



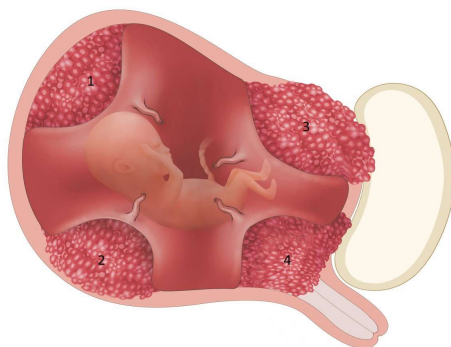
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## Definition

**AIP = Abnormally invasive Placenta**



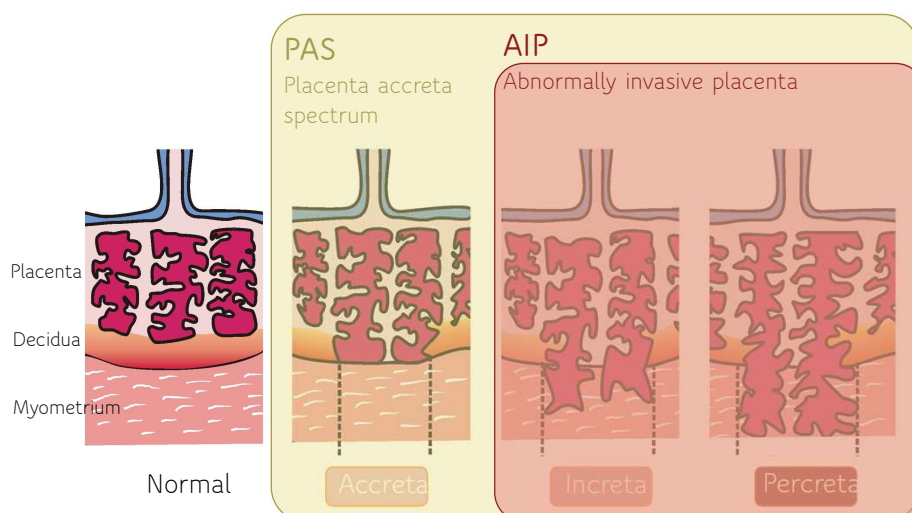
Pl. accreta<sup>1</sup>

Pl. increta<sup>2</sup>

Pl. percreta<sup>3/4</sup>

1/533-1/2510 af alle fødsler

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## Gradering af AIP/PAS FIGO- Klassifikation

Grade 1: Abnormally adherent placenta (Accreta)

Grade 2: Abnormally invasive placenta (Increta)

Grade 3: Abnormally invasive placenta (Percreta)

- 3a: Begrænset til uterine serosa
- 3b: Invasion i blæren
- 3c: Invasion svt parametriet, bækkenvæg, vagina

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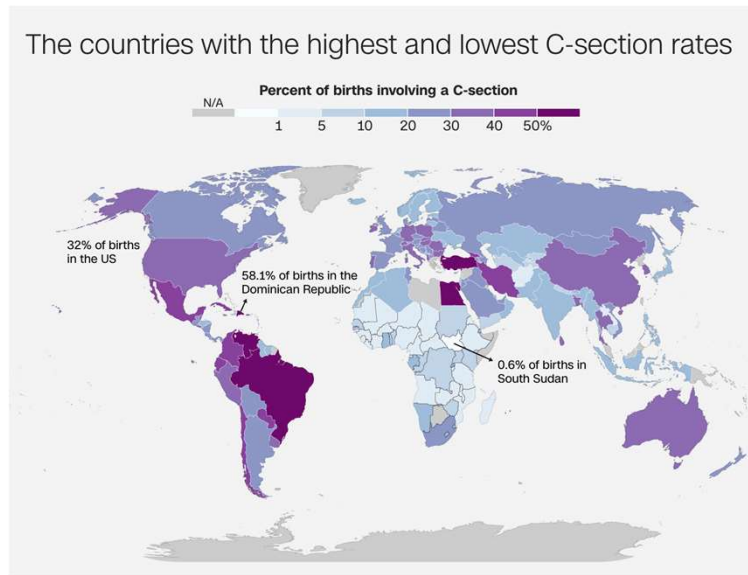
### Primary and secondary uterine pathologies reported to be associated with PAS



Classification	Type of uterine pathology
Direct surgical scar	Cesarean delivery
	Surgical termination of pregnancy
	Dilatation and curettage
	Myomectomy
	Endometrial resection
Nonsurgical scar	Asherman's syndrome
	IVF procedures
	Uterine artery embolization
	Chemotherapy and radiation
	IUD
Uterine anomalies	Manual removal of placenta
	Previous accreta
	Bicornuate uterus
	Adenomyosis
	Submucous fibroids

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The number of births by cesarean section is on the rise, climbing from about 16 million (12.1% of all births) in 2000 to 29.7 million (21.1% of all births) in 2015, according to a study ([The Lancet](#)).



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## Risk factors for PAS

**Table 2.** Link between number of previous caesarean sections and risk of placenta accreta, placenta praevia and hysterectomy<sup>127</sup>

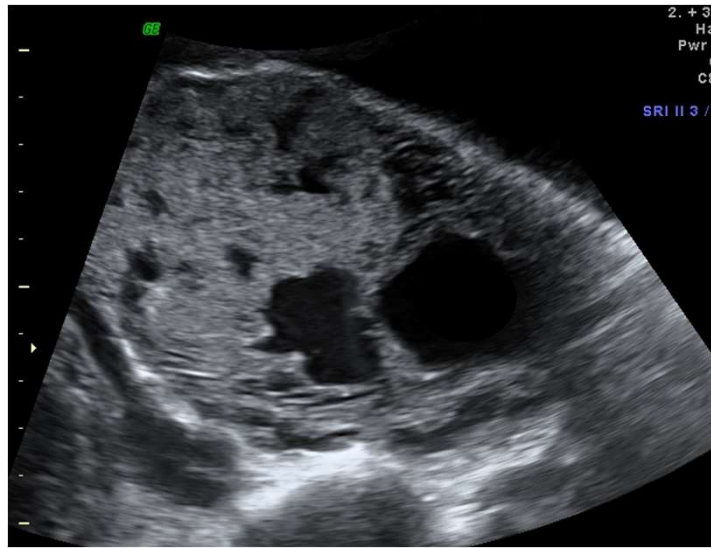
Number of previous caesarean section(s)	Number of women	Number of women with placenta accreta	Chance of placenta accreta if placenta praevia	Number of hysterectomies
0	6201	15 (0.24%)	3%	40 (0.65%)
1	15 808	49 (0.31%)	11%	67 (0.42%)
2	6324	36 (0.57%)	40%	57 (0.9%)
3	1452	31 (2.13%)	61%	35 (2.4%)
4	258	6 (2.33%)	67%	9 (3.49%)
5	89	6 (6.74%)	67%	8 (8.99%)

UKOSS data 2010

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## Diagnose Ultralyd

- Abnormal placental lacunae
- Loss of "clear zone"
- Bladder wall interruption
- Myometrial thinning (< 1 mm overlying placenta)
- Placental bulge
- Focal exophytic masses
- Doppler (Uterovesical Subplacenta hypervascularity, Bridging vessels)



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## Hvilke PAS er det vi ikke finder på UL?

**Table 1- Characteristics and Outcomes of Study Subjects**

Characteristics	Placenta Accreta Spectrum N = 268		P-Value
	Expected N = 196	Unexpected N = 72	
Age, year	33.0±5.0	33.3±6.4	0.74
BMI, kg/m <sup>2</sup>	30.8±6.9	29.5±8.9	0.30
Gravidity	4 [1-14]	4 [1-9]	< 0.01
First Pregnancy	3 (1.6)	4 (5.6)	0.08
EGA at Delivery, week	34 [16-40]	37 [19-40]	< 0.01
Previous CD	177 (90.3)	50 (69.4)	< 0.001
Number of Previous CD	2 [0-6]	1 [0-5]	< 0.001
Twin Gestation	9 (4.6)	10 (13.9)	< 0.01
<b>Depth of Invasion</b>			
Accreta	68 (34.7)	55 (76.4)	< 0.001
Inc/Percreta	128 (65.3)	17 (23.6)	
Placenta Previa	142 (72.4)	23 (31.9)	< 0.001
Multidisciplinary Approach	177 (90.3)	35 (48.6)	< 0.001
<b>Primary Outcomes</b>			
EBL > 2L	86 (45.7)	44 (66.7)	< 0.01
RBC Transfusion	113 (65.7)	55 (83.3)	< 0.01

K. Fox  
2019 AJOG

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# PAS team-Rigshospitalet

-en sjælden, livstruende tilstand, som kræver en tværfaglig overvågning og behandling

Obstetriker  
 Føtalmedicin  
 Onkolog  
 Anæstesiolog  
 Interventionsradiolog  
 Blødningsvagt  
 MR afdeling  
 Neonatalafdelingen

## Forløsningsplan

- Indlæggelse? Aflastning?
- Elektivt sectio: GA 34+0- 37+0
- Anæmiudredning
- Anæstesi: epidural/spinal → GA
- UL på stuen
- Ballonkateter?
- Ureter kateter?
- Valg af operation: Resektion eller hysterektomi?
- Blod produkter: balanceret transfusion
- Blod til barnet?

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## Internationalt samarbejde

Ca 70 medlemmer fordelt på lande i både Europa, USA,  
 Canada, Egypten, Brasilien  
 FetView database  
 Møder 2 gange/år  
 Faglig sparring

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## Case 1

34 årig P1 G2

Sund og rask

Rh neg

2018 Blighted ovum GA 11+

Behandlet med evac

2020 Elektivt sectio pga placenta prævia. PPH 1800.

2024. Normal gennemscanning. Placenta på forvæg

Henvender sig 40+6 med veer kl.10.



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## Case 1

VA kl.14, grønt

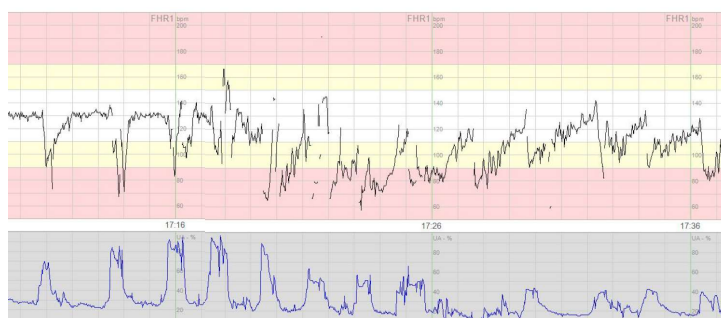
Fin fremgang

Kl.17.16 komplicerede decelerationer

Ingen STAN. 7cm

Kl.17.30 skalp pH 7,18

Der meldes grad 2 sectio, gives ventoline



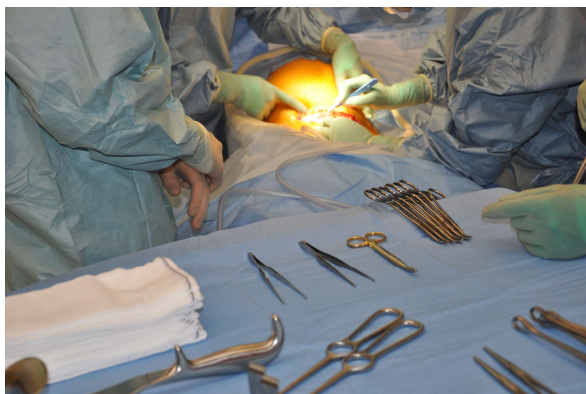
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## Case 1

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Forvagt (introlæge) og Bagvagt  
(Obstetrisk afd læge)

Risikofaktorer for blødning?  
Risikofaktorer for svær forløsning?



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## Case 1

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Hvad nu??  
Skalp pH 7,18

CTG?

Panik!!



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## Muligheder

1. Lukke abdomen og overflytte til højt specialiseret center
2. Forløsning. Lade placenta in situ - lukke og overflytte
3. Forløsning. Fjerne placenta/Lokal resektion/ Hysterektomi



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## Uerkendt PAS



Characteristics	Open-close abdominal surgery	Left the placenta in situ	Partial removal of the placenta	Hysterectomy
N (%)	5 (17.2%)	6 (20.7%)	11 (37.9%)	7 (24.1%)
Emergency surgery in the basic hospital, n (%)	2 (40)	1 (16.7)	6 (54.5)	4 (57.1)
Blood loss before referral (mL)	50 (50–100)	500 (200–700)	3000 (800–5000)	4500 (2500–7000)
Procedure PAS center				
Lokal resektion	2 (40)	1 (16,7)	0	0
Hysterektomi	3 (60)	5 (83,3)	10 (90,9)	0
Andre re-operationer	0	0	1 (9,1)	7 (100)
Blood loss in PAS center (mL)	2000 (1250–3550)	1850 (400–13,000)	3000 (200–6550)	300 (200–6700)
Maternal death, n (%)	0	1 (16.7)	3 (27.3)	1 (14.3)
Histopatologi n(%).				
Accreta	0	0	2(18,2)	3(42,9)
Increta	2 (40)	2(33,3)	8 (72,7)	3(42,9)
Perkreta	3(60)	4(66,7)	1 (9,1)	1(14,3)

Management of unexpected placenta accreta spectrum cases in resource-poor settings  
 AJOG Global Reports, May 2023

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## Case 1

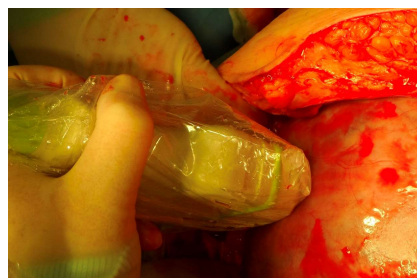
Stop op !!!

Anæstesi, ekstra PVK, Akut transfusionspakke, cyklokapron, blødningskasse

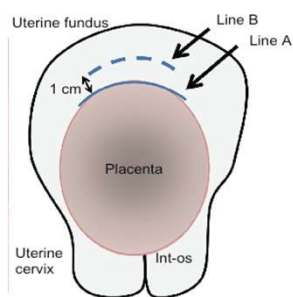
Er der en gynækolog til rådighed?

Informér pt at hysterektomi kan blive nødvendigt

UL på stuen hvis tid.



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Uterotomien lægges vha UL kranielt for placenta placenta.

Barnet forløses. Uterotomien lukkes. INGEN syntocinon.

De vesicouterine kar liggeres. Blæren skubbes ned

Uterotomien åbnes igen. Det percrete område resekeres og fjernes sammen med placenta.

Uterotomien sutureres.

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## Kontraindikation mod lokal resektion

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- PAS>50% af forvæg
- Nedvækst i cervix
- Gennemvækst ud i parametriet

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## Case 1

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CTG retter sig på ventoline.

Anæsthesien forberedes på svær blødning.

UL lokalisering af placentas grænse, forløses ovenfor denne

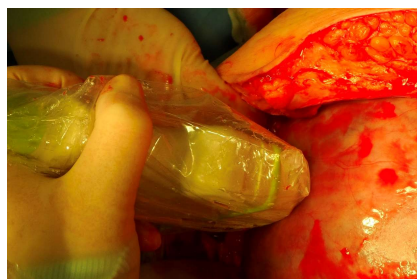
Tilladelig blødning, placenta lades in situ.

Pt overflyttes til RH

Herefter placenta fjernelse og lokal resektion

Total blødning 2300ml.

Ukomliceret postoperativ forløb



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## Case 2-Rigshospitalet



### Strategi

Resektion af det perkrete område

Primær hysterektomi

Forsinket hysterektomi

Konservativ behandling-efterlade placenta in situ

Embolisering

Metrotrexat



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A multicenter observational survey of management strategies in 442 pregnancies with suspected placenta accreta spectrum (AOGS, 2020)



	Hysterektomi	Placenta in situ	Lokal resektion
n	252	48	26
Blodtab ml, range median	450-20.000 2000	150-10.000 1500	500-7500 2000
Hysterektomi	-	20 (16 akutte)	0
Blærelæsion	23	3	1
ureterlæsion	6	0	0

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# Metrotrexat



Evidence-based guidelines for the management of abnormally-invasive 2 placenta (AIP): recommendations from the International Society for AIP, AJOG 2019

- Ingen evidens for at Metrotrexat accelerer resorptionen af placenta såfremt placenta lades in situ
- Alvorlige komplikationer: Pancytopeni og nefrotoxicitet
- 1/21 dødsfald i retrospektivt kohorte studie

Der er ingen evidens for brug af methotrexat, når placenta lades in situ.

Da der er evidens for potentiel betydelig skade, herunder mødredødelighed, anbefaler IS-PAS ikke brugen af methotrexat til konservativ behandling af PAS (Rekommandation B)

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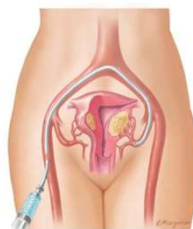
# Embolisering



Evidence-based guidelines for the management of abnormally-invasive 2 placenta (AIP): recommendations from the International Society for AIP, AJOG 2019

Ingen evidens for at embolisering accelerer resorptionen af placenta såfremt placenta lades in situ

Komplikationer: nekrose af uterus, der medfører hysterektomi, Dissektion/karskade, dødsfald er beskrevet



Gelatin sponge, Gelfoam, alcohol particles, microparticles

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# Embolisering



Evidence-based guidelines for the management of abnormally-invasive 2 placenta (AIP): recommendations from the International Society for AIP, AJOG 2019

Ingen evidens for at embolisering accelerer resorptionen af placenta såfremt placenta lades in situ

Komplikationer: nekrose af uterus, der medfører hysterektomi, Dissektion/karskade, dødsfald er beskrevet

**IS-AIP anbefaler ikke profylaktisk embolisering hos kvinder, hvor man anbefaler konservativ behandling. (Rekommandation B)**

**Ved PPH kan terapeutisk embolisering muligvis reducere risikoen for hysterektomi (Rekommandation D)**

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## Take Home Messages

- Mistanke før forløsning:
  - Prævia og/eller tidligere sectio?
  - Lacunae på UL
- Mistanke ved sectio:
  - Stop op (mulighed for overflytning?)
  - Advisér anæstesi
  - Ekstra PVK, TXA, blødningskasse
  - Akut transfusionspakke
  - Er der en gynækolog til rådighed?
  - Varsle pt om hysterektomi
  - UL på stuen hvis tid.



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## Ekstra slides

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## Fertilitet efter PAS

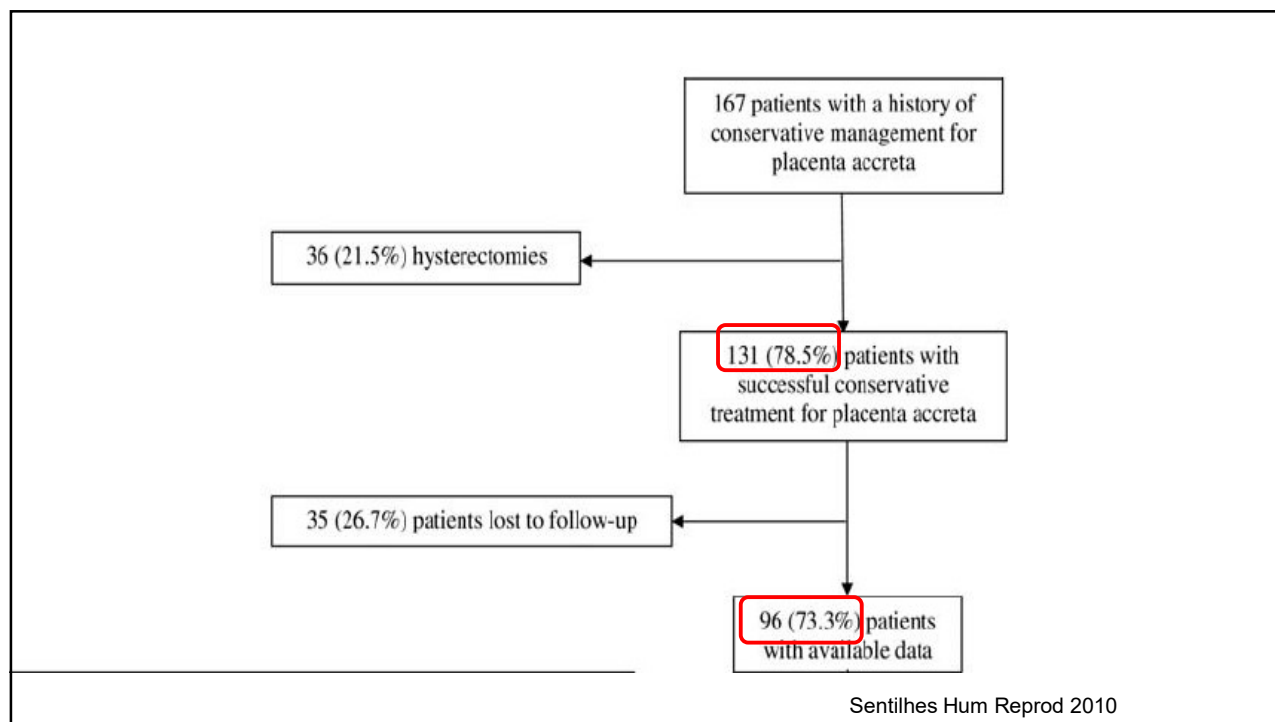
	Graviditet efter PAS	PAS (%)
lokalresektion	45/394	1(2,2)
Placenta in situ	21/169	6/21 (28,6)

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## Fertility and pregnancy outcomes following conservative treatment for placenta accreta 2010

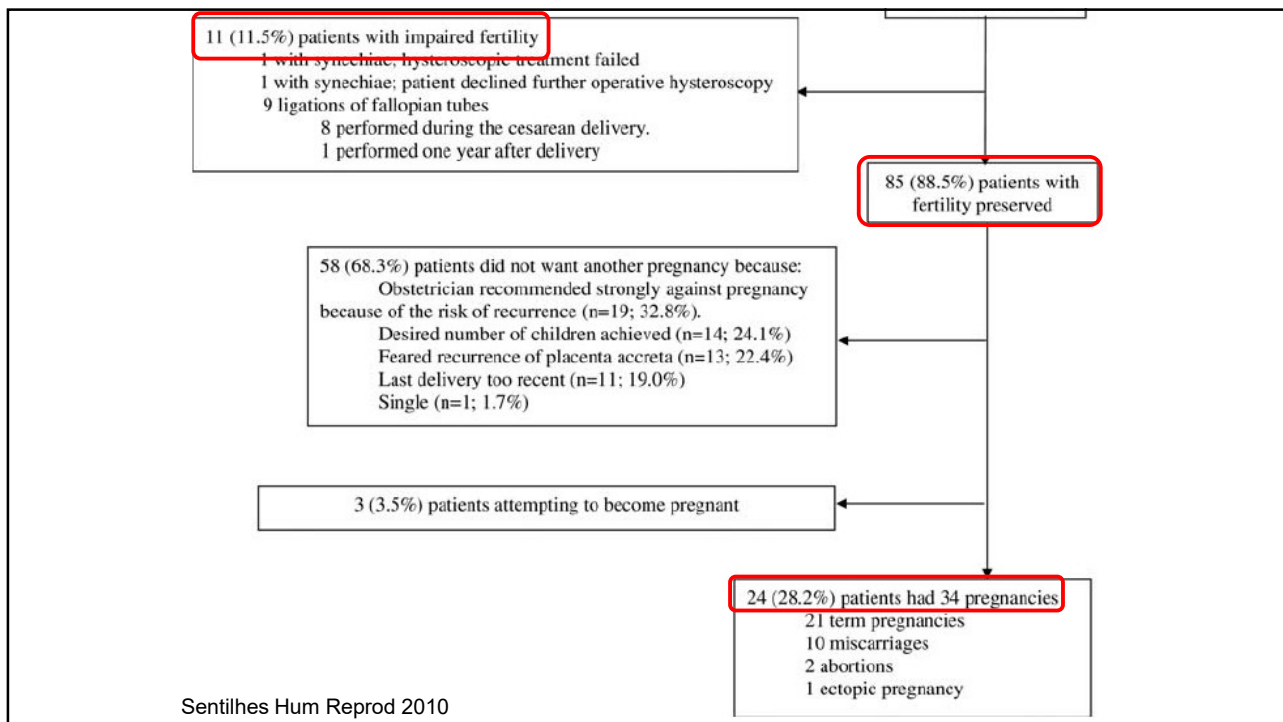
Loïc Sentilhes<sup>1,2,\*</sup>, Gilles Kayem<sup>3,4</sup>, Clémence Ambroselli<sup>5</sup>, Magali Provansal<sup>6,7</sup>, Hervé Fernandez<sup>8,9</sup>, Franck Perrotin<sup>10</sup>, Norbert Winer<sup>11</sup>, Fabrice Pierre<sup>12</sup>, Alexandra Benachi<sup>13</sup>, Michel Dreyfus<sup>14</sup>, Estelle Bauville<sup>5</sup>, Dominique Mahieu-Caputo<sup>15</sup>, Loïc Marpeau<sup>2</sup>, Philippe Descamps<sup>1</sup>, Florence Bretelle<sup>6,7</sup>, and François Goffinet<sup>3</sup>

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## Subsequent obstetrical outcome

18 women gave birth to 21 healthy singletons during the third trimester of pregnancy.

Postpartum hemorrhage: 19% (4/21) due to:

- Placenta accreta (n=3)
- Uterine atony (n=1)

Recurrence of placenta accreta: 28,6% (6/21)

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## Advantages and disadvantages

### CESAREAN HYSTERECTOMY

100 % hysterectomies

More ureteral complications: 6-8%

Low risk of delayed hemorrhage or infections

For women with no desire for a future pregnancy (advanced reproductive age and/or multiparous)

### CONSERVATIVE TREATMENT

High rate of uterine preservation (80%)

Possible option following a vaginal delivery.

Maybe the best option in cases of placenta percreta with bladder invasion.

Successful conservative treatment for placenta accreta does not appear to compromise the patients' subsequent fertility or obstetrical outcome.

High risk of infection (30%), sepsis (5%), severe maternal morbidity (6%)

Close long-term monitoring (several months)

- Women should be properly counseled and motivated

High risk of recurrence of placenta accreta in case of a future pregnancy (30%).

For women who want the option of a future pregnancy and who agree to close follow-up monitoring

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## Data Rigshospitalet 2008-2015

Gestationsalder ved fødsel: uge 33 (range 28-34)

	N=27
Planlagt hysterktomi	8
Planlagt lokal resektion	19
Intenderet lokal resektion. Hysterektomi besluttet ved OP	6
Blodtab > 5000 mL	8*

\* 7 havde invasion i cervix eller parametriet

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