HYSTEROSCOPIE OPERATOIRE
Y a-t-il encore une place pour la chirurgie en Infertilité

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La chirurgie endo-utérine

L' hystéroscopie opératoire

Fibromes sous muqueux

Endométrectomie superficielle

Malformations, synéchies, adénomyose kystique

Polypes endométriaux

Prise en charge ambulatoire adaptée

Intervention	N	Taux de complications opératoires (%)
Endométrectomie	494	**4,4**
Myomectomie	798	**0,8**
Polypectomie	784	**0,4**
Cure de synéchie	134	**4,5**

[Overton C., Maresh MJA, Baillière Clin Obstet Gynaecol 1995; Jansen et al, Obstet Gynecol 2000; Perino et al, Fertil Steril 2004]

La patiente jeune:
Une nouvelle définition

C'est une femme qui quelque soit l'âge. . .même en préménopause

- Souhaite garder ses possibilité de procréation
- C'est, pour les médecins, la nouvelle question clé avant tout traitement des fibromes

Saignement uterin anormal

PALM-COEIN Classification for Causes of Abnormal Bleeding

FIGO - Working group on menstrual disorders

The classification system is stratified into nine basic categories that are arranged according to the acronym PALM-COEIN

Polyp	X
Adenomyosis	
Leiomyoma	
Malignancy & hyperplasia	

Submucosal
Other

Coagulopathy
Ovulatory dysfunction
Endometrial
Iatrogenic
Not yet classified

PBAC SCORE: Definition to define menstrual bleeding

-Objective evaluation of menstrual bleedings-

First day of menstruation: I__I__I/I__I__I/I__I__I__I__I. Please fill in the number of hygienic material you have used for each day of your menstruation period.
D D M M Y Y Y Y

Towels	Type	Score in mL	D1	D2	D3	D4	D5	D6	D7	D8
	Day time	1								
	Night time	1								
	Day time	2								
	Night time	3								
	Day time	3								
	Night time	6								
	Day time	4								
	Night time	10								
	Day time	5								
	Night time	15								

Tampons	Type	Score in mL	D1	D2	D3	D4	D5	D6	D7	D8
	Regular	0.5								
	Super	1.0								
	Regular	1.0								
	Super	1.5								
	Regular	1.5								
	Super	3.0								
	Regular	4.0								
	Super	8.0								

Toilets	Score in mL	D1	D2	D3	D4	D5	D6	D7	D8
	1								
	3								
	5								

Clots	Score in mL	D1	D2	D3	D4	D5	D6	D7	D8
	1								
	3								
	5								

Date of control: I__I__I/I__I__I/I__I__I__I__I

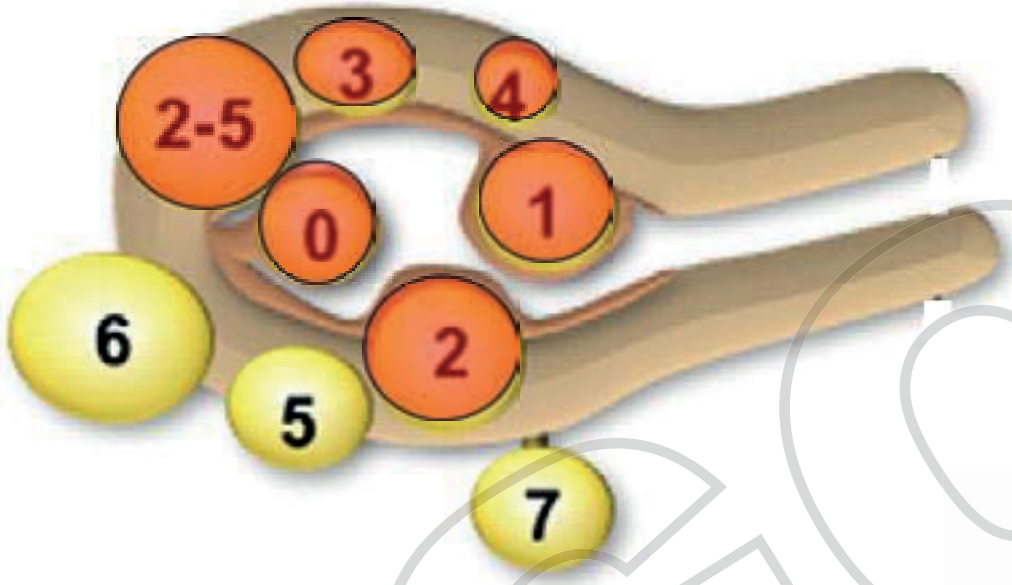
Score : I__I__I__I.I__I mL

Investigator's signature: _____

Fibromes utérins

-les traitements hystéroscopiques-

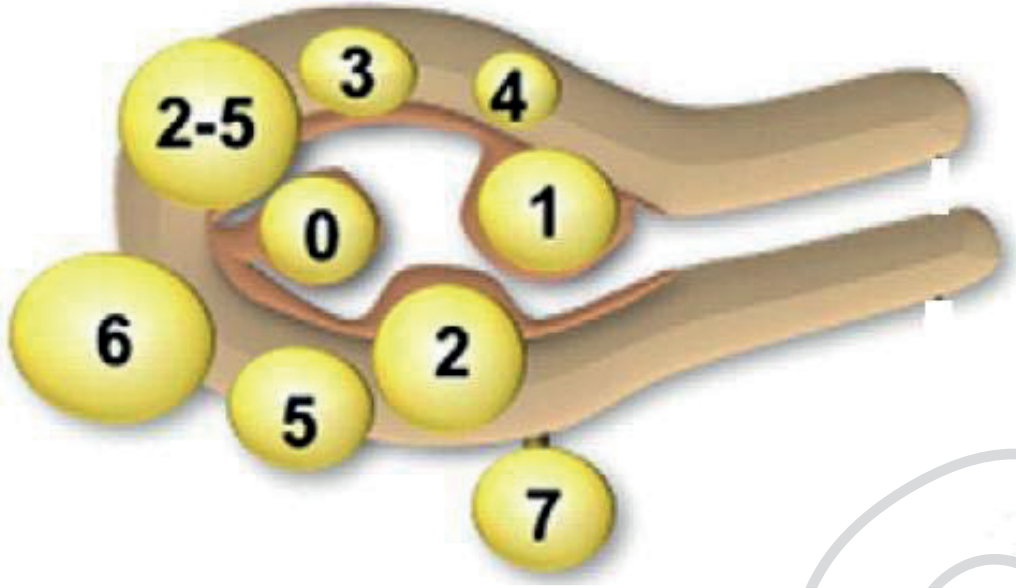
FIBROMES



NEW CLASSIFICATION: FIGO 2011
-Image from Bicêtre TEAM-

- Fibrome 0, 1, 2, 3, 4 & 5 sont causes de ménométrorragies
- Fibromes 5,6, & 7 sont causes de nécrobiose ou de compression des organes de voisinnage

* Based on the FIGO Classification for fibroids 2011 (Munro et al)



Fibromes sous-muqueux

0-1-2

FIBROMES SOUS-MUQUEUX (0,1,2)

- Ils sont (le plus souvent) symptomatiques
- Impact négatif sur fertilité (spontanée ou PMA) NP2 *RPC CNGOF 2011*

- Traitement médical illogique car la Résection Hystéroscopique est efficace sur:
  - la cause
  - les symptômes
  - la fertilité (spontanée et PMA)
- Intervention chirurgicale sous AG
  ou ALR en ambulatoire

Risques:
- Liquide d'irrigation (préférer Physio > glycocolle), courant bipolaire
- Perforation: liseré de sécurité > 5 mm
- Synéchie: utilisation de produit anti-adhérentiel (*Acunzo Human Reprod 2003, Guida Human Reprod 2004, Tsapanos J Biomed Mater Res 2001)* + HSC diag à distance

NOUVELLE TECHNIQUE DE MYOMECTOMIE

Morcellation

Myome type 3
Hystéroscopie, laparoscopie ou laparotomie ?

Y a-t-il un intérêt pour le chirurgien à prescrire Esmya en préopératoire ?

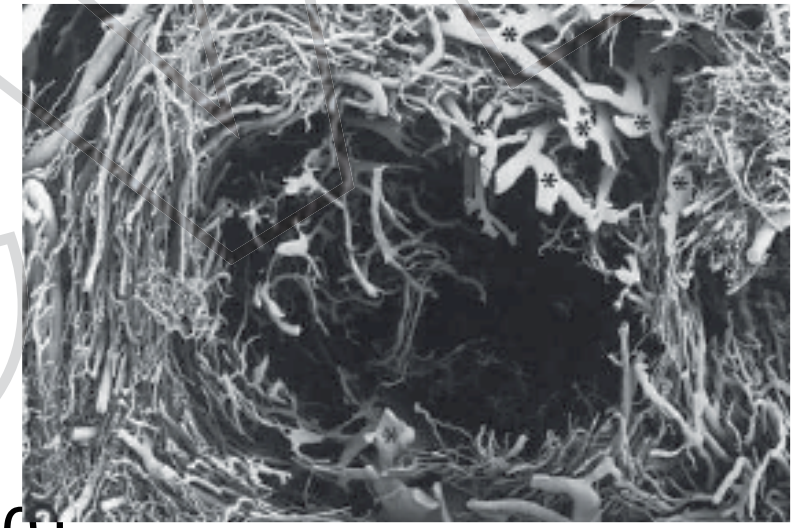
Myomectomie et plan de clivage

-Analogues

-Lethaby & al. Cochrane Database, 2001

-Chen I & al., JMIG 2011

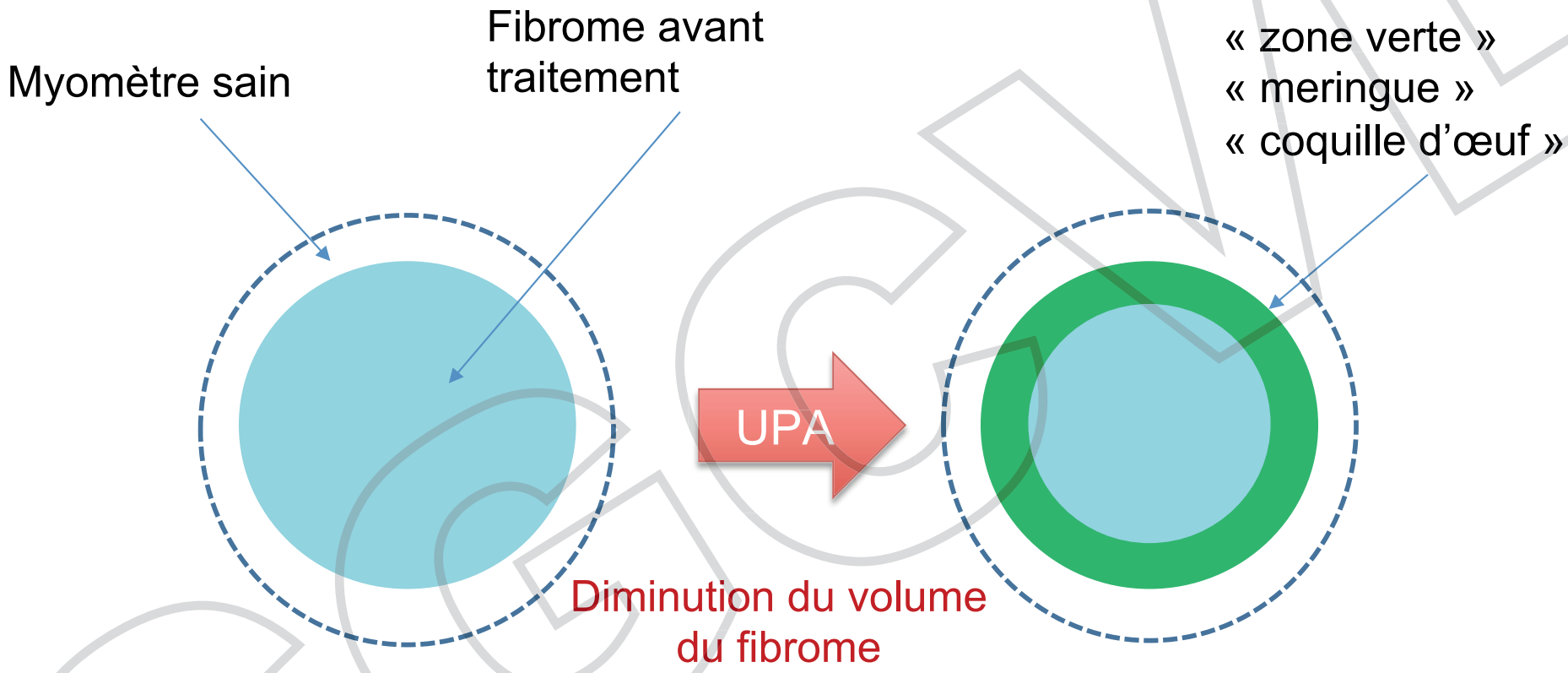
-Après Esmya ?



Capsule vasculaire périfibromateuse

Valocha et al.Human Reprod. 2003

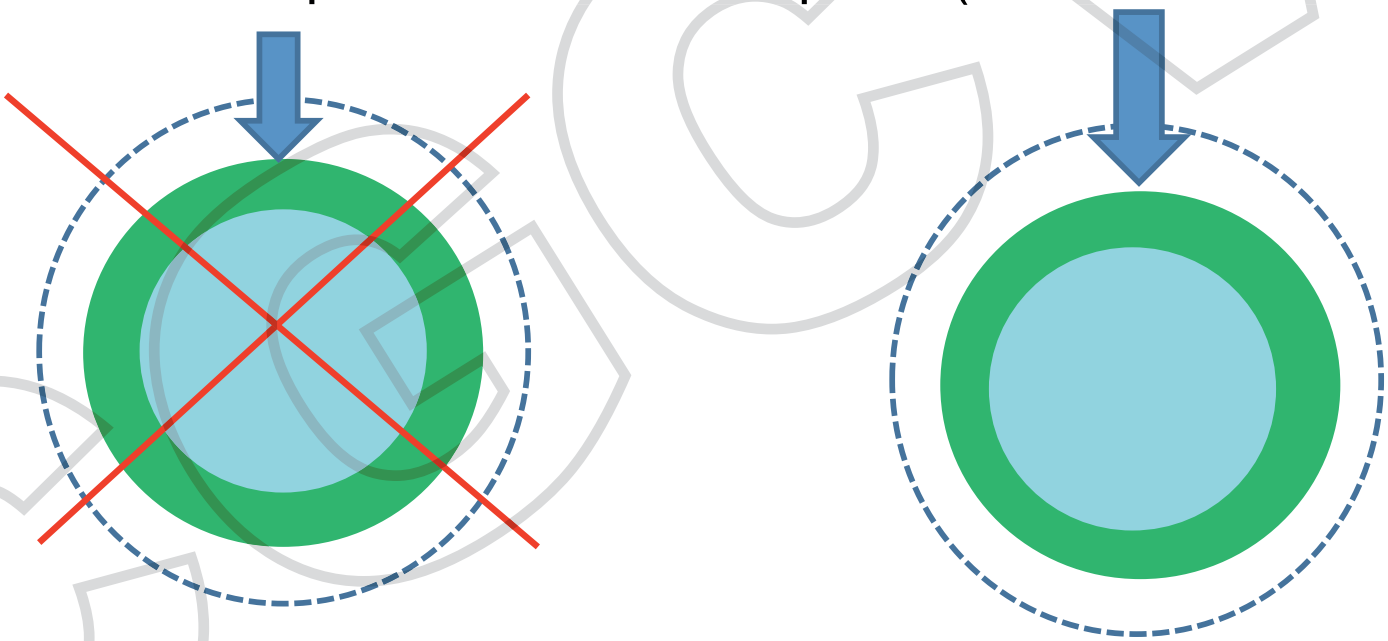
Modifications de l'aspect macroscopique de la zone périfibromateuse après traitement par Esmya®



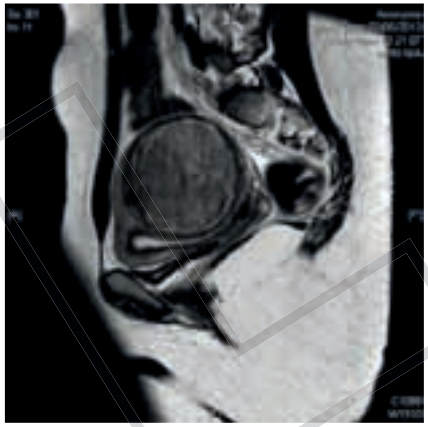
- Induction de l'apoptose
  - Destruction du tissu myomateux
  - Remplacement par un tissu de nature encore à préciser
  - Ce tissu saigne quand on dissèque

Chirurgie après traitement par Esmya®

- Bilan préopératoire après traitement avec iconographie des myomes (nombre, taille, localisation possiblement modifiés)
- Adaptation de la technique opératoire
  - Le fibrome ne va pas « monter tout seul » lors de la myomectomie
  - Dissection en profondeur de la capsule (et non latéralement)



consistance



Modifications secondaires

- Apoptose, cycle cellulaire
- Récepteurs spécifiques

Courtoy GE et al. Fertil Steril. 2015

Traction plus douce de proche en proche

RESECTION SUPERFICIELLE D'ENDOMETRE POUR HYPERTROPHIE
chez des femmes en âge de procréer
SOPK

EVALUATION D'UNE NOUVELLE PRISE EN CHARGE.

- Sous anesthésie générale ou locorégionale
- Hystéroscopie opératoire
  - Distension: Glycocolle ou sérum physiologique
  - Courant: mono ou bipolaire
  -

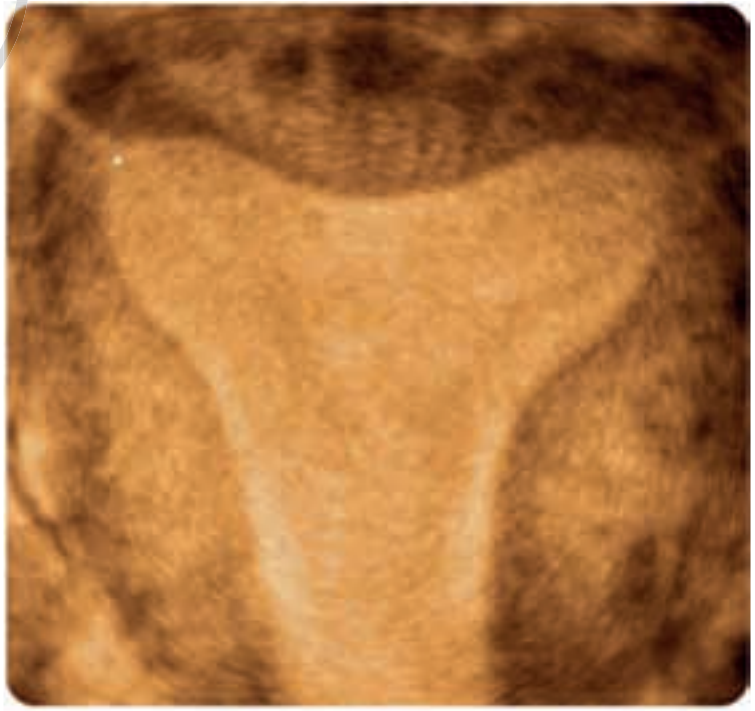
Evaluation

- Effets sur les troubles menstruels
- Impact sur la fertilité

RESULTATS (n=45)

-60% de grossesses spontanées

MALFORMATIONS UTERINES



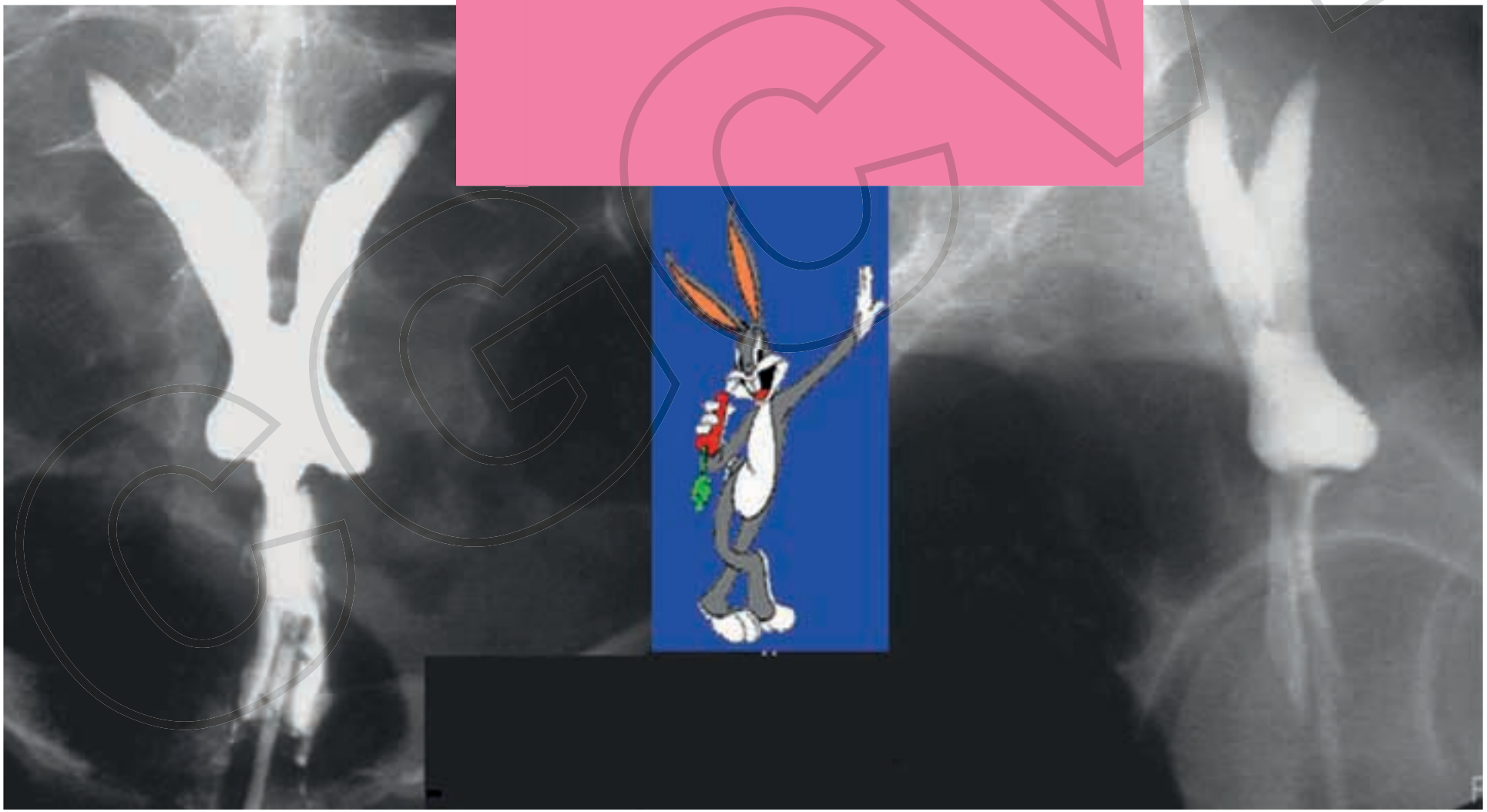
HSG
UTERUS CLOISONNÉ?

HSG
BICORNE?

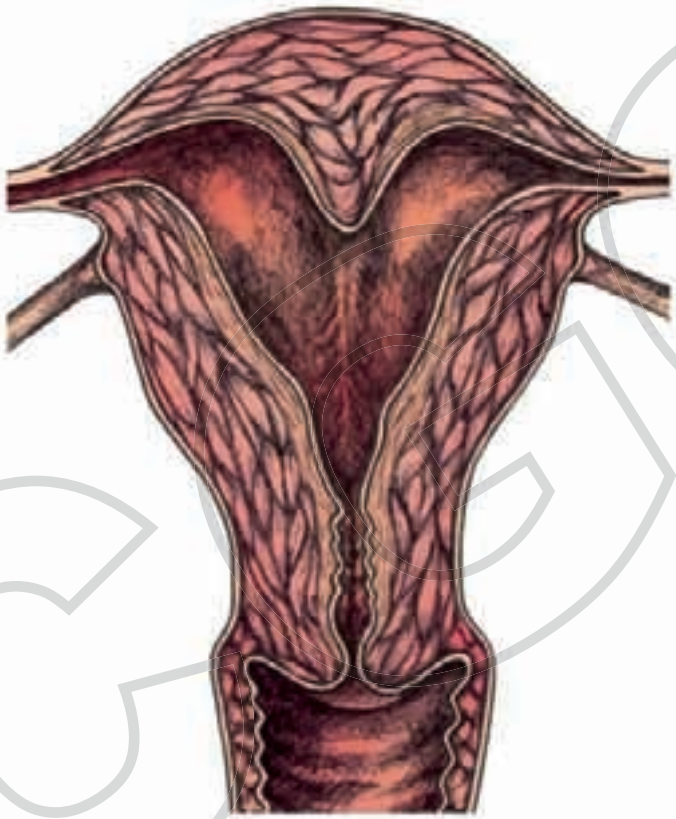
CLOISON..??

OU

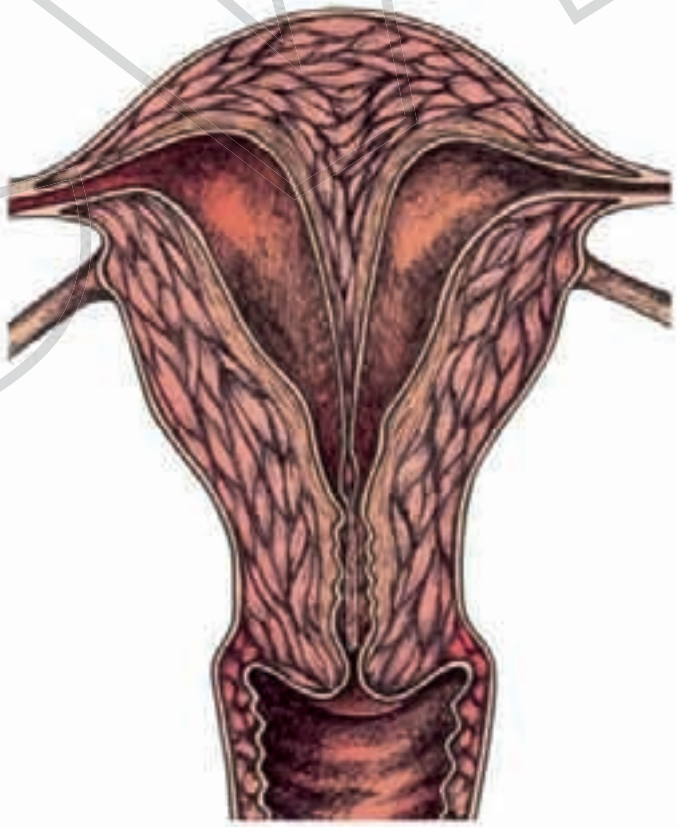
BICORNE..?



Classe U2 / Uterus séparé



a - séparation partielle



b - séparation complète

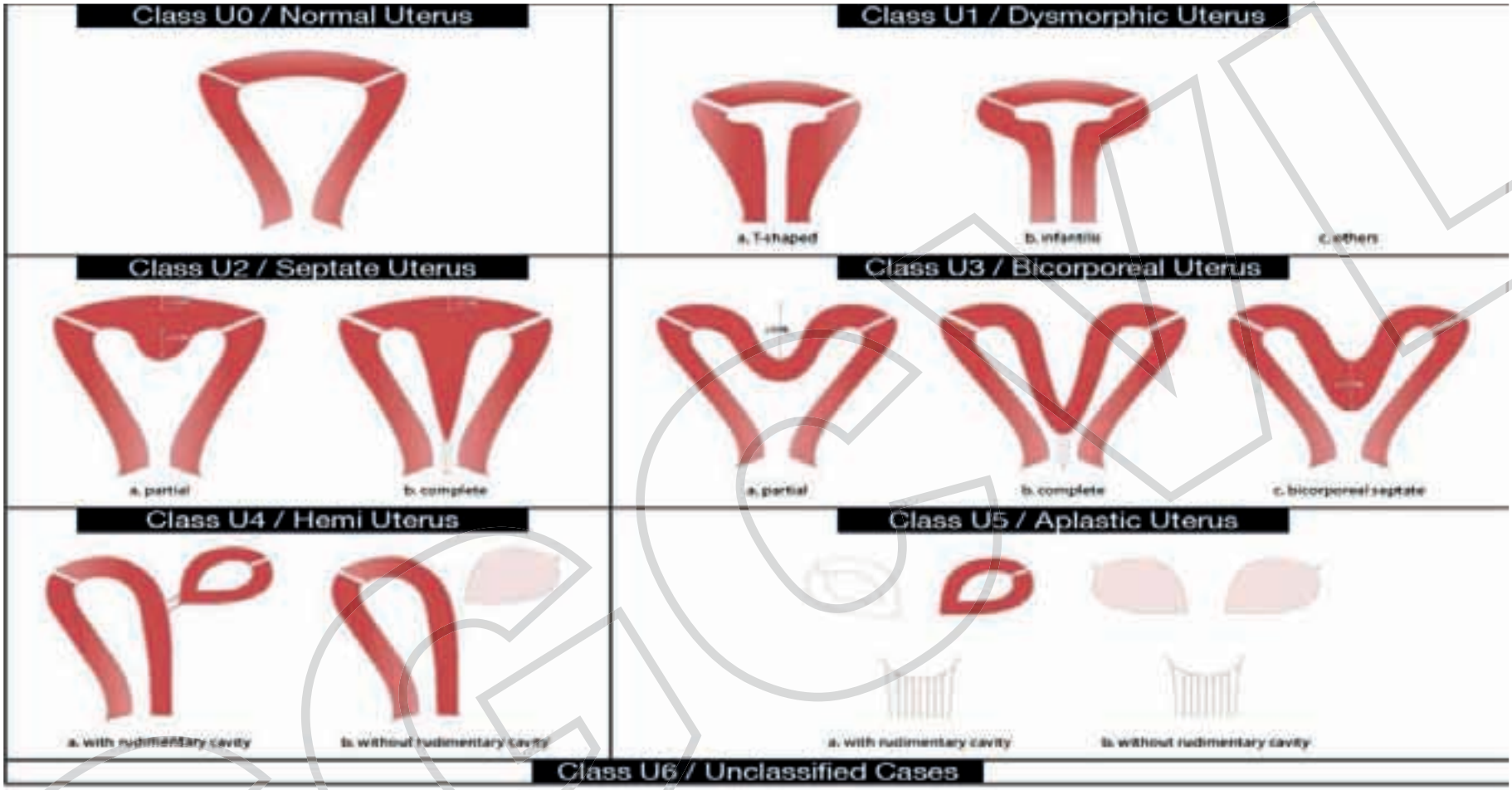
Description of the individual malformation relative to the organ
V C U A M Classification System

Vagina (V)	0	Normal
	1a	Partial hymenal atresia
	1b	Complete hymenal atresia
	2a	Incomplete septate vagina <50%
	2b	Complete septate vagina
	3	Stenosis of the introitus
	4	Hypoplasia
	5a	Unilateral atresia
	5b	Complete atresia
	S1	Sinus urogenitalis (deep confluence)
	S2	Sinus urogenitalis (middle confluence)
	S3	Sinus urogenitalis (high confluence)
	C	Cloacae
	+	Other
	#	Unknown

Cervix (C)	0	Normal
	1	Duplex cervix
	2a	Unilateral atresia/aplasia
	2b	Bilateral atresia/aplasia
	+	Other
	#	Unknown
Uterus (U)	0	Normal
	1a	Arcuate
	1b	Septate <50% of the uterine cavity
	1c	Septate >50% of the uterine cavity
	2	Bicornate
	3	Hypoplastic uterus
	4a	Unilaterally rudimentary or aplastic
	4b	Bilaterally rudimentary or aplastic
	+	Other
	#	Unknown

Adnexa (A)	0	Normal
	1a	Unilateral tubal malformation, ovaries normal
	1b	Bilateral tubal malformation, ovaries normal
	2a	Unilateral hypoplasia/gonadal streak (including tubal malformation if appropriate)
	2b	Bilateral hypoplasia/gonadal streak (including tubal malformation if appropriate)
	3a	Unilateral aplasia
	3b	Bilateral aplasia
	+	Other
	#	Unknown
Associated malformation (M)	0	None
	R	Renal system
	S	Skeleton
	C	Cardiac
	N	Neurologic
	+	Other
	#	Unknown

Oppelt et al, Fertil Steril, 84: 1493-1497, 2005

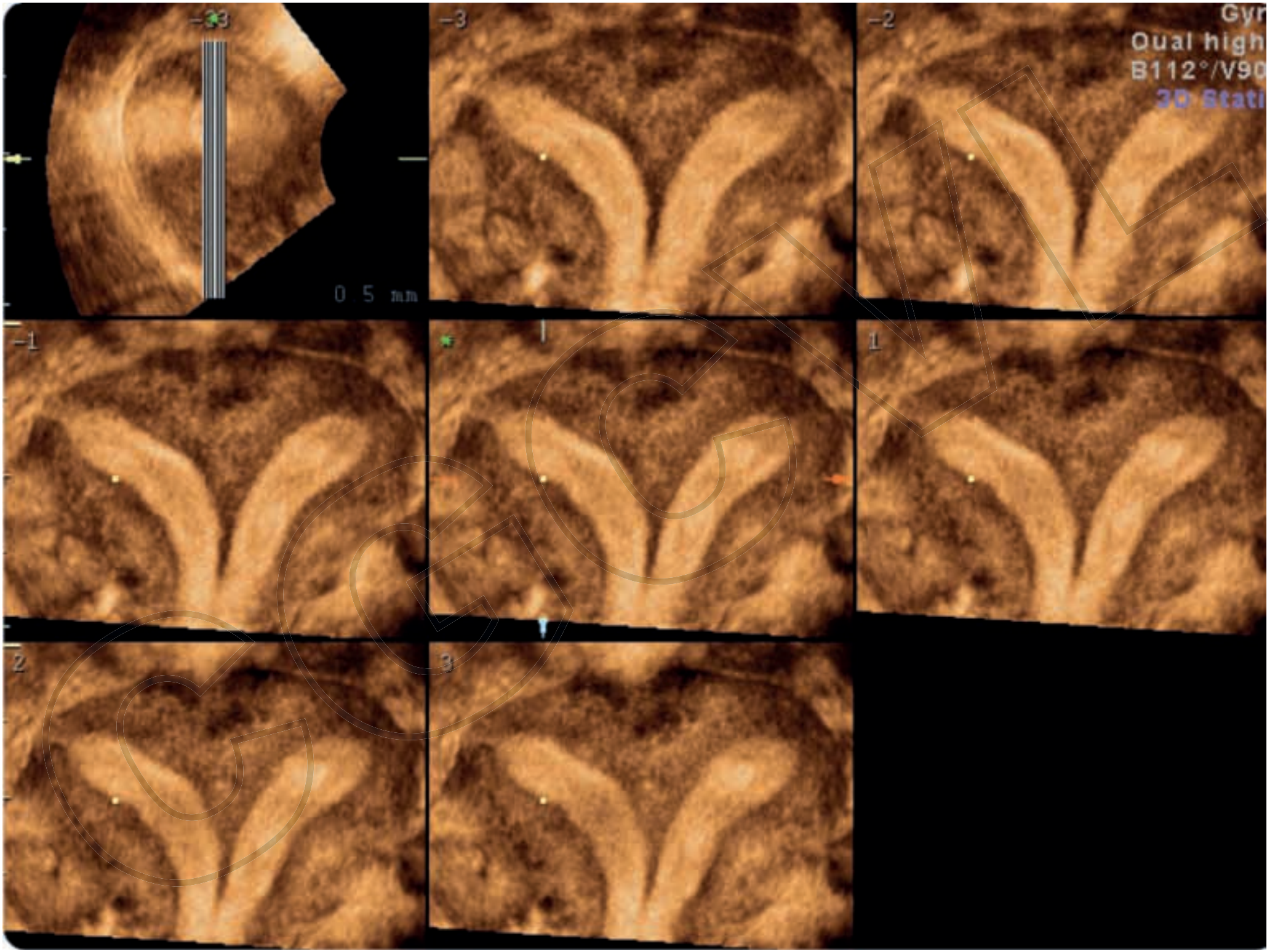


ESHRE/ESGE classification of uterine anomalies: schematic representation

Class U2: internal indentation >50% of the uterine wall thickness & external contour straight or with indentation <50%

Class U3: external indentation >50% ot the uterine wall thickness

Class U3b: width of the fundal indentation at the midline >150% of the uterine wall thickness


-3
0.5 mm
-3
-2
Gyr
Qual high
B112°/V90
3D Stati
-1
1
1
2
3

Utérus cloisonné 55% > Utérus bicorne Unicervical 10% > Utérus bicorne Bicervical 5%

- **L'utérus cloisonné est la plus fréquente des malformations d'origine müllériennes (55%)**

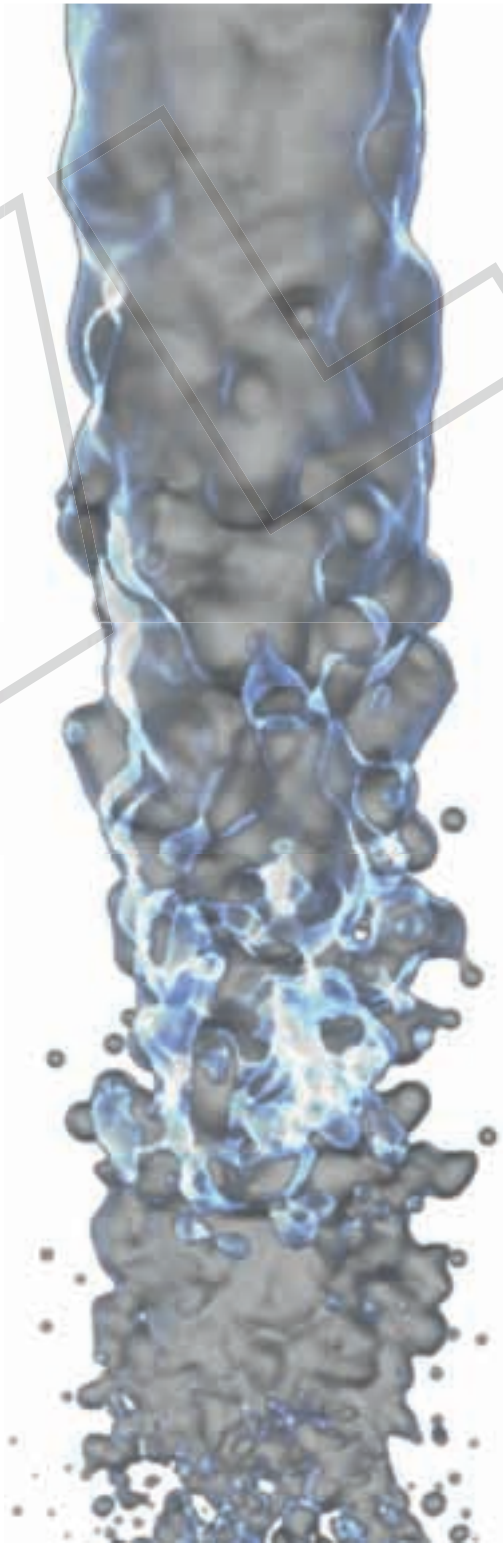
- **L'utérus bicorne unicervical est bien moins fréquent (10%)**
- **L'utérus bicorne bicervical est beaucoup plus rare (5%)**

- Pour poser le diagnostic d' 1 utérus bicorne

Il faut donc avoir décrit au moins

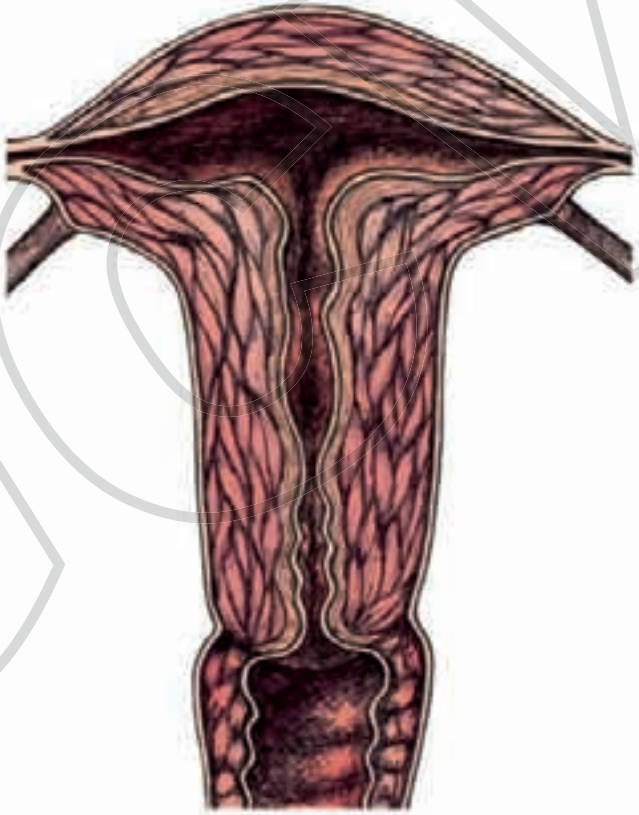
5 utérus cloisonnés !

Uterus DSB type VII



Classe U1 / Uterus dysmorphique

a - Forme en **T**

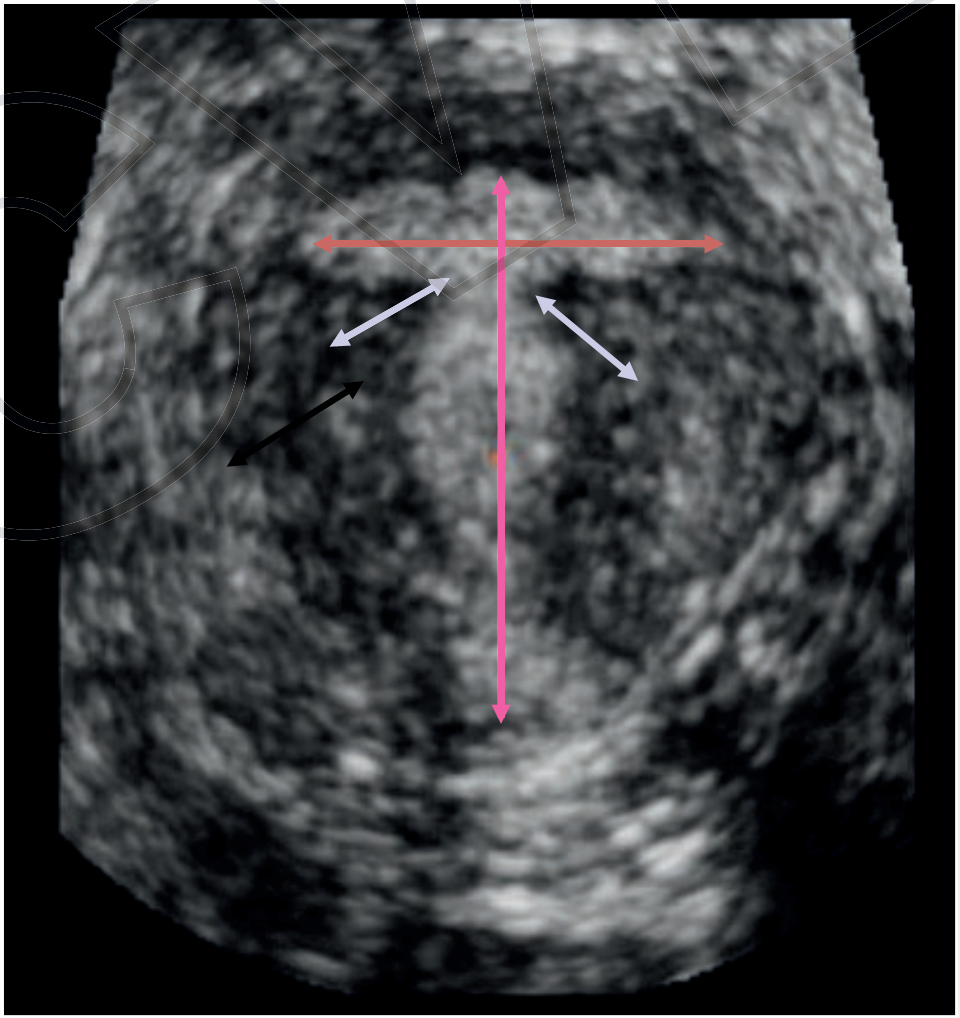


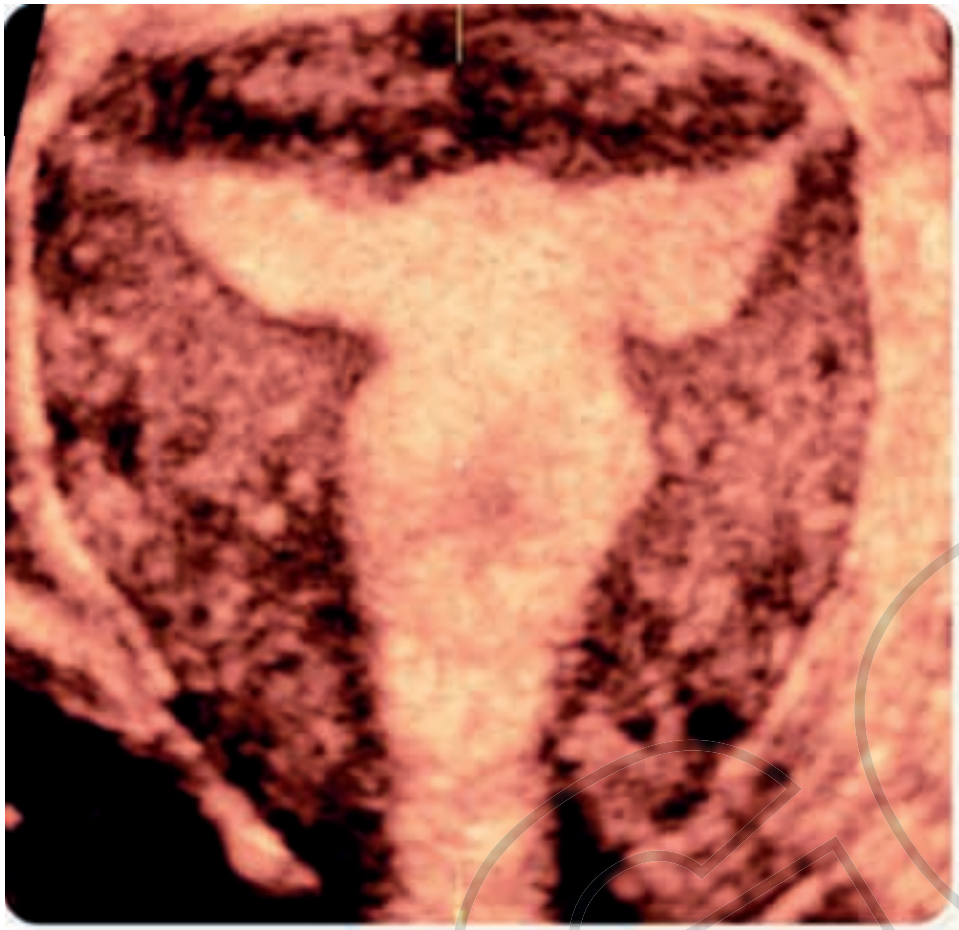
b - Forme infantile

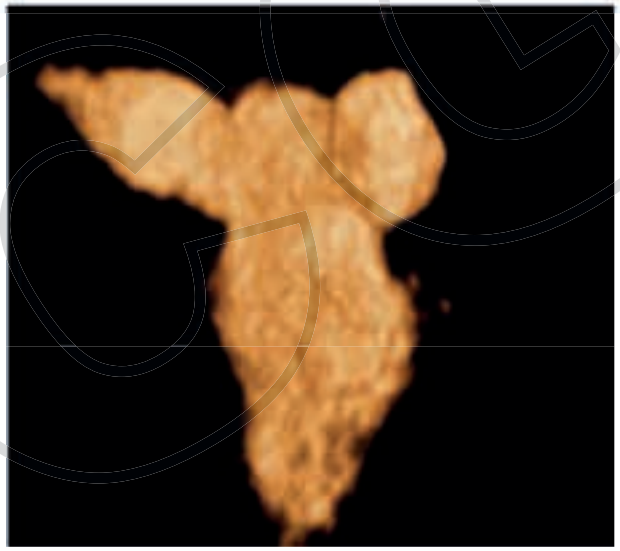
c - Autres

Essential preoperative measurements

- Distance between ostia
- Length of the uterine cavity
- Possible section in the width
- Distance of security

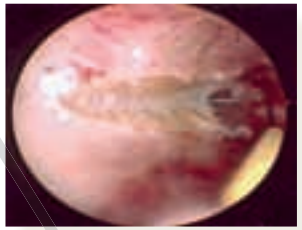






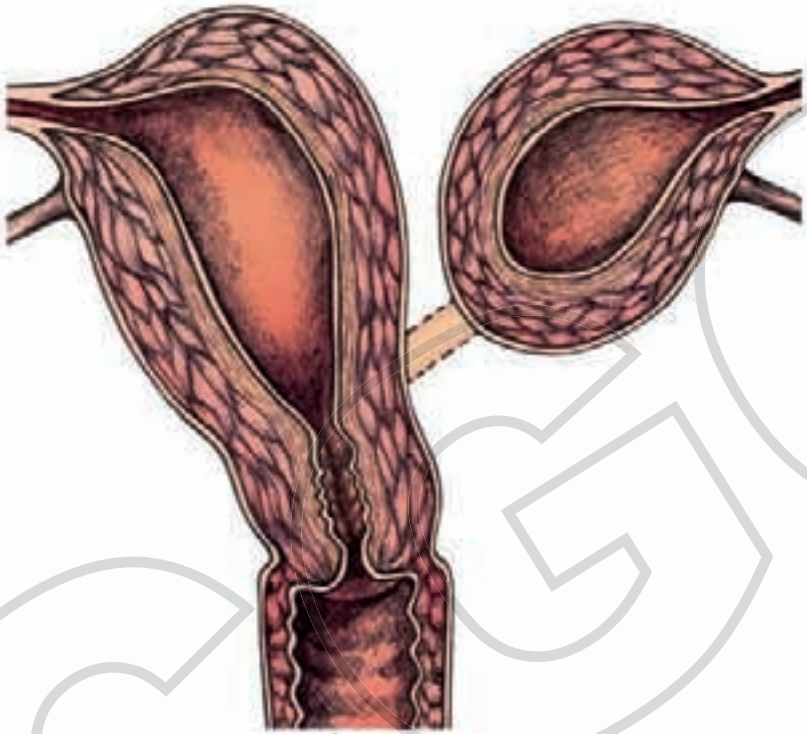
DES Uterus

Reproductive performance

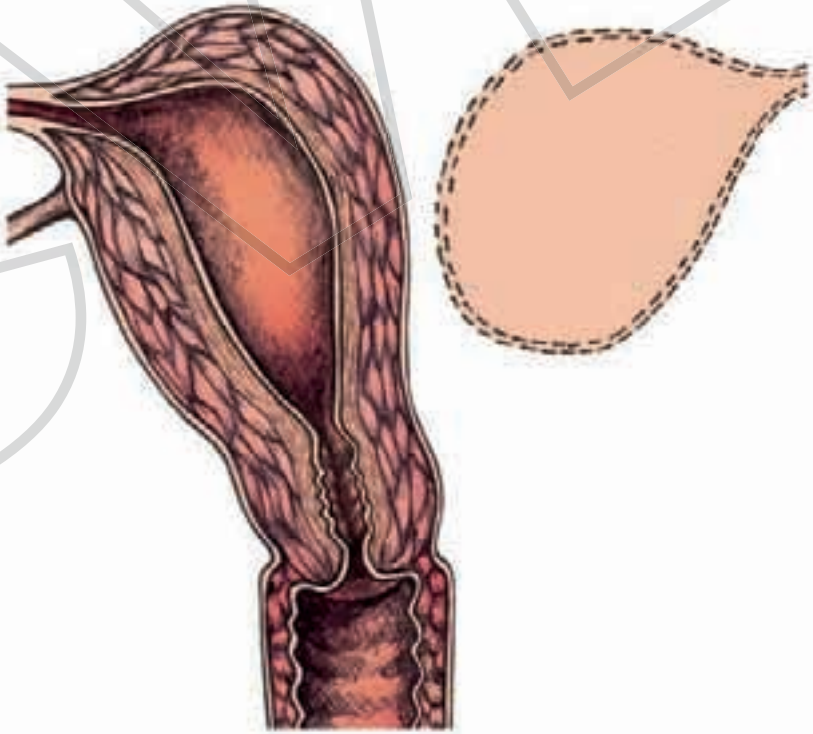


	Preoperative pregnancies	Postoperative pregnancies	
		Primary infertility	Secondary infertility
n	84	31	26
Miscarriage	61 (72.2%)	9 (29%)	7 (26.9%)
EP	14 (16.7%)	5 (16.1%)	0
Preterm D.	3 (3.3%) DCD	3 (17.1%)	5 (26.3%)
Term	0	14 (82.3%)	14 (73.7%)
alive	0	17 (54.8%)	19 (73%)
		36 (63% of deliveries) 36% of patients	

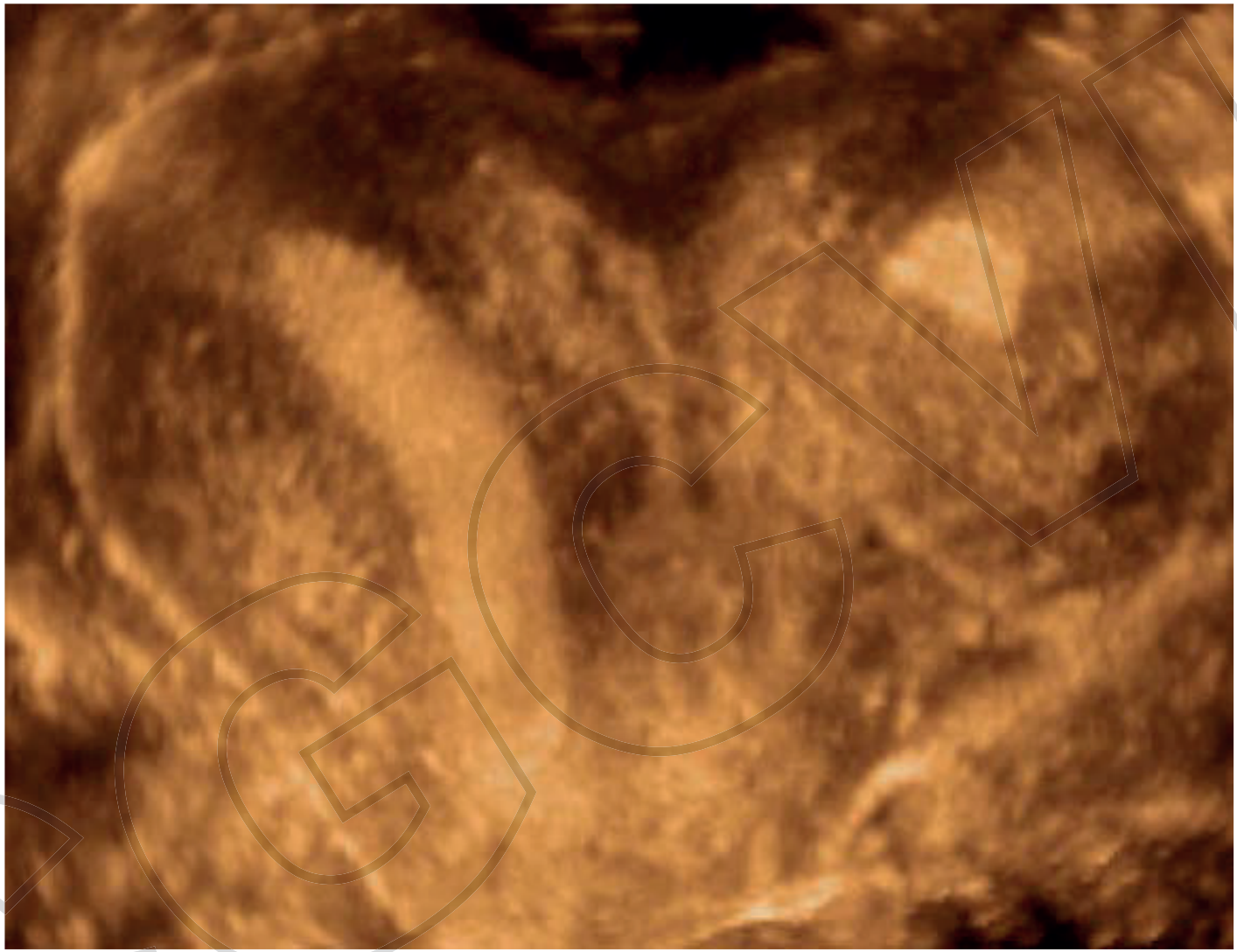
Classe U4 / Hemi Uterus

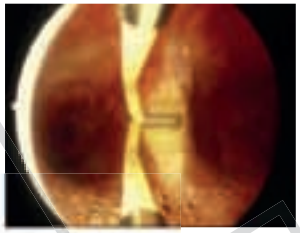


a - Avec cavité rudimentaire



b - Sans cavité rudimentaire





SEPTA & INFERTILITY

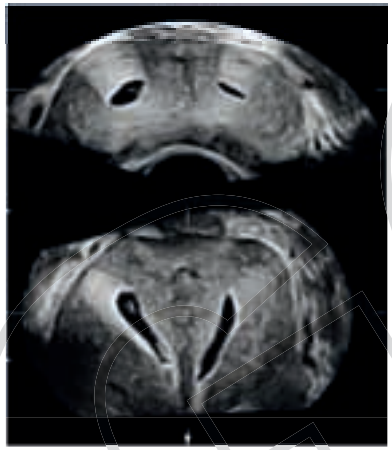
- **RCT**

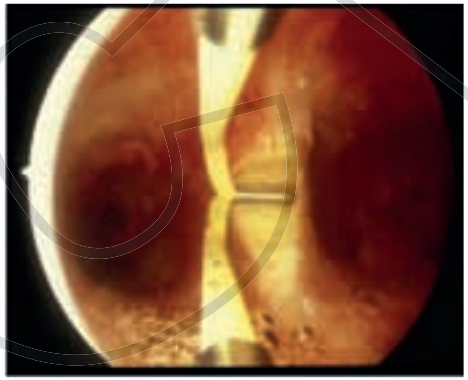
  Live birth at 1 year
- **Infertile patients** **18.9%**
- **Infertile patients after septoplasty** **34.1%**

Mollo 2008

Septoplasty, new treatment of infertility?

Fertility and Obstetric Outcome after Hysteroscopic Transection of the Uterine Septum





S. Bendifallah, E.Faivre , G. Legendre, X. Deffieux,
H. Fernandez

From the Department of Obstetric, Gynecology and Reproductive Biology, Kremlin Bicêtre Hospital, University Paris-SUD 11, Kremlin Bicêtre, France

Study design

- Retrospective observational single-center study

- 151 patients with septate uterus undergoing hysteroscopic between January 1999 and December 2009

- The subjects were divided into 3 groups

✓ Group 1: 55 women with primary infertility of more than 3 years

✓ Group 2 : 63 women suffering from recurrent abortion.

✓ Group 3 : 33 women with at least one late abortion, or preterm delivery.

- Data were recorded prospectively for each patient , the outcome were supplemented by a telephone health-history questionnaire between 24 and 36 months after the surgery

Main Outcome Measures

The number of first live births (FLB)

The number of miscarriage

Rates comparaison before and after hysteroscopic metroplasty according to the group and the septum type

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Results: Overall population

Preoperative and Postoperative miscarriage and First Live Birth (FLB) Rates

	No. of Pts	Before septoplasty No. (%)	After septoplasty No. (%)	p
Overall population	151			
-FLB rate		27 (17.8%)	82 (54.3%)	< 0.001
-Miscarriage rate		74 (49%)	8 (5.2%)	< 0.001
Group 1	55			
-FLB rate		-	27 (49 %)	-
-Miscarriage rate		-	0 (0)	-
Group 2	63			
-FLB rate		13 (20.6%)	34 (53.9%)	< 0.001
-Miscarriage rate		63 (100%)	8 (12.6%)	-
Group 3	33			
-FLB rate		14 (42.4%)	21 (63.6%)	0.13
-Miscarriage rate		11 (33.3%)	0 (0)	< 0.001

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Cerclage for cervical incompetence

- <u>4 RCT for cerclage /expectative =>Prematurity rate</u>
  - Population (hight & low risk)
  - Sonographic measure(<15mm, <25mm)
  - Term (14-27 SA)
  - Singleton & Twin

Rust et al. AJOG 2000
Althuisius et al. AJOG 2001
To et al. Lancet 2004
Berghella et al. AJOG 2004

=> Generalisation ?

Synéchies & Infertilité

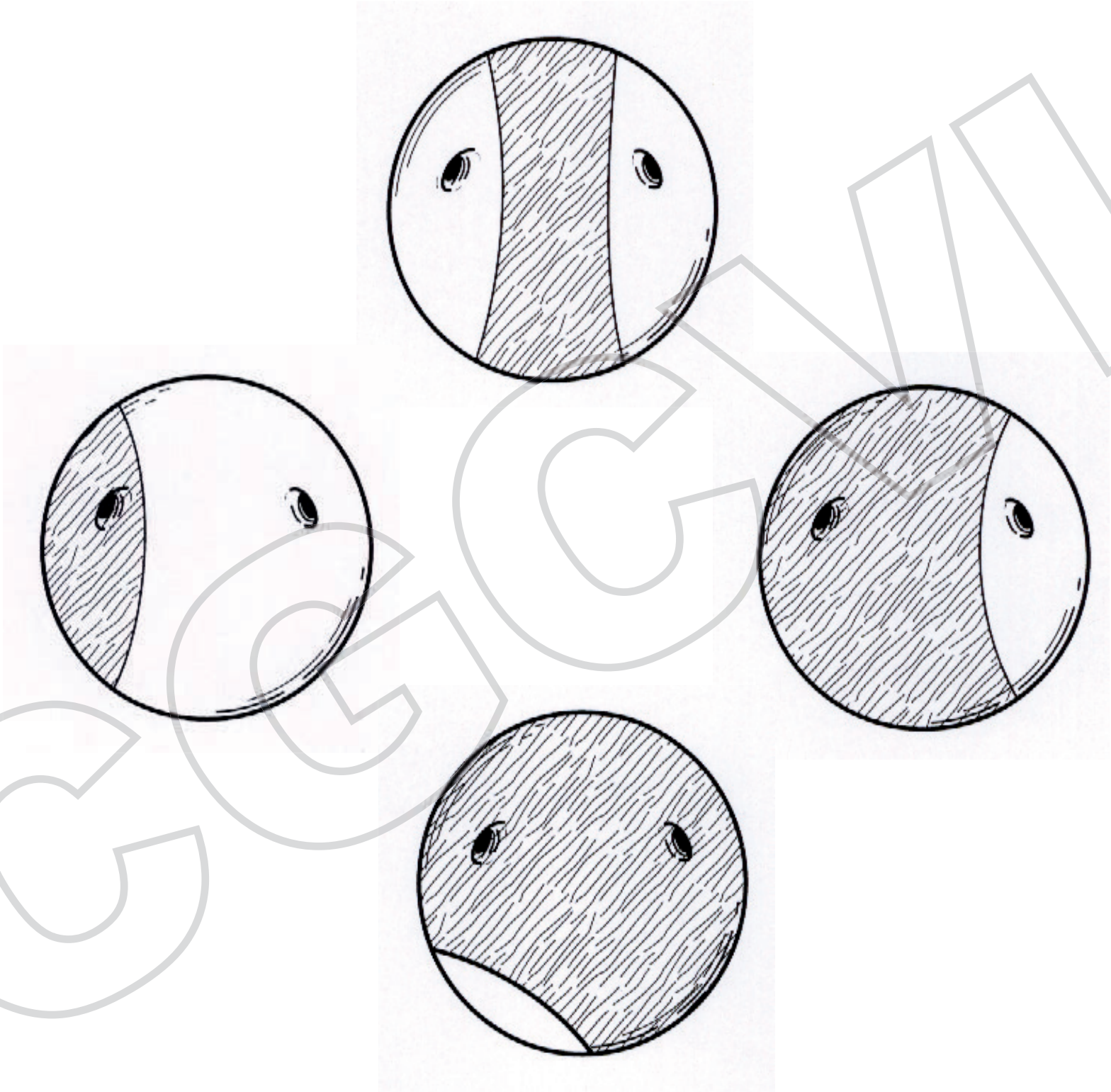
Diagnostic et Traitement:
Quel est le gold standard?

Incidence des synéchies

- Cause la plus commune la dilatation et le curetage
  - entre 2 et 4 semaines après avortement
  - 1 ATCD 16%
  - 3 ATCD 32 %
  - > 3 ATCD > 50% *(Friedler 1993)*

- Symptômes cliniques
  - Hypo ou aménorrhée 63%
  - Infertilité 43%
  - FCS à répétition *(Schenker 1996)*

- Asymptomatiques découvertes dans le cadre d' un bilan d' infertilité



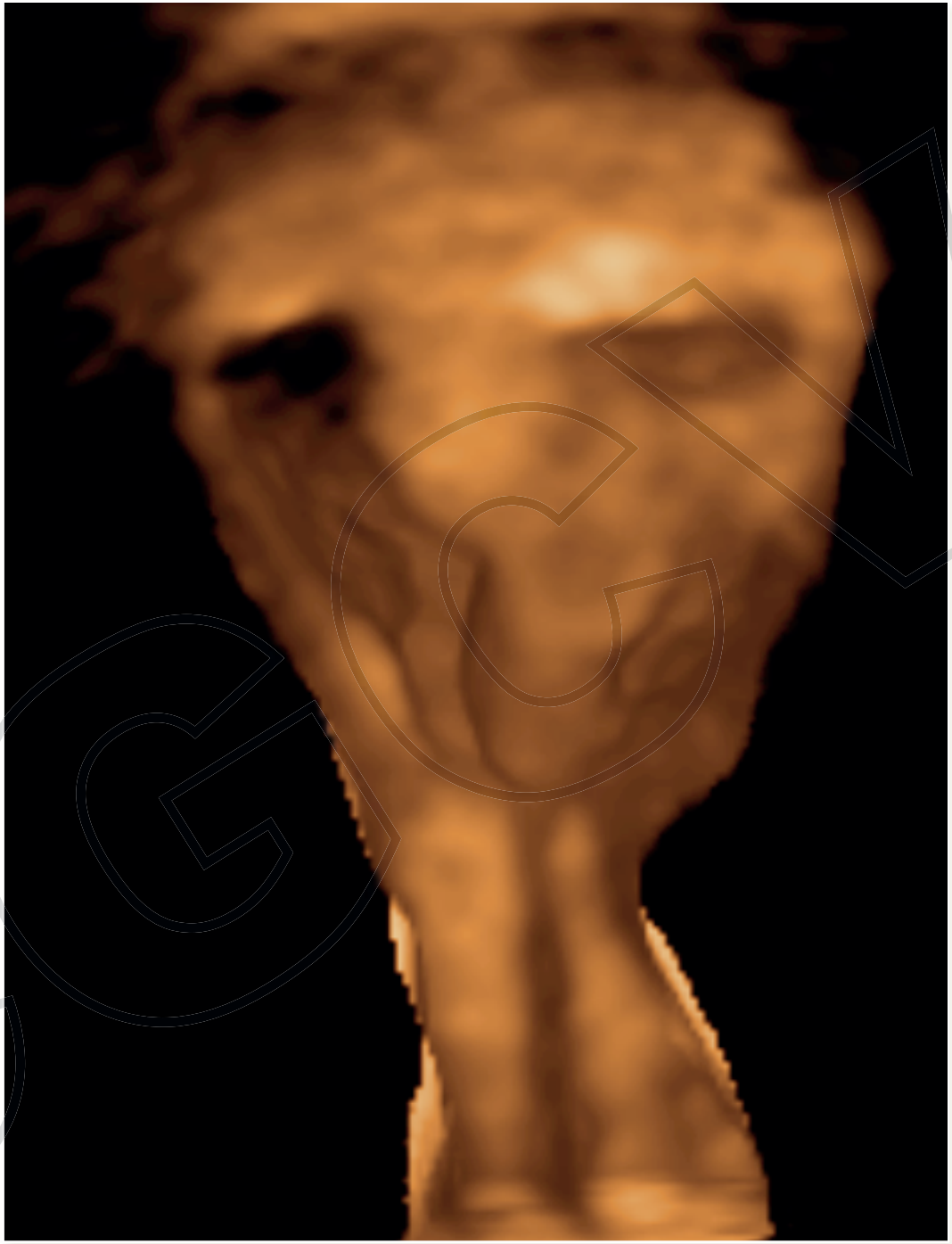
Uterine compression U-sutures in primary postpartum hemorrhage after Cesarean section: fertility preservation with a simple and effective technique

A. Hackethal[1,*], D. Brueggmann[1], F. Oehmke[1], H.-R. Tinneberg[1], M.T. Zygmunt[2] and K. Muenstedt[1]

Human Reproduction Vol.23, No.1 pp. 74–79, 2008

Toutes les techniques donnent de 20 à 35% de synéchies.
Il faut développer des stratégies de prise en charge

Poujade et al. BJGO 2011



Instruments and Techniques

Hysteroscopic Management of Residual Trophoblastic Tissue and Reproductive Outcome: A Pilot Study

Erika Faivre, MD*, Xavier Deffieux, MD, PhD, Chaouki Mrazguia, MD, Amélie Gervaise, MD, Aurélia Chauveaud-Lambling, MD, René Frydman, MD, PhD, and Hervé Fernandez, MD, PhD

Journal of Minimally Invasive Gynecology, Vol 16, No 4, July/August 2009

- 50 patientes présentant une rétention trophoblastique
- Prise en charge par Hystéroscopie Opératoire
- Pas d'électrocoagulation en première intention

- **76 % de taux de grossesse**
- **9% de synéchies légères**

- Taux de synéchies post-curetage pour rétention rapporté dans la littérature : 17-19% [Friedler , Golan, Römer]

TROPHOBLASTIC RESECTION BY HYSTEROSCOPY

Qui traiter ?

- Synéchies légères ou à minima
  - Traitement possible par l' hystéroscopie diagnostique
- Synéchies modérées
  - Emplacement
  - Traitement chirurgical
- Synéchies sévères
  - Souvent associées à des signes fonctionnels
  - Traitement chirurgical en plusieurs temps +++

Monopolar vs bipolar surgery?

Uterine synechiae after bipolar hysteroscopic resection of submucosal myomas in patients with infertility

Fertility and Sterility® Vol. 92, No. 5, November 2009

Cyril Touboul, M.D.,[a,b] *Hervé Fernandez, M.D.,*[a,b,c,d] *Xavier Deffieux, M.D., Ph.D.,*[a,b] *Richard Berry, M.D.,*[a,b] *René Frydman, M.D.,*[a,b,c,d] *and Amélie Gervaise, M.D.*[a,b]

- 53 patients

7,5% of synechiae at 2 months follow-up

- 30% of synechiae with monopolar surgery[Taskin2001].

Fertilité après traitement d'un Asherman's syndrome stade 3 & 4

Fernandez et al. 2009

HumReprod

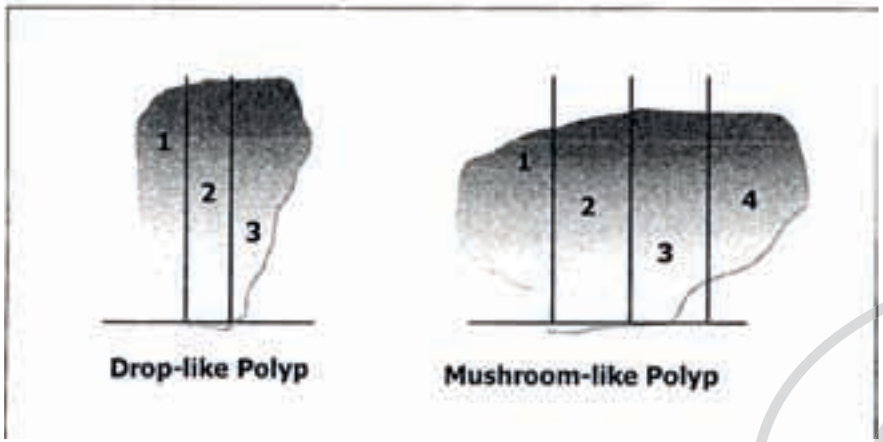
Delivery rate after adhesiolysis using various hysteroscopic methods

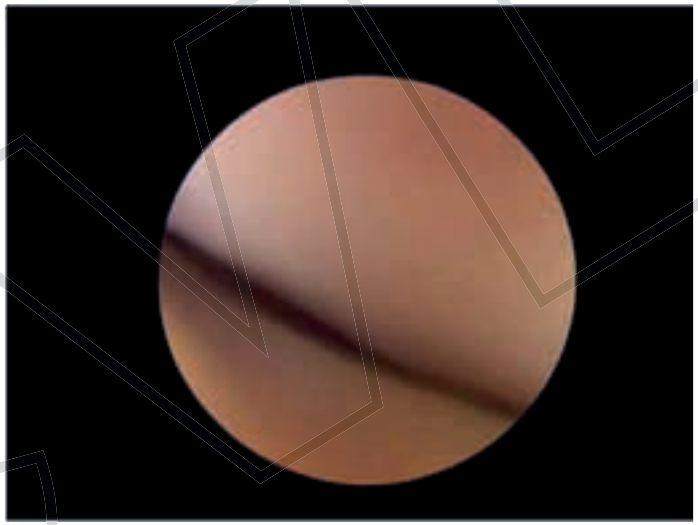
•Study	•Patients (n)	•Hysteroscopic •method	•Pregnancy at term(%)
•Valle and Sciarra (1988)	•47	•Resectoscope	•15(31.9%)
•Chen et al (1997)	•23	•Resectoscope with Laminiria	•8(34.9%)
•Capella-Allouc et al (1999)	•28	•Monopolar Knife	•9(32.1)
•Coccia et al (2001)	•3	•Pressure lavage under ultrasound guidance	•1(33.3%)
•Konstantinos et al (2004)	•46	•Versapoint & Resectoscope	•20(43.5%)
•Fernandez(2009)	•71	•Versapoint & Resectoscope	•21(32.8%)

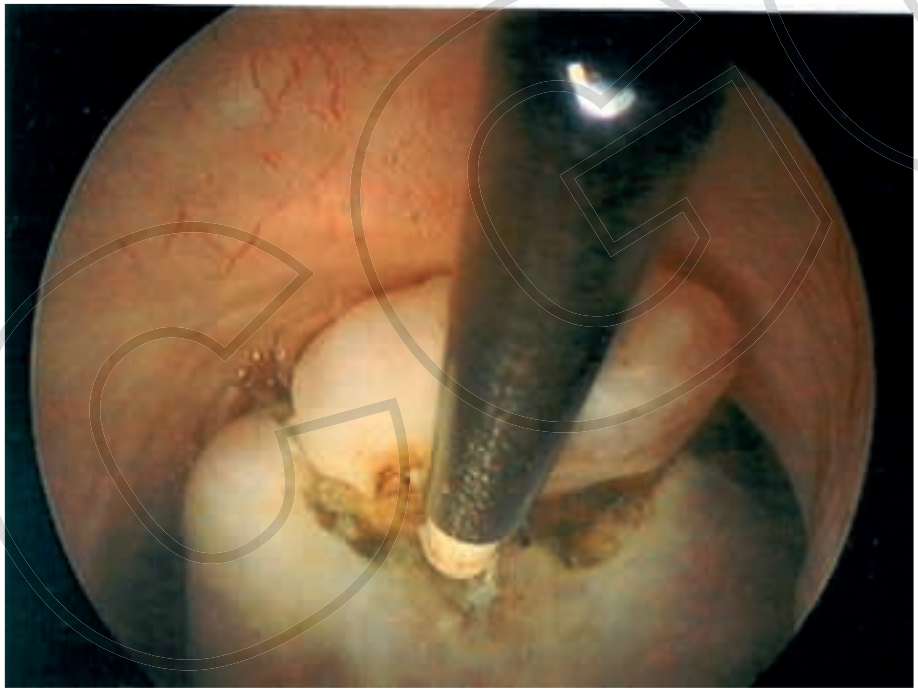
Traitement des Polypes

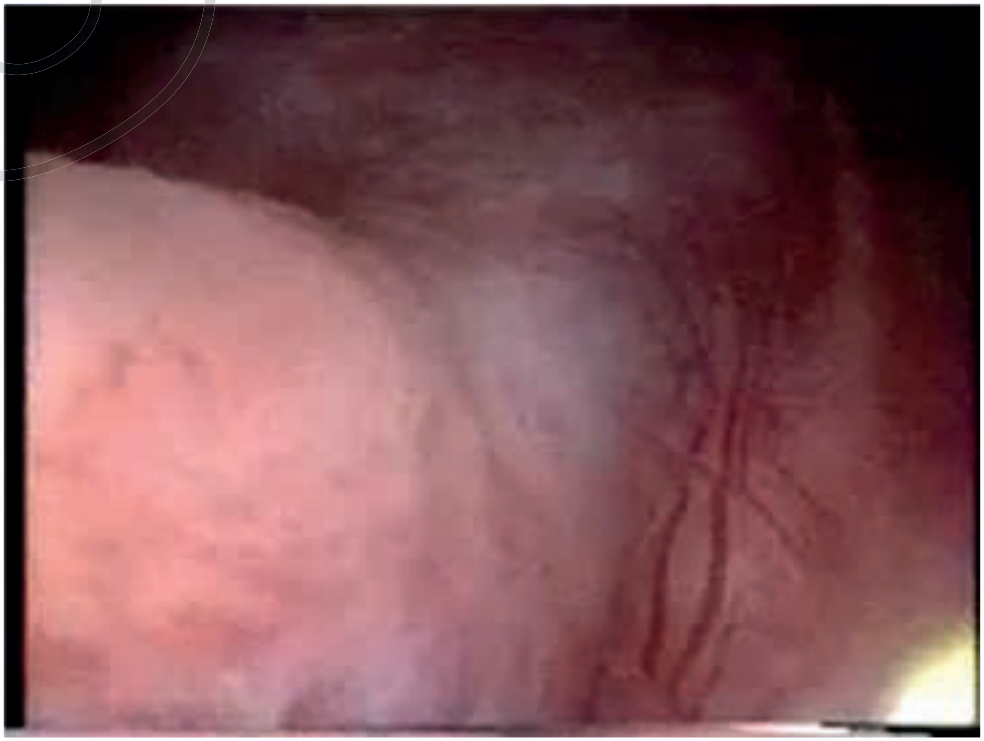
- Diagnostic correct
- Ablation Totale
- C'EST LA REFERENCE DU SEE & TREAT.
- Energie:
  - Mécanique
  - Bipolaire
  - Monopolaire?

OFFICE POLYPECTOMY
No dilatation, slice technic with 5Fr probe









Quelles sont les limites du « See and Treat »?

- Formation des opérateurs
  - L'hystéroscopie est de la CHIRURGIE
  - Place des simulateurs dans la formation
- Information des femmes: le BLOC n'est plus une obligation
- Limitations économiques

Quelles sont les avantages du « See and Treat »?

- Pour les patientes
  - Diagnostic & Traitement en 1 fois
  - Pas d'anesthésie???
- Pour le chirurgien
  - Libération des contraintes de bloc opératoire
- Pour nos tutelles
  - Coût-Economique mais aucun dialogue…

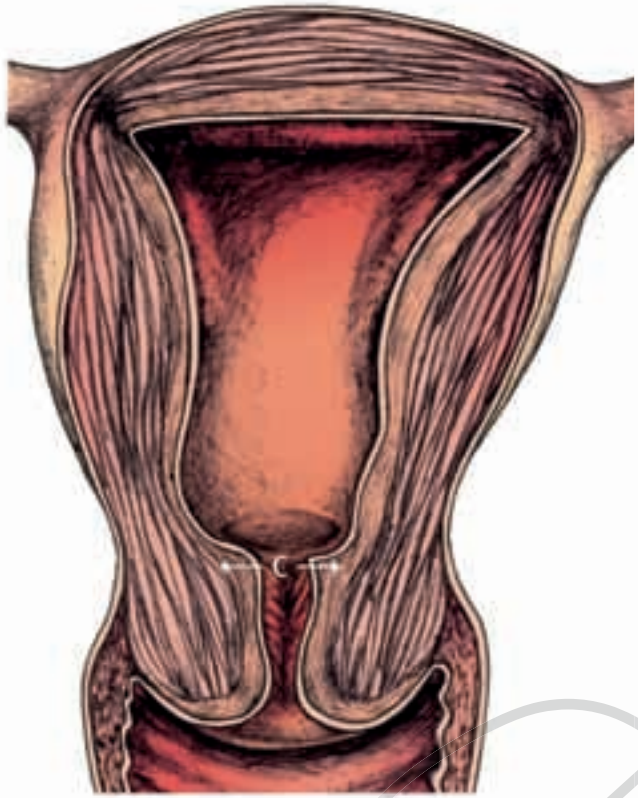
ISTHMOCELES

DEFINITION

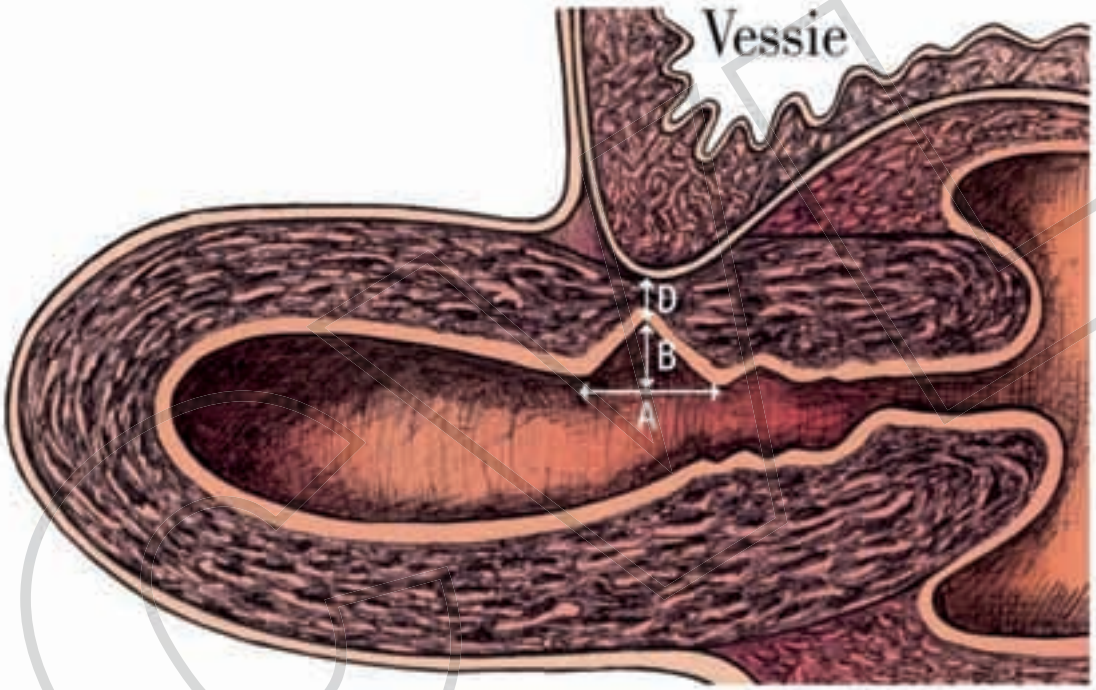
- ✓ **ISTHMOCELE**: déhiscence de la cicatrice d'hystérotomie après une ou plusieurs césariennes

- ✓ Décrite pour la 1ere fois par Morris en 1985 (analyse de pièces d'hystérectomie)

- ✓ Défaut de cicatrisation?



Coupe coronale interne



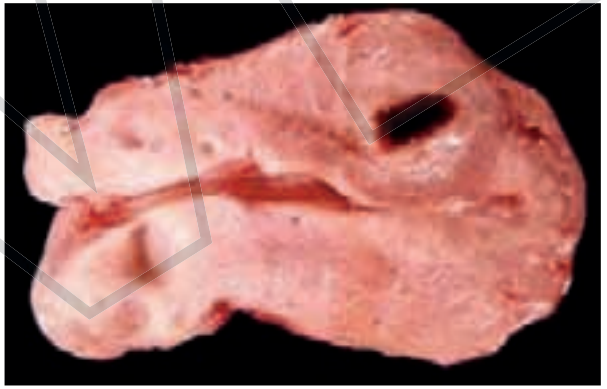
Coupe sagittale

A: largeur
B: profondeur
C: longueur
D: myomètre résiduel

ISTHMOCELE

APPORT DE L'HYSTEROSONOGRAPHIE POUR LE DIAGNOSTIC DES ISTHMOCELES

Adénomyomectomie et Kystectomie



Plusieurs voies d'abord possibles

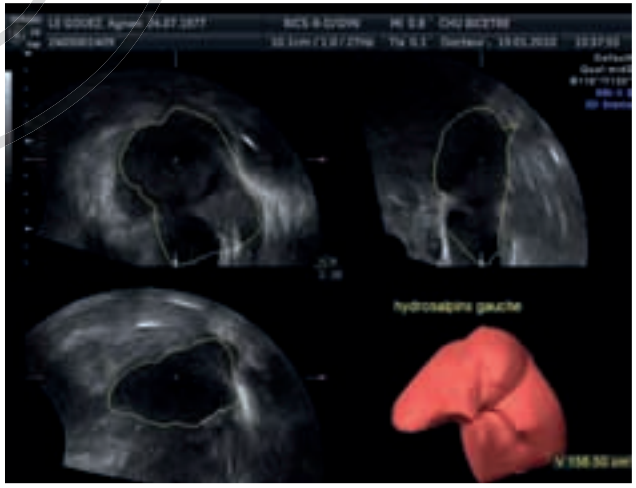
- Hystéroscopie sous contrôle écho+++
- Coelioscopie
- Laparotomie

Chirurgie difficile comparativement à une myomectomie du fait de l'absence de plan de clivage

Proximal occlusion of hydrosalpinges by Essure® before assisted reproduction techniques: a French survey.

Guillaume LEGENDRE, Julie MOULIN, Jean VIALARD, Dominique DE ZIEGLER, Renato FANCHIN, Jean Luc Pouly, Antoine WATRELOT, Joëlle BELAISCH ALLART, Nathalie MASSIN,

Hervé FERNANDEZ



- Hydrosalpinx halves the pregnancy rate after IVF of women with tubal infertility
  - *Zeyneloglu HB & al., Fertil Steril 1998.*
  - *Camus E & al. Hum Reprod 1999.*

- Salpingectomy can correct this effect by increasing the likelihood of clinical pregnancy
  - *Strandell A & al. Hum Reprod 2000.*
  - *Déchaud H& al.Fertil Steril 1998.*
  - *Johnson N & al. Cochrane Database Syst. Rev. Online. 2010;*
  - *Kontoravdis A, Fertil Steril 2006*
  - *Moshin V & al.Hum Reprod 2006*

- Proximal tubal occlusion by laparoscopy has an effect similar to that of salpingectomy
  - Kontoravdis A & al. Fertil Steril 2006
  - Moshin V & al. Hum Reprod 2006

- The surgical risk during laparoscopy, especially for women with major pelvic adhesions, has led some surgeons to use Essure® for hysteroscopic tubal occlusion
  - an off-label use different from its primary purpose of tubal sterilization.

Study Objectives

To study the feasibility and results (live-birth and complication rates) of the placement of Essure® microinserts before assisted reproduction technology (ART) treatment of women with hydrosalpinx.

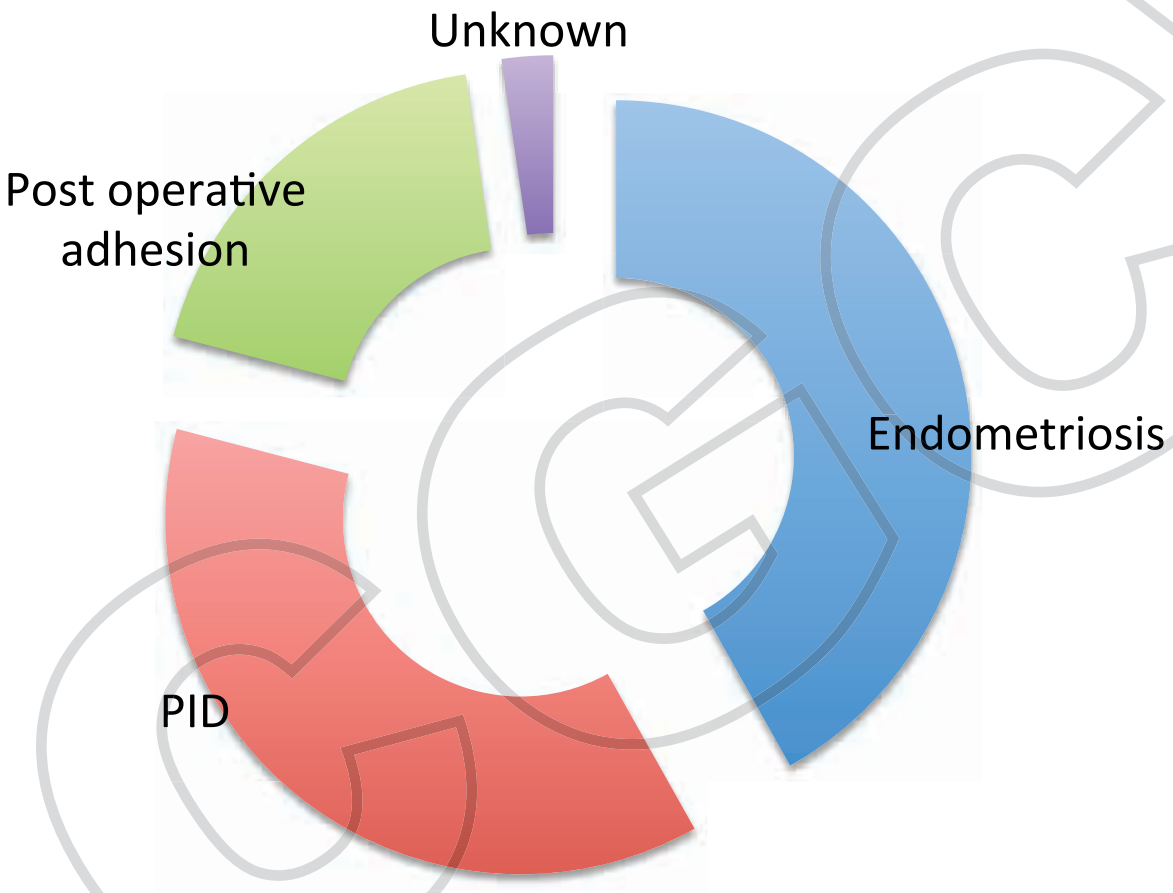
Material and methods

- National survey of 45 French hospital centers providing ART treatment, with a retrospective analysis of all women with unilateral or bilateral hydrosalpinges.
- From 2003 to 2013

Results

- Of the 45 centers contacted:
  - 15 (33.3%) centers did not respond
    - despite 4 reminders.
  - 7 centers responded that they had performed Essure procedures
  - 23 that they had not.

Etiology of tubal disease



Results
Characteristics of Essure® placement

		Total population
	Number visible coils (mean±SD)	1.6±1.6
Type of anesthesia	No anesthesia (%)	3% (4/43)
	Spinal anesthesia (%)	2.3% (1/43)
	Sedation (%)	11.6% (5/43)
	Sedation and paracervical block (%)	11.6% (5/43)
	General anesthesia (%)	65.1% (28/43)
Antibiotic prophylaxis	Antibiotic prophylaxis surrounding the procedure (%)	74.4% (32/43)
Success of placement	Placement success rate (%, n per patient)	95.3% (41/43)
	Placement success rate (%, n per diseased tube)	92.8% (65/70)

	Population of women with transfers
Number	29
Rate of post-procedure verification (%)	79.3% (23/29)
Number visible coils (mean±SD)	1.7±1.5
Patients with ≤2 coils (%)	62.1% (18/29)
Interval between placement and the first transfer, months (mean±SD)	6.2±3.0
Number of embryo transfers, n	54
Number embryos transferred	92
Rate of fresh embryo transfers (%)	77.8% (42/54)
Number of embryo transfers per patient (mean±SD)	1.9±0.9

Results - ART

	Population of women with transfers
Implantation rate (%, n per embryo transferred)	29.3% (27/92)
Clinical pregnancy rate per embryo transfer (%)	40.7% (22/54)
Clinical pregnancy rate per patient (%)	65.5% (19/29)
Spontaneous abortion (%, n per clinical pregnancy)	31.8% (7/22)
Ectopic pregnancy (%, n per clinical pregnancy)	0% (0/22)
In utero fetal death (%, n per clinical pregnancy)	4.5% (1/22)
Live-birth rate per transfer (%)	25.9% (14/54)

Discussion

- **Strenghts**
  - Larger series published of the placement of Essure® microinserts before assisted reproduction technology (ART) treatment of women with hydrosalpinx.

- Our Study
  - Spontaneous abortion 31,8% (7/22)
  - Live birth 25,9%(14/54)

- *Mijatovic, Eur J Obstet Gynecol Reprod Biol 2012*
  - *Prospective study , N= 20*
  - Spontaneous abortion 33,3% (6/18)
  - Live birth 26.6% (12/45)

Conclusion

- Use of the Essure® system is an effective method for occlusion of hydrosalpinges.
- The live-birth rate after embryo transfer makes it the method of choice when laparoscopy should be avoided, with rates similar to those for salpingectomy or tubal ligation.

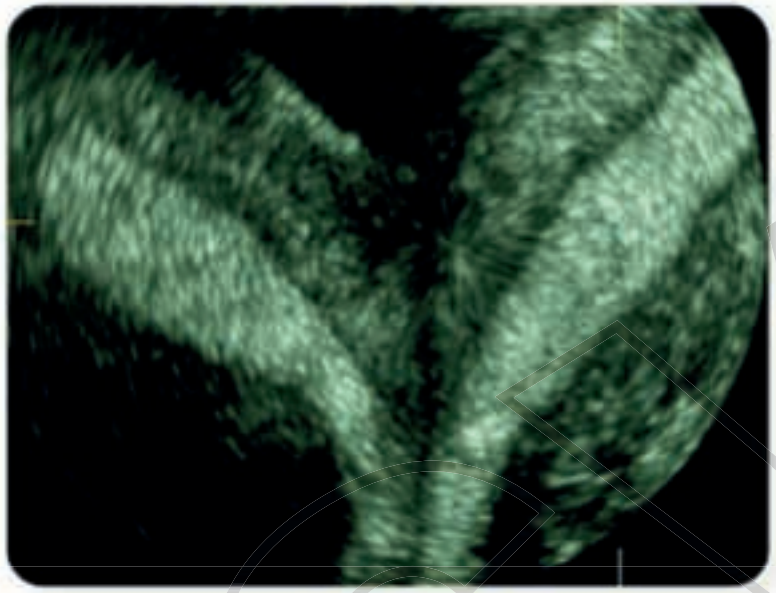
TECHNIQUES CHIRURGICALES
gynécologie

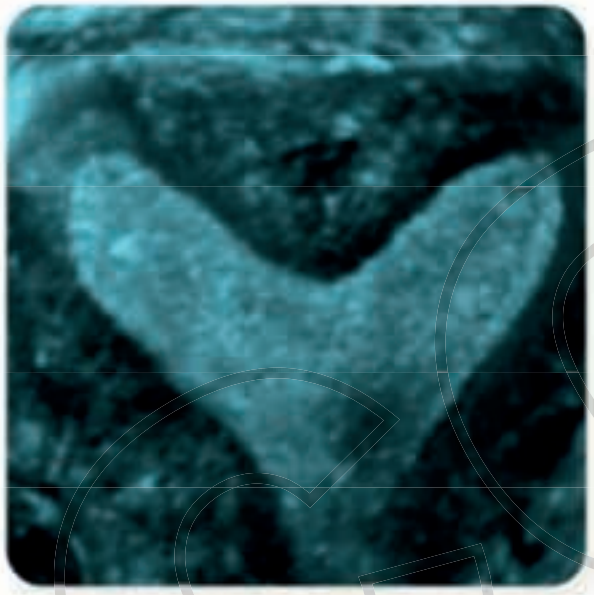
Hystéroscopie et fertiloscopie

Hervé Fernandez
Olivier Garbin
Amélie Gervaise

COMPLÉMENTS EN LIGNE
Vidéos

ELSEVIER MASSON





Merci pour votre attention