • <https://doi.org/10.1148/radiol.230685> • Content codes:   

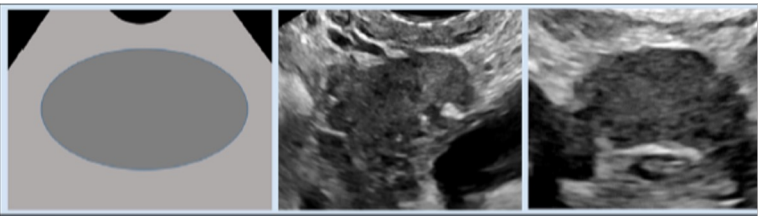
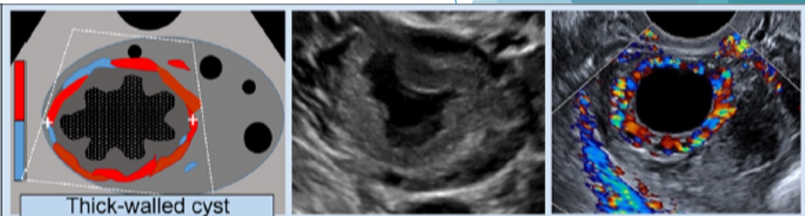
ACR[®]
AMERICAN COLLEGE OF
RADIOLOGY



1

ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

O-RADS Score	Risk Category [IOTA Model]	Lexicon Descriptors	Management	
			Pre-menopausal	Post-Menopausal
0	Incomplete Evaluation [N/A]	Lesion features relevant for risk stratification cannot be accurately characterized due to technical factors	Repeat US study or MRI	
1	Normal Ovary [N/A]	No ovarian lesion Physiologic cyst: follicle (≤ 3 cm) or corpus luteum (typically ≤ 3 cm)	None	

No ovarian lesion or physiologic cyst		Corpus luteum* - Thick-walled cyst ($\pm$ internal echoes, $\pm$ crenulated inner walls) or "solid-appearing" without a visible central cystic component - Peripheral flow - Typically, ≤ 3 cm (may be slightly larger)	 Thick-walled cyst  "Solid-appearing"
Follicle* - Simple cyst ≤ 3 cm			

*applies in pre-menopausal patients only

2 ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

O-RADS Score	Risk Category [IOTA Model]	Lexicon Descriptors		Management	
				Pre-menopausal	Post-Menopausal
2	Almost Certainly Benign [$<1\%$]	Simple cyst	≤ 3 cm	N/A (see follicle)	None
			>3 cm to 5 cm	None	Follow-up US in 12 months*
			>5 cm but <10 cm	Follow-up US in 12 months*	
		Unilocular, smooth, non-simple cyst (internal echoes and/or incomplete septations) ----- Bilocular, smooth cyst	≤ 3 cm	None	Follow-up US in 12 months*
			>3 cm but <10 cm	Follow-up US in 6 months*	
		Typical benign ovarian lesion (see "Classic Benign Lesions" table)	<10 cm	See "Classic Benign Lesions" table for descriptors and management	
		Typical benign extraovarian lesion (see "Classic Benign Lesions" table)	Any size		

2 ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

O-RADS Score	Risk Category [IOTA Model]	Lexicon Descriptors		Management	
				Pre-menopausal	Post-Menopausal
2	Almost Certainly Benign [$<1\%$]	Simple cyst	≤ 3 cm	N/A (see follicle)	None
			>3 cm to 5 cm	None	Follow-up US in 12 months*
			>5 cm but <10 cm	Follow-up US in 12 months*	
		Unilocular, smooth, non-simple cyst (internal echoes and/or incomplete septations) ----- Bilocular, smooth cyst	≤ 3 cm	None	Follow-up US in 12 months*
			>3 cm but <10 cm	Follow-up US in 6 months*	
		Typical benign ovarian lesion (see "Classic Benign Lesions" table)	<10 cm	See for	e
		Typical benign extraovarian lesion (see "Classic Benign Lesions" table)	Any size		



2

ECHOGRAPHIE ENDOVAGINALE - ORADS US V2



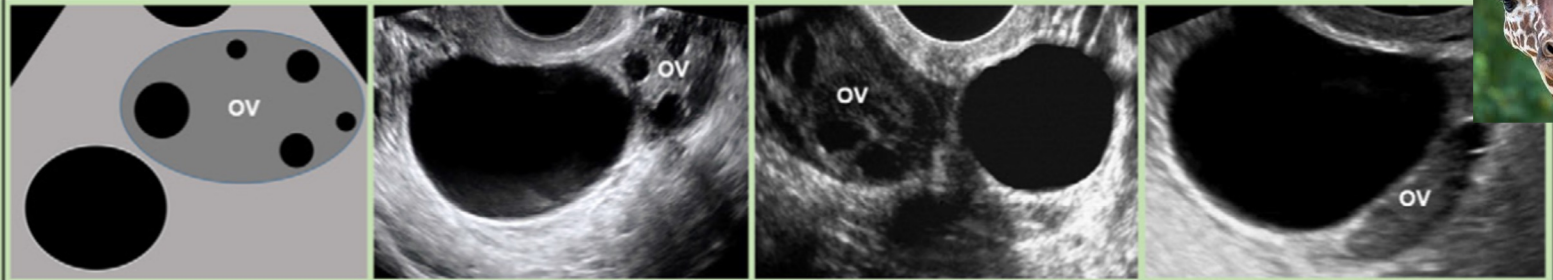
2 ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

Lésions typiquement bénignes



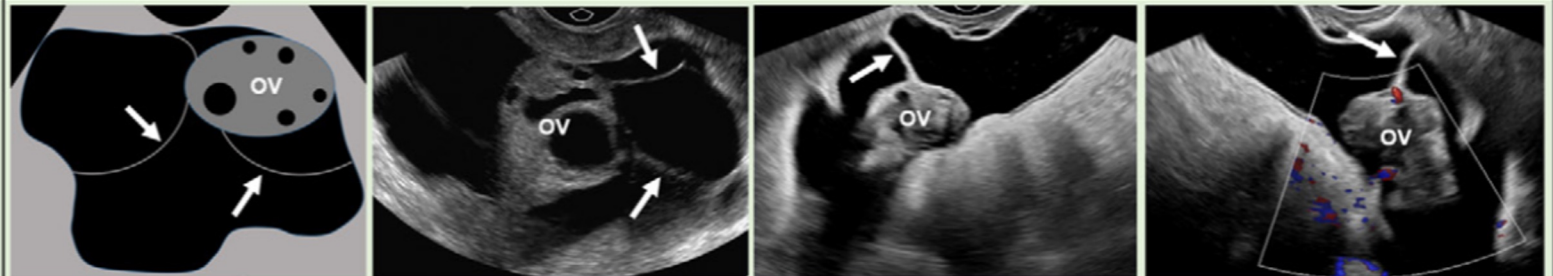
Typical paraovarian cyst

- Simple cyst separate from ovary
- Includes paratubal cysts



Typical peritoneal inclusion cyst

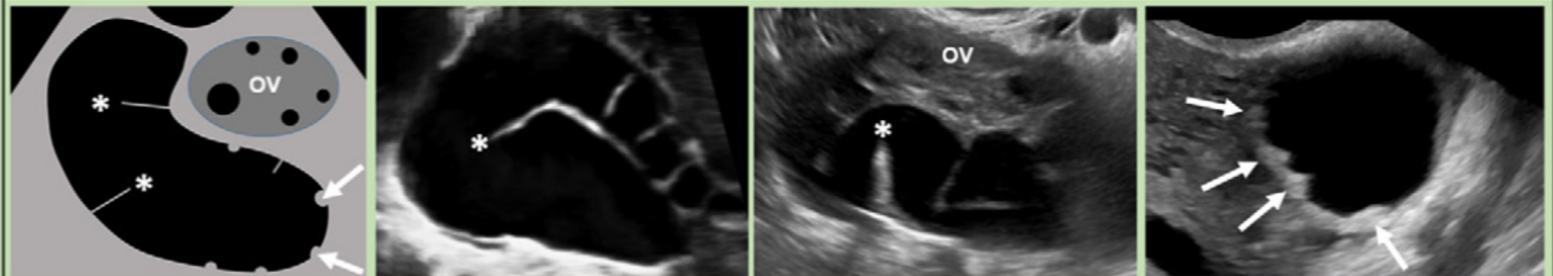
- Fluid collection containing an ovary
- Conforms to adjacent pelvic organs



Ovary at margin or suspended within ± Septations (represent adhesions, →)

Typical hydrosalpinx

- Anechoic, fluid-filled, tubular structure



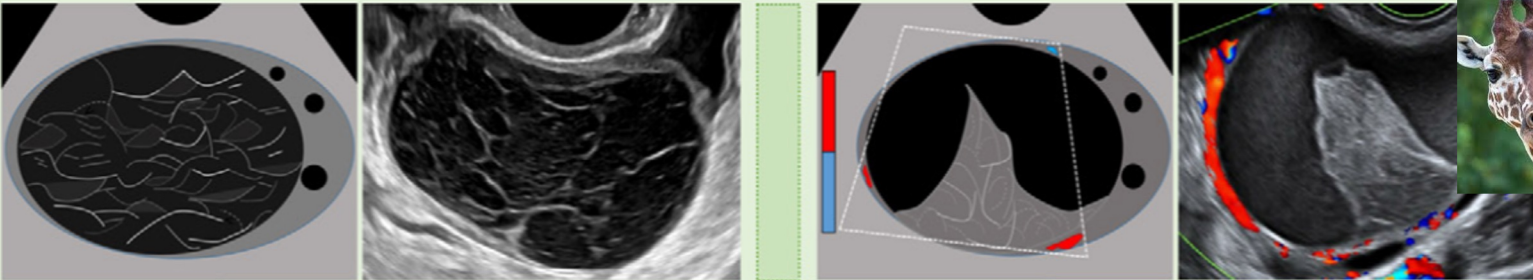
± Incomplete septation(s) (represent folds, *) ± Endosalpingeal folds (→)

2

ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

Typical hemorrhagic cyst

- Unilocular, avascular

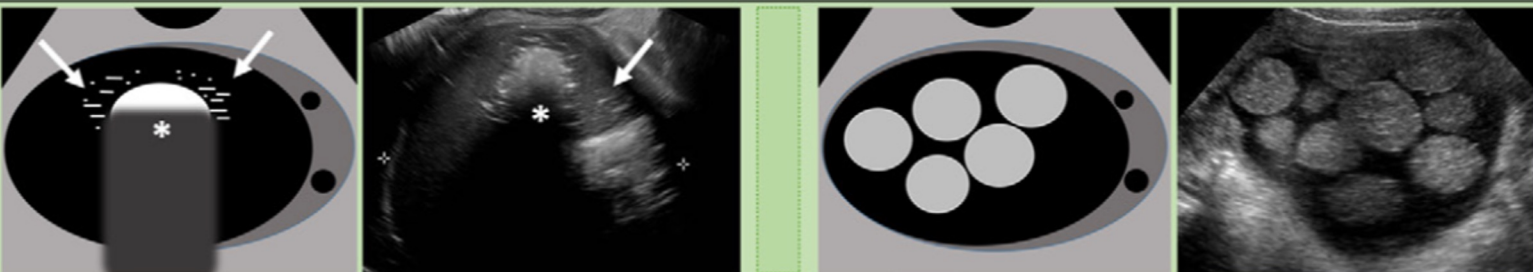


Reticular pattern

Retractile clot

Typical dermoid cyst

- ≤ 3 locules, avascular

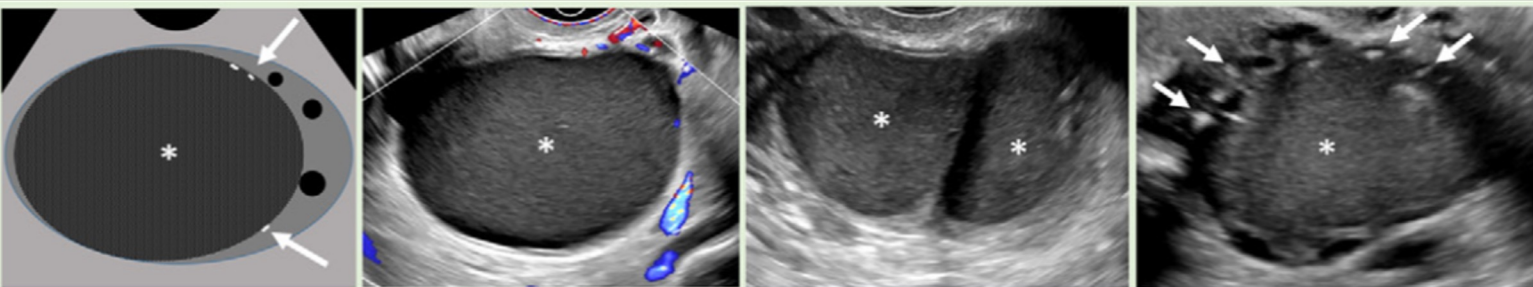


Hyperechoic component (*diffuse or regional*) with shadowing (*)
Hyperechoic lines and dots (→)

Floating echogenic spherical structures

Typical endometrioma

- ≤ 3 locules, avascular
- Smooth inner walls



Homogeneous low-level or ground glass echoes (*)

± Peripheral punctate echogenic foci (→)

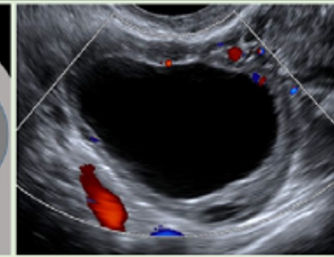
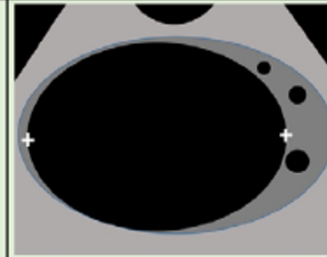


2

ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

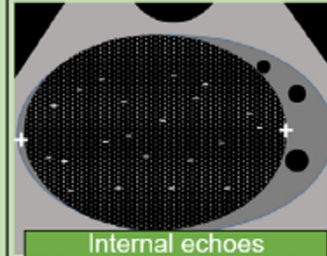
Simple cyst

- **>3 cm* but <10 cm** (premenopausal)
- **<10 cm** (postmenopausal)
- *<3 cm in premenopausal group = follicle (O-RADS 1)

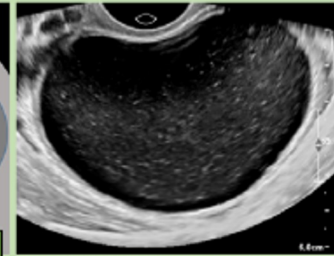


Unilocular cyst, smooth inner walls, non-simple*, <10 cm

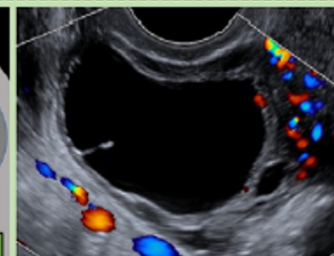
- *Non-simple = internal echoes or incomplete septa (Note: an incomplete septation is not considered wall irregularity if the inner walls are otherwise smooth)



Internal echoes

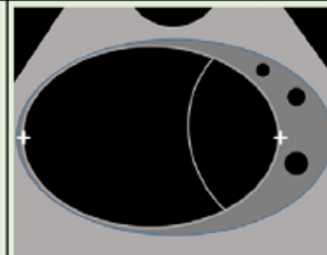


Incomplete septation



Bilocular* cyst, smooth inner walls, <10 cm

- *2 locules (1 complete septation)
- May be simple (anechoic) or non-simple (internal echoes or incomplete septa)



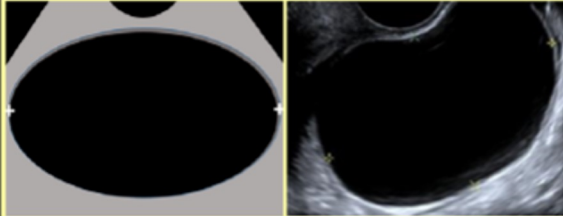
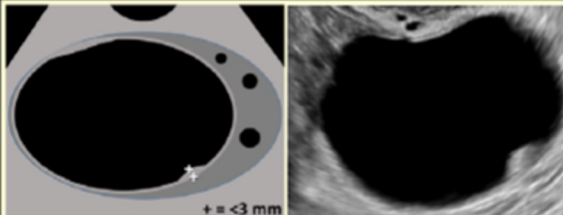
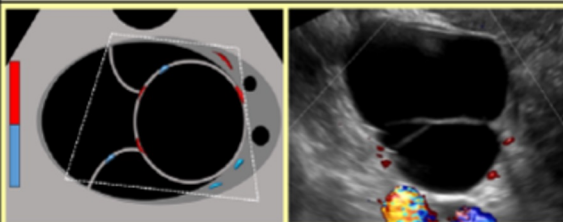
3

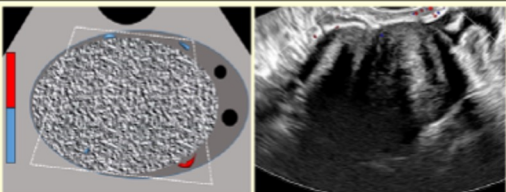
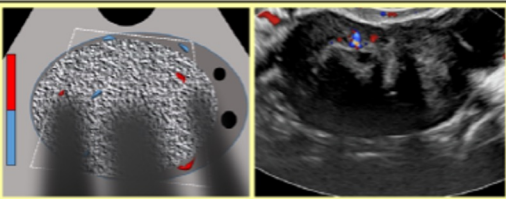
ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

O-RADS Score	Risk Category [IOTA Model]	Lexicon Descriptors	Management	
			Pre-menopausal	Post-Menopausal
3	Low Risk [1 – <10%]	Typical benign ovarian lesion (see "Classic Benign Lesions" table), ≥10 cm	Imaging: - If not surgically excised, consider follow-up US within 6 months** - If solid, may consider US specialist (if available) <u>or</u> MRI (with O-RADS MRI score)† Clinical: Gynecologist	
		Uni- or bilocular cyst, smooth, ≥10 cm		
		Unilocular cyst, irregular, any size		
		Multilocular cyst, smooth, <10 cm, CS <4		
		Solid lesion, ± shadowing, smooth, any size, CS = 1		
		Solid lesion, shadowing, smooth, any size, CS 2–3		

3

ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

Typical benign ovarian lesion, ≥ 10 cm	See "Classic Benign Lesions" table
Unilocular or bilocular* cyst, ≥ 10 cm *2 locules (1 complete septation) - May be simple (anechoic) or non-simple (internal echoes or incomplete septa)	
Unilocular cyst, irregular* inner walls, any size *Focal thickening < 3 mm in height (into cyst lumen)	
Multilocular* cyst, smooth inner walls and septations, < 10 cm, color score < 4 *≥ 3 locules (≥ 2 septations)	

Solid lesion, $\pm$ shadowing*, smooth outer contour, any size, color score 1 $\geq 80\%$ solid *Must be diffuse or broad (not refractive artifact)	
Solid lesion, shadowing*, smooth outer contour, any size, color score 2-3 $\geq 80\%$ solid *Must be diffuse or broad (not refractive artifact)	
Color score (degree of internal vascularity): 1 = none, 2 = minimal; 3 = moderate; 4 = very strong	

4

ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

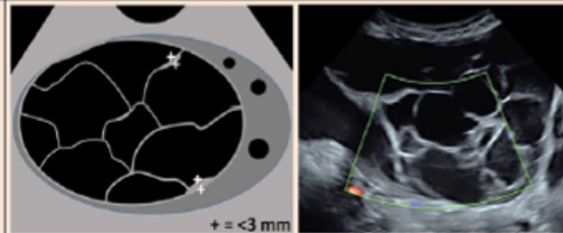
O-RADS Score	Risk Category [IOTA Model]	Lexicon Descriptors		Management	
				Pre-menopausal	Post-Menopausal
4	Intermediate Risk [10 – <50%]	Bilocular cyst without solid component(s)	Irregular, any size, any CS	Imaging: Options include: • US specialist (if available) <u>or</u> • MRI (with O-RADS MRI score)† <u>or</u> • Per gyn-oncologist protocol Clinical: Gynecologist with gyn-oncologist consultation <u>or</u> solely by gyn-oncologist	
		Multilocular cyst without solid component(s)	Smooth, ≥10 cm, CS <4		
			Smooth, any size, CS 4		
			Irregular, any size, any CS		
		Unilocular cyst with solid component(s)	<4 pps or solid component(s) not considered a pp; any size, any CS		
		Bi- or multilocular cyst with solid component(s)	Any size, CS 1–2		
		Solid lesion, non-shadowing	Smooth, any size, CS 2–3		

4

ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

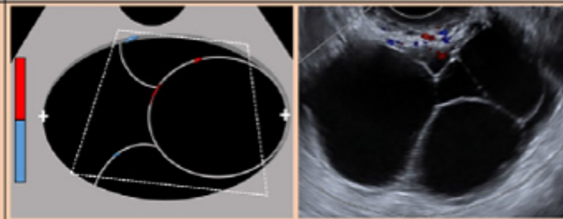
Bi- or multilocular cyst without solid components, irregular* inner walls or septation(s), any size, any color score

- *Focal thickening <3 mm in height (into cyst lumen)



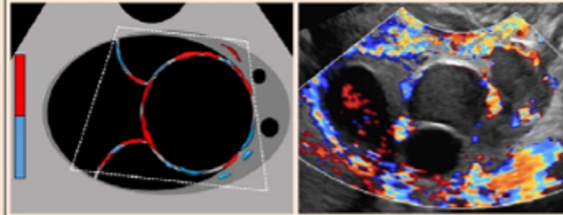
Multilocular* cyst without solid components, smooth inner walls and septation(s), ≥ 10 cm, color score <4

- * ≥ 3 locules (≥ 2 complete septations)



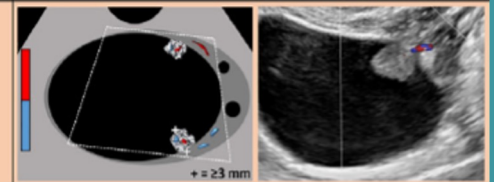
Multilocular* cyst without solid components, smooth inner walls and septation(s), any size, color score 4

- * ≥ 3 locules (≥ 2 complete septations)

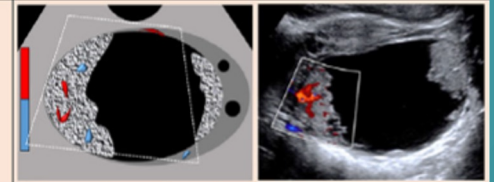


Unilocular cyst, <4 papillary projections, any size, any color score

- Papillary projection = solid component protruding ≥ 3 mm into cyst lumen and surrounded by fluid on 3 sides

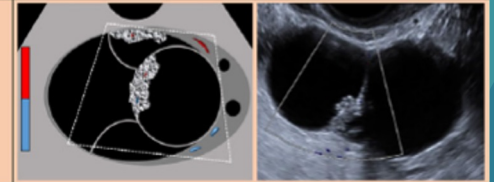


Unilocular cyst with solid component(s) (not considered papillary projections), any size, any color score



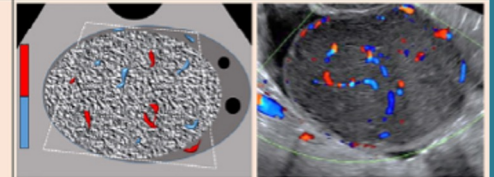
Bi- or multilocular cyst with solid components, any size, color score 1-2

- Any type of solid component; may be off wall or septation(s)



Solid lesion, non-shadowing, smooth outer contour, any size, color score 2-3

- $\geq 80\%$ solid



5 ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

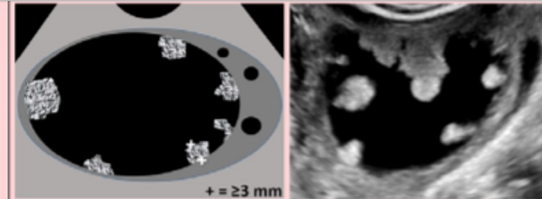
O-RADS Score	Risk Category [IOTA Model]	Lexicon Descriptors	Management	
			Pre-menopausal	Post-Menopausal
5	High Risk [≥50%]	Unilocular cyst, ≥4 pps, any size, any CS	Imaging: Per gyn-oncologist protocol Clinical: Gyn-oncologist	
		Bi- or multilocular cyst with solid component(s), any size, CS 3–4		
		Solid lesion, ± shadowing, smooth, any size, CS 4		
		Solid lesion, irregular, any size, any CS		
		Ascites and/or peritoneal nodules††		

5

ECHOGRAPHIE ENDOVAGINALE - ORADS US V2

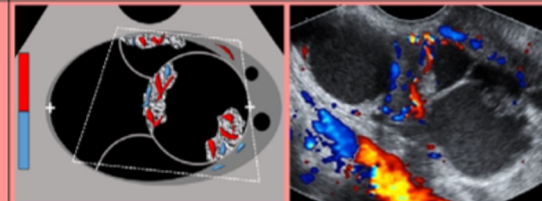
Unilocular cyst, ≥ 4 papillary projections, any size, any color score

- Papillary projection (pp) = solid component protruding ≥ 3 mm into cyst lumen and surrounded by fluid on 3 sides



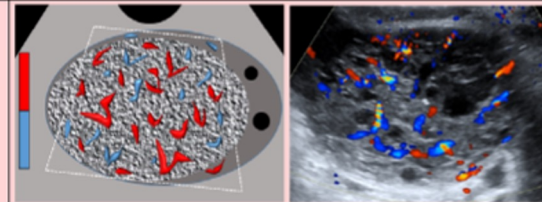
Bi- or multilocular cyst with solid components, any size, color score 3-4

- Any type of solid component; may emanate from a wall or septation



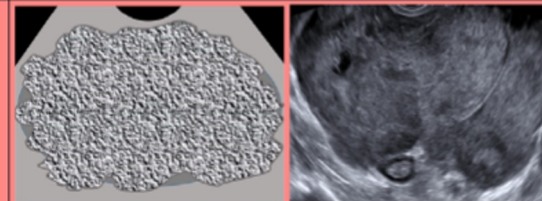
Solid lesion, $\pm$ shadowing, smooth outer contour, any size, color score 4

- $\geq 80\%$ solid



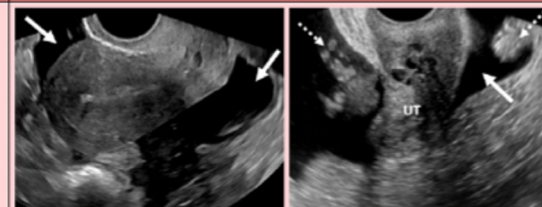
Solid lesion, $\pm$ shadowing, irregular* outer contour, any size, any color score

- $\geq 80\%$ solid
- *Not smooth; includes lobular



Ascites and/or peritoneal nodules

- May be anechoic fluid or contain echoes



Ascites (arrows); peritoneal nodules (dotted arrows)

ORADS US V2 : EVALUATION EXTERNE

0

Réitérer l'échographie ou IRM

2

Surveillance échographique optionnelle selon la taille et le statut ménopausique

0,4%

3

Suivi échographique rapprochée sur 2 ans OU IRM si masse solide
PEC gynécologique générale

1,3%

4

IRM en centre spécialisée avec
PEC gynéco-oncologique

23%

5

76%

Radiology

ORIGINAL RESEARCH • GENITOURINARY IMAGING

O-RADS US Version 2022 Improves Patient Risk Stratification When Compared with O-RADS US Version 2019

Roni Yoeli-Bik, MD¹ • Jacques S. Abramowicz, MD¹ • Kristen Wroblewski, MS² • Leonhard Donle, MS¹ • Ryan E. Longman, MD¹ • Ernst Lengyel, MD, PhD¹

Author affiliations, funding, and conflicts of interest are listed at the end of this article.

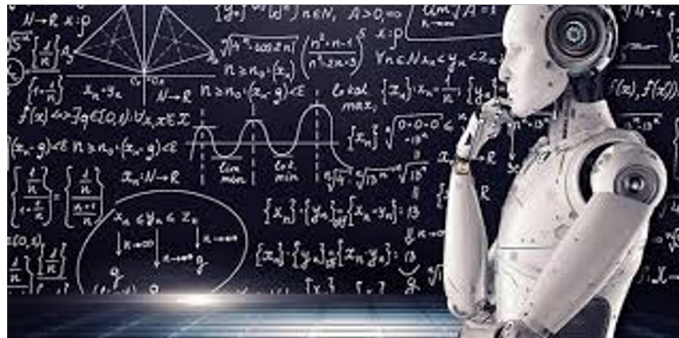
Radiology 2025; 314(3):e242200 • <https://doi.org/10.1148/radiol.242200> • Content codes: GU OB US • Published under a CC-BY 4.0 license.

Table 2: Diagnostic Performance of O-RADS Versions 2019 and 2022 in Differentiating between Benign and Malignant Adnexal Lesions at the 10% Cutoff (Risk Scores 2–3 vs 4–5)

Metric	O-RADS Version 2019	O-RADS Version 2022
Sensitivity (%) [*]	99.0 (94.7, 100)	98.0 (93.1, 99.8)
Specificity (%) [†]	64.3 (59.6, 68.7)	67.0 (62.4, 71.3)
PPV (%)	38.8 (32.9, 45.1)	40.5 (34.3, 46.9)
NPV (%)	99.7 (98.1, 100)	99.3 (97.6, 99.9)
Accuracy (%) [‡]	70.7 (66.7, 74.5)	72.8 (68.8, 76.5)
No. of findings		
True-positive	101	100
False-positive	159	147
False-negative	1	2
True-negative	286	298

ECHOGRAPHIE ENDOVAGINALE - IA

202?



L'IA fait mieux que les experts en écho **nature**

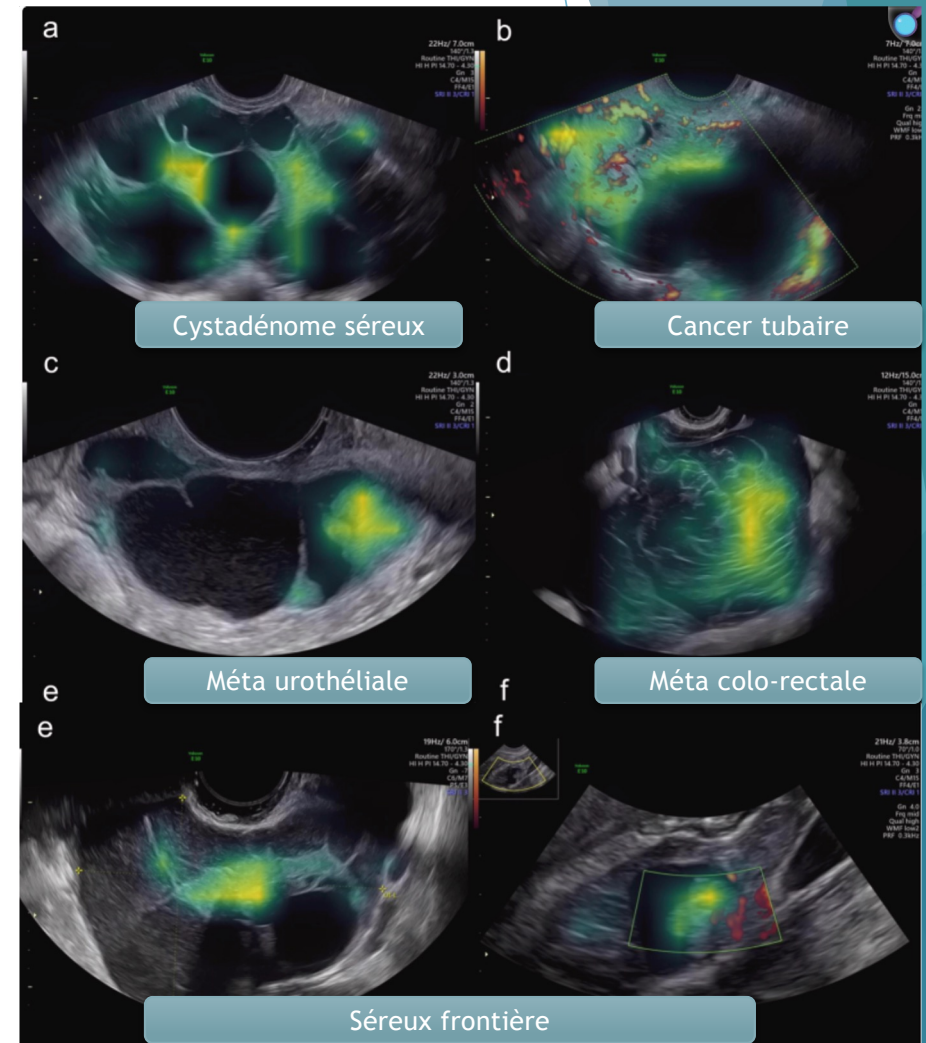
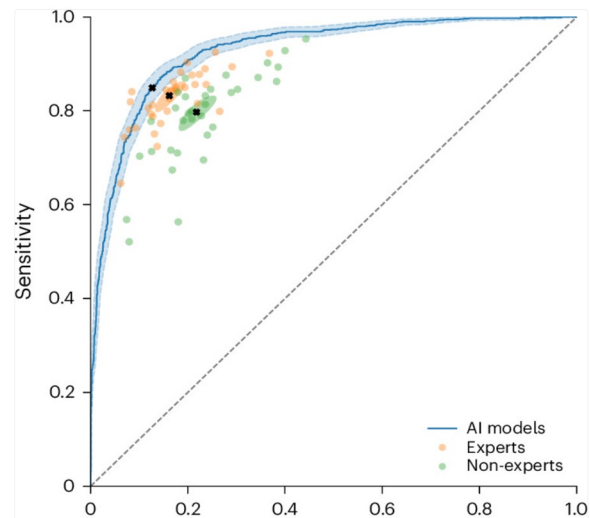
Multicenter Study > Nat Med. 2025 Jan;31(1):189-196. doi: 10.1038/s41591-024-03329-4.

Epub 2025 Jan 2.

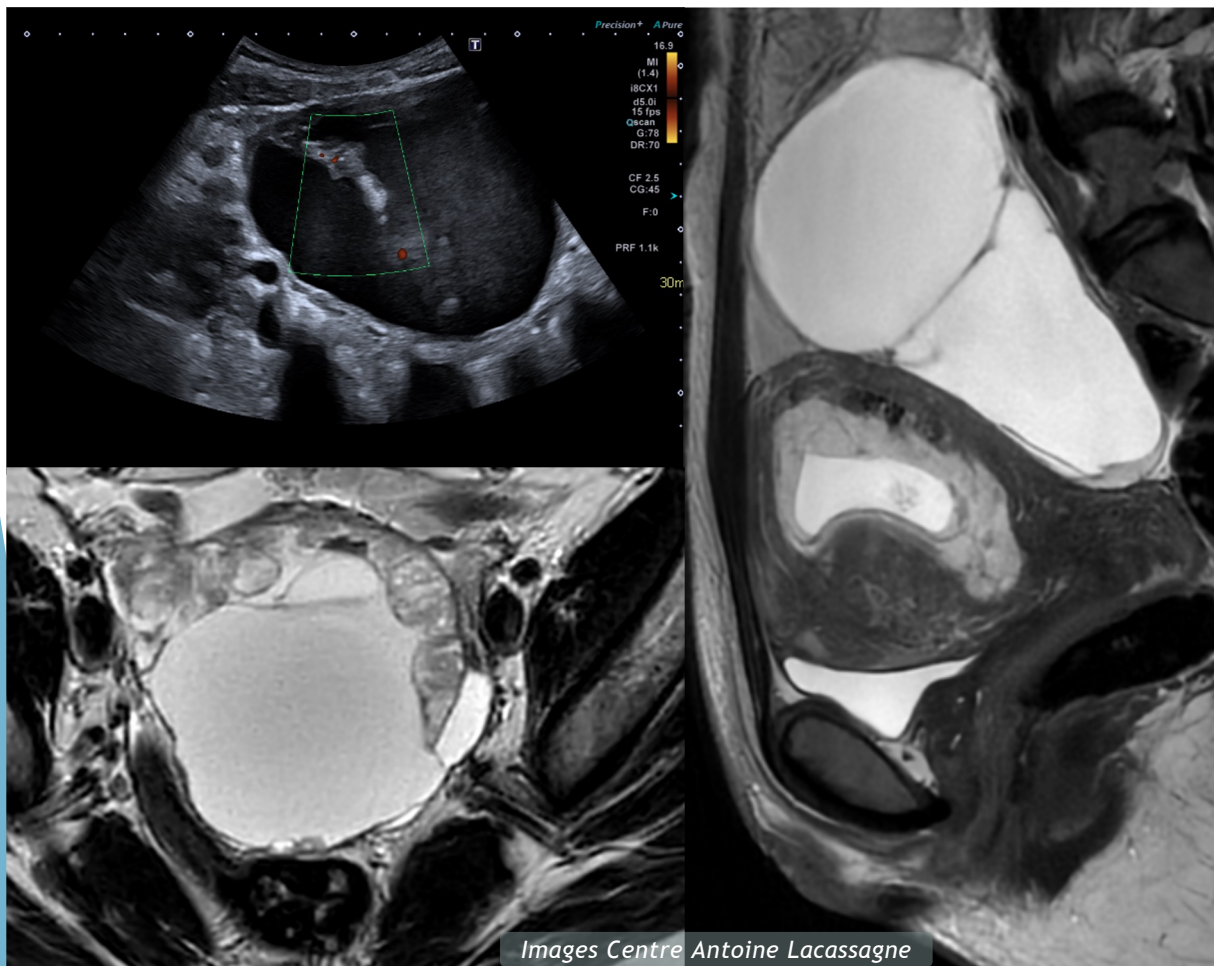
International multicenter validation of AI-driven ultrasound detection of ovarian cancer

Filip Christiansen ^{# 1 2 3 4}, Emir Konuk ^{# 3 4}, Adithya Raju Ganesan ^{1 3 4}, Robert Welch ^{1 3 4}, Joana Palés Huix ^{3 4}, Artur Czekierdowski ⁵, Francesco Paolo Giuseppe Leone ⁶, Lucia Anna Haak ^{7 8}, Robert Fruscio ^{9 10}, Adrius Gaurilckas ¹¹, Dorella Franchi ¹², Daniela Fischerova ¹³, Elisa Mor ¹⁴, Luca Savelli ¹⁵, Maria Àngela Pascual ¹⁶, Marek Jerzy Kudla ¹⁷, Stefano Guerriero ¹⁸, Francesca Buonomo ¹⁹, Karina Liuba ²⁰, Nina Montik ²¹, Juan Luis Alcázar ²², Ekaterini Domali ²³, Nelinda Catherine P Pangilinan ²⁴, Chiara Carella ⁶, Maria Munaretto ²⁵, Petra Saskova ¹³, Debora Verri ²⁶, Chiara Visenzi ¹⁴, Pawel Herman ^{3 27}, Kevin Smith ^{3 4}, Elisabeth Epstein ^{28 29}

Fig. 2. AI model ROC curve and human examiner performance.



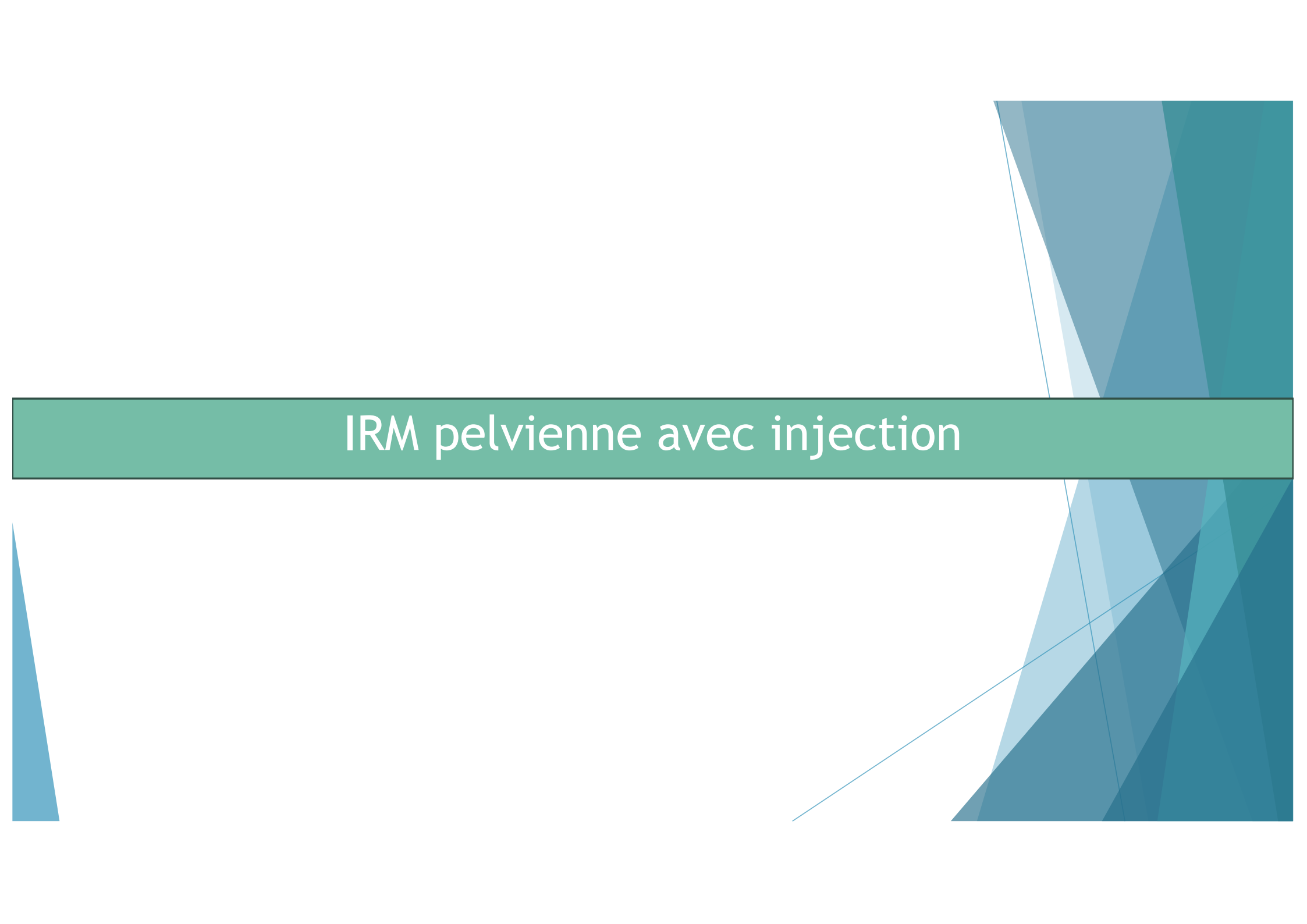
Masses annexielles : Comment raisonner ?



Echographie endovaginale

18 à 31%
indéterminées

IRM pelvienne avec injection
dynamique



IRM pelvienne avec injection



Qu'est-ce que j'explique à mes patientes ?

- ▶ Temps machine **30min** (possibilité de réaliser l'examen en **décubitus ventral** en cas de claustrophobie)
- ▶ L'IRM sera **injectée** avec du produit de contraste
- ▶ **Contention abdominale**
- ▶ **A jeun 6H**
- ▶ Injection de **Glucagen** pour diminuer le péristaltisme abdominal (prévoir de se resucrer)
- ▶ Expliquer l'intérêt d'avoir une **vessie vide** et une **ampoule rectale** vide (**microlavement** 3h avant l'examen à domicile, ex Microlax)

IRM PELVIENNE - ORADS MR

JAMA
The Journal of the American Medical Association

JAMA
Network | **Open**

2020



Original Investigation | Imaging

Ovarian-Adnexal Reporting Data System Magnetic Resonance Imaging (O-RADS MRI) Score for Risk Stratification of Sonographically Indeterminate Adnexal Masses

Isabelle Thomassin-Naggara, MD, PhD; Edouard Poncelet, MD; Aurelie Jalaguier-Coudray, MD; Adalgisa Guerra, MD; Laure S. Fournier, MD, PhD; Sanja Stojanovic, MD, PhD; Ingrid Millet, MD, PhD; Nishat Bharwani, FRCR; Valerie Juhan, MD; Teresa M. Cunha, MD; Gabriele Masselli, MD, PhD; Corinne Balleyguier, MD, PhD; Caroline Malhaire, MD; Nicolas F. Perrot, MD; Elizabeth A. Sadowski, MD; Marc Bazot, MD; Patrice Taourel, MD, PhD; Raphaël Porcher, PhD; Emile Darai, MD, PhD; Caroline Reinhold, MD, MSC; Andrea G. Rockall, MRCP, FRCR

L'étude en bref :

Prospectif multicentrique

Test de triage : réduire les chirurgies inutiles

3 radiologues lecteurs différents / 2 ans de recul

Se 0,93 et Sp 0,91

Score concernant des masses indéterminées à l'échographie

Stratification du risque de malignité

(Rapport de vraisemblance positif (LR+)

0,01 pour le ORADS 2 et 38,81 pour le ORADS 5)

Figure. Score Performance Among Senior and Junior Readers

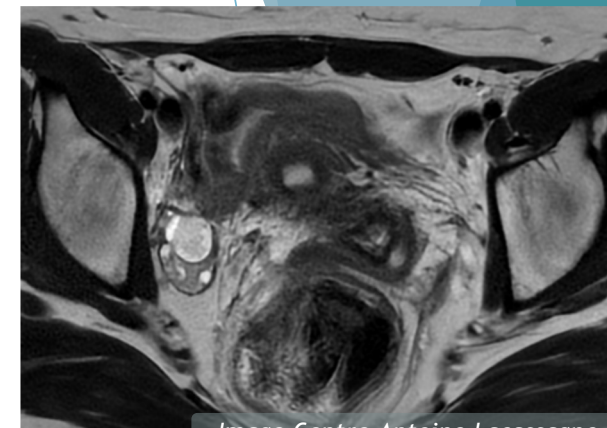
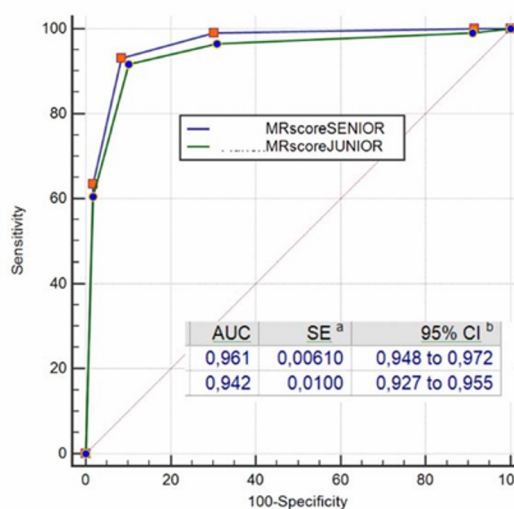


Image Centre Antoine Lacassagne



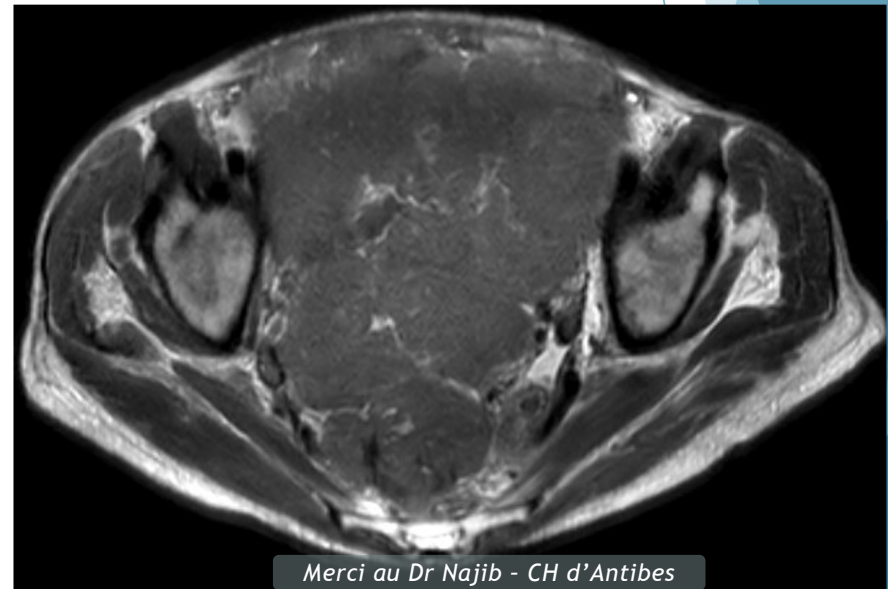
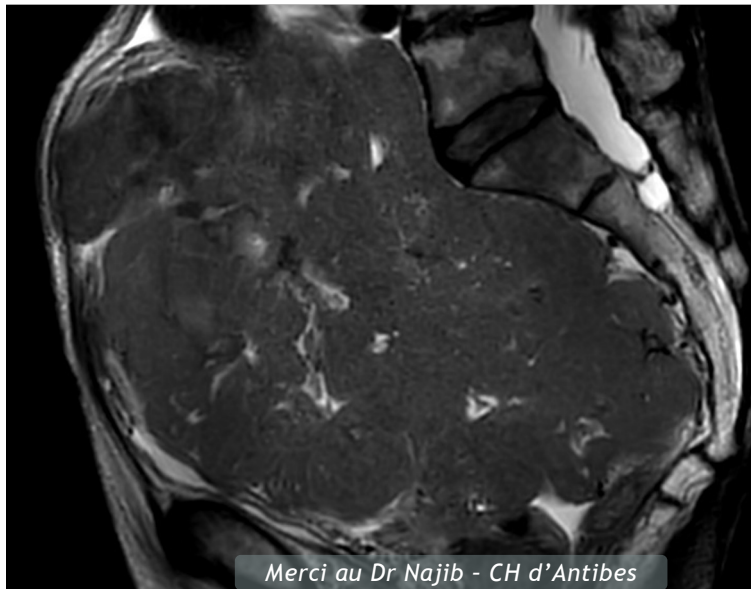
Image Centre Antoine Lacassagne

IRM PELVIENNE - ORADS MR

Comment je lis une IRM pelvienne ?

0. **Origine ovarienne ou non**

1. Séquence T2 : kystique/composant solide tissulaire ou non et caractérisation du signal T2 (bas, intermédiaire, hyper) par rapport au myomètre
2. Séquence T1 : gras / sang
3. Séquence DWI avec l'ADC
4. Courbe de perfusion par rapport au myomètre : 1, 2 ou 3



Comment je

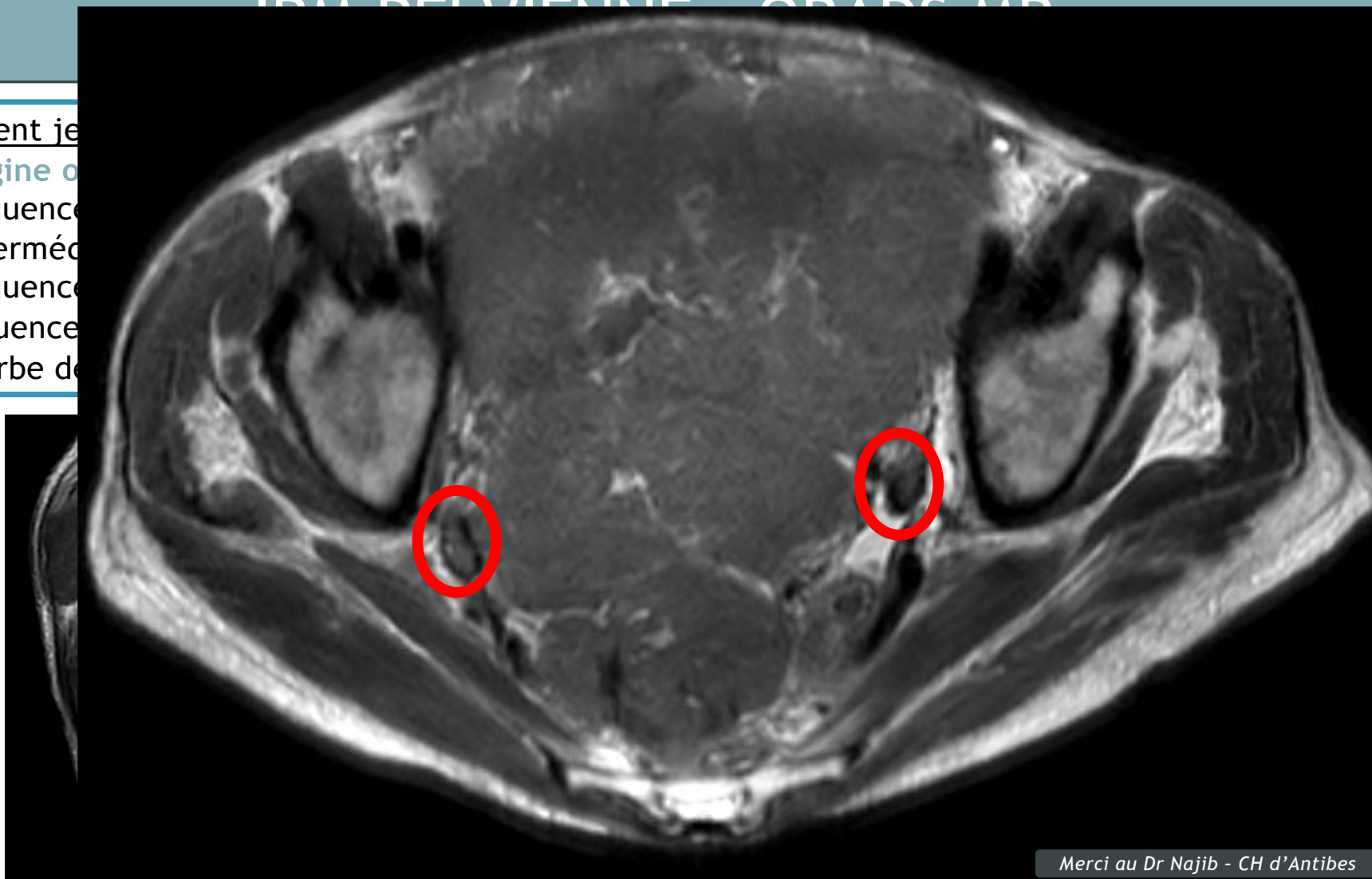
0. **Origine o**

1. Séquence
intermédi

2. Séquence

3. Séquence

4. Courbe de



Merci au Dr Najib - CH d'Antibes

IRM PELVIENNE - ORADS MR

Comment je lis une IRM pelvienne ?

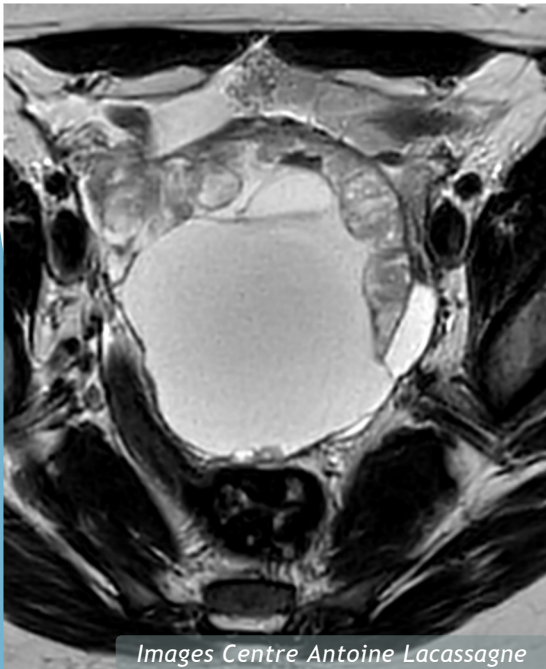
0. Origine ovarienne ou non

1. Séquence T2 : kystique/composant solide tissulaire ou non et caractérisation du signal T2 (hypo/intermédiaire, hyper) par rapport au myomètre

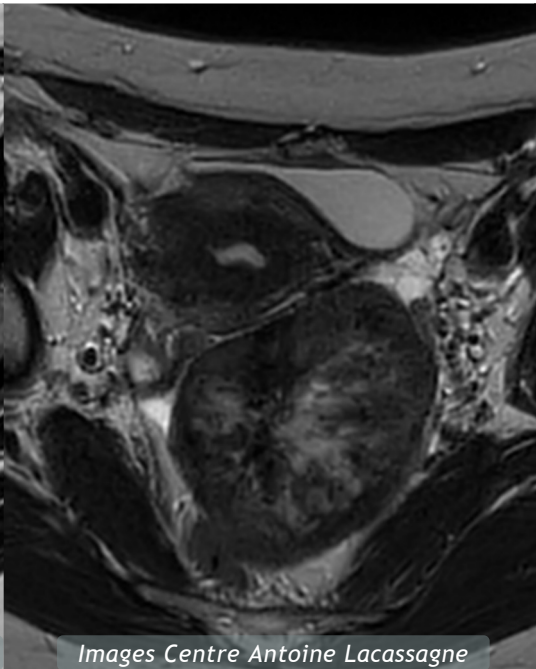
2. Séquence T1 : gras / sang

3. Séquence DWI avec l'ADC

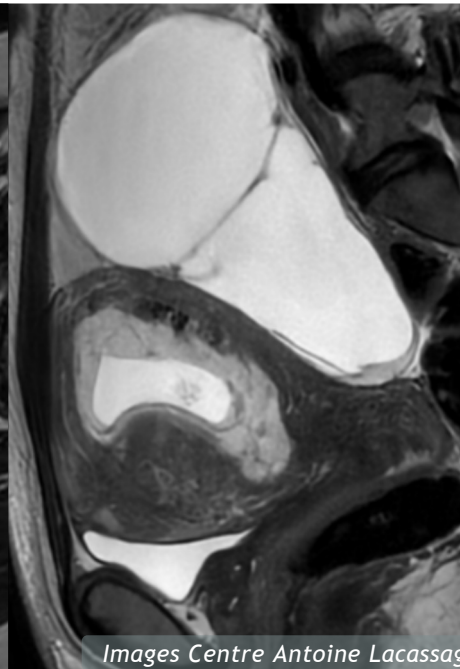
4. Courbe de perfusion par rapport au myomètre : 1, 2 ou 3



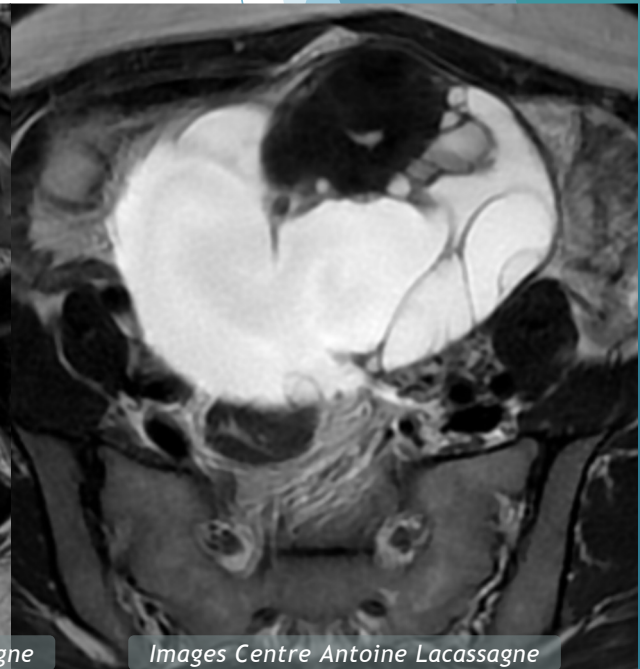
Images Centre Antoine Lacassagne



Images Centre Antoine Lacassagne



Images Centre Antoine Lacassagne



Images Centre Antoine Lacassagne

IRM PELVIENNE - ORADS MR

Comment je lis une IRM pelvienne ?

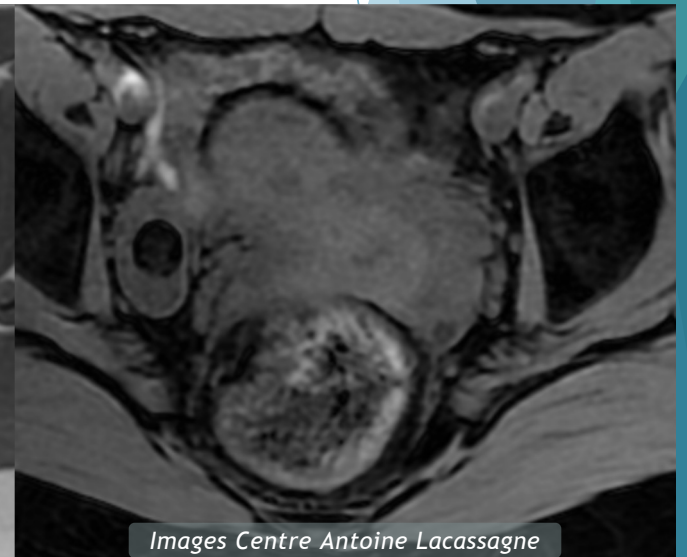
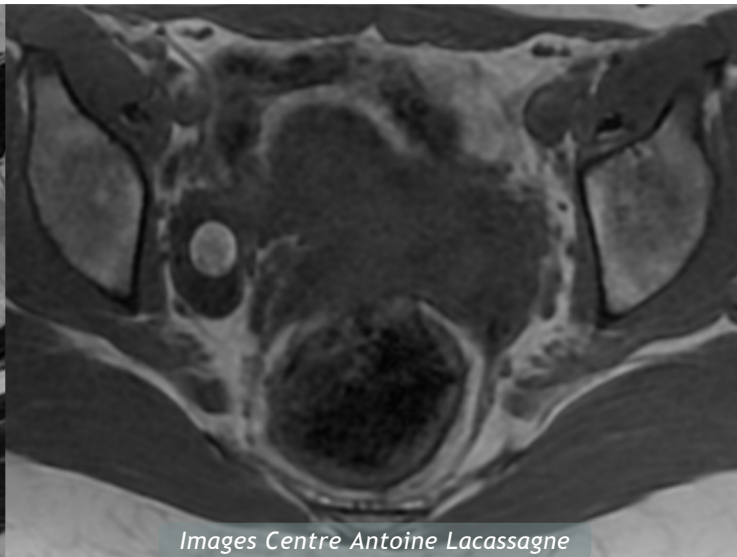
0. Origine ovarienne ou non

1. Séquence T2 : kystique/composant solide tissulaire ou non et caractérisation du signal T2 (bas, intermédiaire, hyper) par rapport au myomètre

2. Séquence T1 : gras / sang/colloïde

3. Séquence DWI avec l'ADC

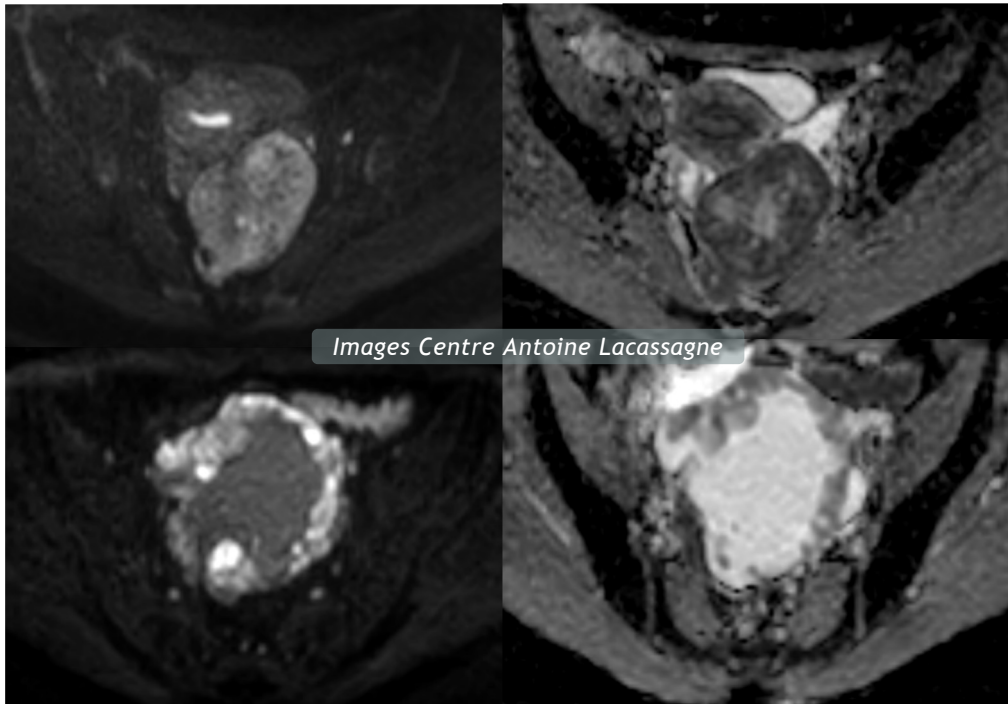
4. Courbe de perfusion par rapport au myomètre : 1, 2 ou 3



IRM PELVIENNE - ORADS MR

Comment je lis une IRM pelvienne ?

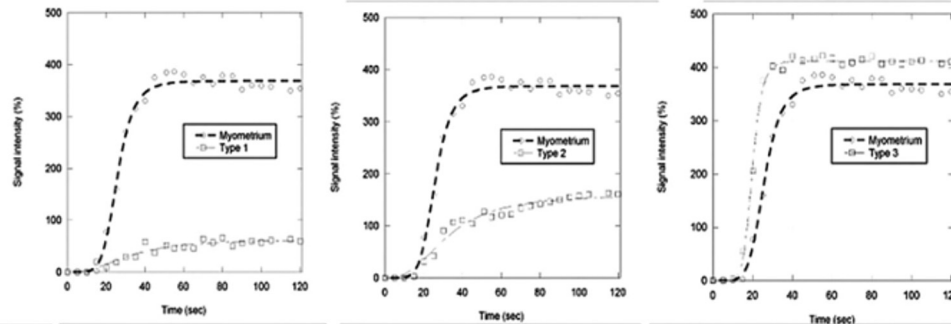
0. Origine ovarienne ou non
1. Séquence T2 : kystique/composant solide tissulaire ou non et caractérisation du signal T2 (bas, intermédiaire, hyper) par rapport au myomètre
2. Séquence T1 : gras / sang
3. Séquence DWI avec l'ADC
4. Courbe de perfusion par rapport au myomètre : 1, 2 ou 3



IRM PELVIENNE - ORADS MR

Comment je lis une IRM pelvienne ?

0. Origine ovarienne ou non
1. Séquence T2 : kystique/composant solide tissulaire ou non et caractérisation du signal T2 (bas, intermédiaire, hyper) par rapport au myomètre
2. Séquence T1 : gras / sang
3. Séquence DWI avec l'ADC
4. Courbe de perfusion par rapport au myomètre : 1, 2 ou 3



DCE MR

Type 1

Type 2

Type 3

Sensibilité	70 %	62.5%	66%
Spécificité	90.3%	87%	100%

Un ROI dans le myomètre
Un ROI dans le HOT SPOT de la tumeur
Pré-décalage = courbe de type 3

IRM PELVIENNE - ORADS MR

Comment je lis une IRM pelvienne ?

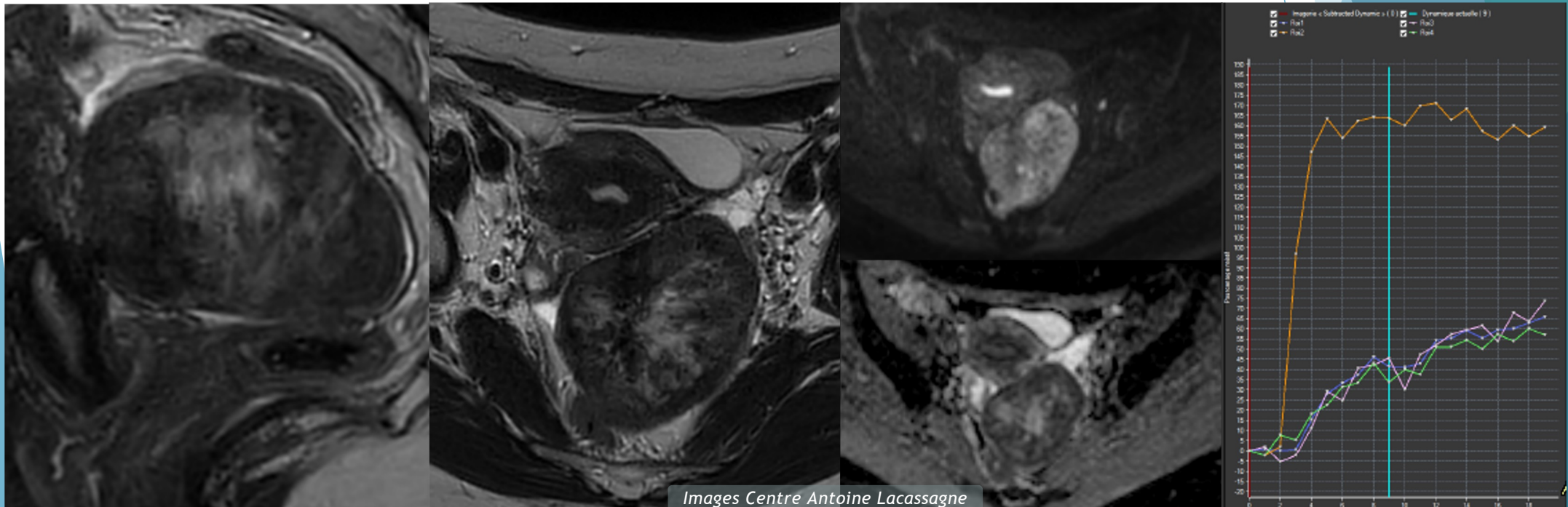
0. Origine ovarienne ou non

1. Séquence T2 : kystique/composant solide tissulaire ou non et caractérisation du signal T2 (bas, intermédiaire, hyper) par rapport au myomètre

2. Séquence T1 : gras / sang

3. Séquence DWI avec l'ADC

4. Courbe de perfusion par rapport au myomètre : 1, 2 ou 3



IRM PELVIENNE - LES ETUDES QU'ON ATTEND

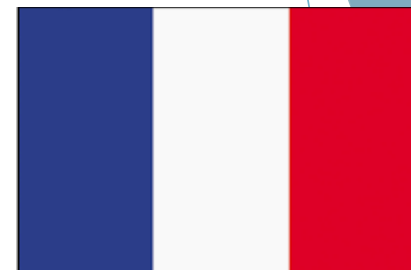


Etude ASCORDIA01 : étude diagnostique randomisée visant à établir l'impact d'un score en imagerie par résonance magnétique (IRM) sur la prise en charge thérapeutique des patientes ayant des masses annexielles.

Etude **diagnostique prospective multicentrique Randomisée** en simple aveugle :

- ❑ **Bras A** : ORADS 3 = surveillance
- ❑ **Bras B** : protocole habituel de prise en charge
- Chirurgie dans **les 2 premiers mois** OU si **augmentation de taille/modification** lésionnelle lors du suivi à 6-12 mois
- Revues à 2 ans avec des données cliniques et d'imagerie (inclusion 2016-2019)

- ❑ **Comparer le taux de chirurgie inappropriée avec l'ADNEXMR score à celui observé avec la conduite clinique de routine.**
- ❑ % de patientes avec **complications** liées à la chirurgie ou à l'anesthésie.
- ❑ % de patientes dont le **diagnostic de cancer de l'ovaire a été manqué** sur le bilan initial.



13% de diminution des interventions chirurgicales



**Hôpital
Tenon
AP-HP**

IRM PELVIENNE - LES ETUDES QU'ON ATTEND



MROC: MR in Ovarian Cancer

Etude **diagnostique multicentrique prospective observationnelle**

Recrutement du 14 mars 2016 au 31 mai 2020

645 femmes recrutées qui passeront TDM + IRM, puis élaboration de plan thérapeutique en fonction du TDM seule, de l'IRM seule et des 2 entités conjointes

- ❑ Evaluer l'impact de l'IRM en l'incluant dans le bilan **pré-thérapeutique** d'un cancer de l'ovaire suspecté
- ❑ Résultats : **IRM aurait permis d'éviter 9% de chirurgie inappropriée**

Ex : 70 ans carcinome au TDM +++ mais IRM ORADS 3 : fibrothécome avec syndrome de Demons-Meigs

MAIS : pas de laparo explo possible dans leur protocole anglais : autant d'impact chez nous ?



TAKE HOME MESSAGE

- ▶ Ne jamais se priver de l'échographie pelvienne avant de caractériser une masse pelvienne (et du Doppler !)
- ▶ Score ORADS US
- ▶ Score ORADS MR
- ▶ Guetter les 2 études prometteuses en cours de publication afin de réduire le nombre de chirurgies évitables

MERCI !

Contact **Service de Radiologie Centre Antoine Lacassagne** :

→ rdv-irmechogenerale@nice.unicancer.fr

→ rdv-radiodiag@nice.unicancer.fr