Afbeelding met tekening

Automatisch gegenereerde beschrijving

Placenta accreta spectrum (PAS):

epidemiology and management

in Belgium

Data Collection Form

Hash code

# BACKGROUND

Placenta Accreta Spectrum (PAS) is a pathological condition in placentation where villous tissue adheres to or invades the uterine wall without the interposing decidua1. The global incidence of PAS is rising, driven primarily by the increasing prevalence of Caesarean deliveries, which is a major risk factor for PAS in subsequent pregnancies1,2. The primary impact of PAS is the significant risk of massive obstetric hemorrhage during delivery, one of the leading and potentially preventable causes of maternal death. PAS poses major challenges in modern obstetric care, necessitating accurate and timely diagnosis and vigilant prenatal screening to reduce maternal morbidity and mortality and optimise foetal outcomes1,3,4. Increasing evidence suggests that managing PAS cases with multidisciplinary teams in tertiary centers reduces maternal morbidity and mortality compared to standard obstetric care. Three grades of PAS are considered in the FIGO classification:

(1) abnormally adherent placenta (placenta adherent or creta) - attached directly to the surface of the middle layer of the uterine wall (myometrium) without invading it;

(2) abnormally invasive placenta (increta) - invasion into the myometrium; and

(3a , 3b & 3c) abnormally invasive placenta (percreta) - invasion may reach surrounding pelvic tissues, vessels and organs.1,2.

This observational study has two objectives. First, to evaluate the incidence of PAS in Belgium, which is of interest given the moderate increase in caesarean rates (Brussels 20.9%, Wallonia 22.8%, Flanders 22.6% in 2022) and a fertility rate of 1.46 children per woman. Secondly, we aim to assess the management of PAS in Belgium and the outcomes for both mother and newborn.

These data will provide valuable information for counseling women, developing management guidelines, and establishing a baseline incidence to monitor future trends if caesarean rates continue to rise nationally. A coordinated and comprehensive approach by a multidisciplinary team minimizes complications and optimizes outcomes in high-risk obstetric scenarios5.

1. [Jauniaux](https://obgyn.onlinelibrary.wiley.com/authored-by/Jauniaux/Eric) E, [Ayres-de-Campos](https://obgyn.onlinelibrary.wiley.com/authored-by/Ayres%E2%80%90de%E2%80%90Campos/Diogo) D, [Langhoff-Roos](https://obgyn.onlinelibrary.wiley.com/authored-by/Langhoff%E2%80%90Roos/Jens) J, [Fox](https://obgyn.onlinelibrary.wiley.com/authored-by/Fox/Karin+A.) K.A, [Collins](https://obgyn.onlinelibrary.wiley.com/authored-by/Collins/Sally) S (2019) [FIGO Placenta Accreta Diagnosis and Management Expert Consensus Panel](https://obgyn.onlinelibrary.wiley.com/authored-by/ContribRaw/FIGO+Placenta+Accreta+Diagnosis+and+Management+Expert+Consensus+Panel). FIGO classification for the clinical diagnosis of placenta accreta spectrum disorders. *Obstet Gynecol Int J*; **146**: 20–24. DOI: 10.1002/ijgo.12761.
2. Jauniaux E, Ayres-de-Campos D; FIGO Placenta Accreta Diagnosis and Management Expert Consensus Panel. FIGO consensus guidelines on placenta accreta spectrum disorders: Introduction. Int J Gynaecol Obstet. 2018 Mar;140(3):261-264. doi: 10.1002/ijgo.12406. PMID: 29405322.
3. Jauniaux E, Chantraine F, Silver RM, Langhoff-Roos J; FIGO Placenta Accreta Diagnosis and Management Expert Consensus Panel. FIGO consensus guidelines on placenta accreta spectrum disorders: Epidemiology. Int J Gynaecol Obstet. 2018 Mar;140(3):265-273. doi: 10.1002/ijgo.12407. PMID: 29405321.
4. Hall T, Wax J.R, Lucas F.L, Cartin A, Jones M, Pinette M.G (2014) Prenatal sonographic diagnosis of placenta accreta—impact on maternal and neonatal outcomes. *J Clin Ultrasound*; **42**: 449–455. DOI: 10.1002/jcu.22186.
5. Nieto-Calvache A.J, Vergara-Galliadi L.M, Rodríguez F, Ordoñez C.A, García A.F, López M.C, Manzano R, Velásquez J, Carbonell J.P, Bryon A.M, Echavarría M.P, Escobar M.F, Carvajal J, Benavides-Calvache J.P, Burgos J.M (2021) A multidisciplinary approach and implementation of a specialized hemorrhage control team improves outcomes for placenta accreta spectrum. *J Trauma Acute Care Surg*; **90**: 807–816.

CASE DEFINITION

1.Peripartum hysterectomy performed because of suspected and/or confirmed PAS

and/or

2. Severe PAS confirmed by pathologists (specimen should include uterine wall)

and/or

3. Clinical: Delivery (vaginal / CS) with placenta left in situ or with difficult piecemeal removal of placenta wherein the patient required blood transfusion.

# DATA COLLECTION FORM

1. **Woman’s details**
   1. Woman’s age at delivery:
   2. Ethnicity

1.2.1. Current nationality

☐ Belgian with Belgian background

☐ Belgian with a foreign background

☐ Non Belgian, please specify:

☐ Not known

1.2.2. Country of birth

☐ Belgium

☐ Other: Please specify:

☐ Not known

* 1. Were any social services utilised during follow-up of pregnancy?

Yes  
 No   
 Not known

* 1. Height at booking (first antenatal visit)?

     cm

Not known

* 1. Weight at booking (first antenatal visit)?

     kg

Not known

*(Voor Vincent: automatisch BMI laten berekenen)*

* 1. Smoking status

Never

Current

Stopped before pregnancy

Stopped during pregnancy

Not known

* 1. Alcohol use

Never

Current

Stopped before pregnancy

Stopped during pregnancy

Not known

* 1. Substance use/ Addictions (cannabis, opioids, cocaine and amphetamines, benzodiazepines, barbiturates; does not include alcohol and tobacco)

Never

Current

Stopped before pregnancy

Stopped during pregnancy

Not known

1. **Prior obstetric history** 
   1. Gravidity

Number of current pregnancy:             
Number of completed pregnancies (≥ 22 weeks; this pregnancy included):

* 1. Did the mother had a caesarean section in a previous pregnancy?

Yes  
 No   
 Not known

***If she had a previous caesarean section***, please indicate how many:

Caesarean 1:

Year:

Gestational Age at delivery: ….weeks (completed weeks)

Planned mode of delivery:

vaginal

caesarean section

Indication for caesarean section (tick all that apply):

Maternal request

Suspected cephalopelic disproportion (eg macrosomia, small pelvis)

Previous CS

Breech

Abnormal fetal lie, other than breech

Twin, Multiplets

Maternal condition. Please specify the maternal condition as indication for CS:

Fetal condition. Please specify the fetal condition as indication for CS:

Placenta praevia

Bleeding

Not bleeding

Suspected PAS

Fetal distress

Labour stagnation/arrest, failure to progress (no full dilatation)

Prolonged 2nd stage (full dilatation)

Failed instrumental delivery (failed vacuum, failed forceps)

Urgent obstetric condition: suspected ruptured uterus, cord prolaps, suspected abruption. Please specify the urgent obstetric condition:

Other, please specify other indication for the current caesarean section:      :………

Unknown

Grade of urgency:

Category I   
 Category II  
 Category III

Category IV

Afbeelding met schermafbeelding

Automatisch gegenereerde beschrijving

Type of incision:

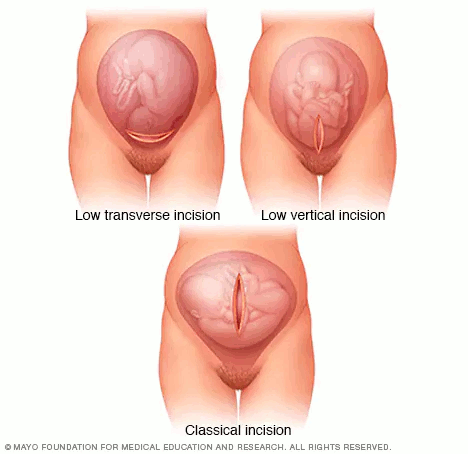
**Lower uterine transverse** incision (see figure)

Other lower uterine incision (**low vertical**, extension with J incision, extension with T incision)

Vertical incision (**classical incision**, see figure)

Other: specify type of incision:

Not known



Need for blood transfusion:

Yes  
 No   
 Not known

* 1. Did the woman have any **prior** pregnancy related complications (in previous pregnancies)?

Yes (thick all that apply)

Gestational diabetes

Hypertensive problems

Premature delivery

Hemorrhage

Placental abnormalities

Other, please specify other prior pregnancy related complications:

No

Not known

* 1. Has the woman a history of a placenta previa?

Yes

No

Not known

* 1. Has the woman a history of a PAS?

Yes

No

Not known

* 1. Has the woman ever had a manual placental removal?

Yes

No

Not known

1. **Previous medical history** 
   1. Does the women have gynaecological problems in her medical history?

Yes:

Congenital uterine anomaly. Please specify the uterine anomaly:

Endometriosis

Adenomyosis

Asherman

Endometritis

PID

Other: please specify other previous gynaecological problems:

No

Not known

* 1. Does the woman have gynaecological surgery in her medical history?

Yes:

Myomectomy

If Myomectomy, was the cavity breached?

Yes

No

Dilatation and curettage

Operative hysteroscopy; please specify the hysteroscopy:

Niche resection/repair

Uterine artery embolization; please specify reason for embolisation:

Other: please specify other previous gynaecological surgery/ies:

No

Not known

1. **This pregnancy**

4.1 Estimated date of delivery?

* 1. Origin of pregnancy?

Spontaneous

IUI (intra-uterine insemination)

IVF/ICSI (in-vitro fertilisation/ intracytoplasmic sperm injection)

Other: please specify other origin of pregnancy:

Not known

* 1. Type of pregnancy?

Singleton

DCDA twin (dichorionic diamniotic)

MCDA twin (monochorionic diamniotic)

MCMA/MOMA twin (monochorionic monoamniotic)

Other: please specify type of pregnancy:

* 1. Was this woman referred from another centre?

Yes:

* please specify the hospital:
* please specify reason for referral:

antenatal (elective) :

intrapartum/postpartum (urgent) :

* Please specify gestational age at booking (first antenatal visit) in the first centre: … weeks (completed weeks)
* Please specify gestational age at referral: … weeks

No

* Please specify gestational age at booking (first antenatal visit): … weeks (completed weeks)
  1. Were routine prenatal ultrasounds performed (in this hospital and if applicable: in referral hospital)?
* First trimester screen

Yes

No

* Second trimester screen

Yes

No

* Third trimester screen yes / no

Yes

No

Not known:

* 1. Was a caesarean scar pregnancy suspected/diagnosed in the first trimester?

Yes

No

Not known

* 1. Was the pregnancy complicated by a placenta previa?

Yes

* Specify:

Low-lying placenta *(question correct?)*

Grade 2: marginal praevia (at internal os)

Grade 3: partial praevia (over internal os partial)

Grade 4: complete praevia (over internal os complete)

* Placenta was last evaluated at … weeks of gestational age
* Findings of last evaluation:

anterior placenta

posterior placenta

Not applicable

Not known

No

* 1. Was PAS suspected prior to delivery?

No, PAS presented unexpectedly during vaginal/ caesarean delivery

* Delivery complicated by

Postpartum hemorrhage

Retained placenta

Uterine rupture

Other: please specify complication during delivery:

Yes:

* At which GA was PAS diagnosed? (completed weeks): ....... weeks
* Which modes of imaging were used:

Ultrasound

Which findings were recorded (tick all that apply)?

Abnormal placental lacunae

Number abnormal placental lacunae:

Loss of hypoechoic retroplacental clear space

Myometrial thinning

Bladder wall interruption

Placental bulge

Hypervascularization patterns (tornado vessels)

Uterovesical

Subplacental

Intraplacental

Presence of bridging vessels

Other. Please specify these other ultrasound findings:

MRI

Which findings were recorded?

Dark intraplacental bands

Uterine bulging

Heterogeneous placenta

Irregular contour and rounded edge

Abnormal or disorganized intraplacental and subplacental vascularization

Thinning or loss of the retroplacental T2 dark zone

Myometrial thinning

Focal disruption of the myometrium

Or see MRI report (copy paste the text of the report):

* 1. Were there any other complications during this pregnancy?

Yes

Gestational diabetes

Hypertensive problems

Preterm labour

PPROM

Antepartum heamorhage

Other. Please specify other complications during this pregnancy:

No

Not known

1. **Delivery**
   1. Gestational age at delivery (number of completed weeks)?       weeks
   2. What was the planned mode of delivery?

Vaginal delivery

Caesarean section

* 1. Was the woman in labour? *(defined as having had continuous, progressive contractions that caused cervical changes (effacement, dilatation)*

Yes

No`

* 1. Was labour induced?

Yes (maternal or foetal indication)

No

* 1. What was the final mode of delivery?

Vaginal (Vincent: if Vaginal: onderliggende vragen niet open)

Caesarean section

* + 1. What was the indication for caesarean section?

Suspected PAS

Placenta praevia

Bleeding

not bleeding

Maternal request

Suspected cephalopelic disproportion (eg macrosomia, small pelvis)

Previous CS

Breech

Abnormal fetal lie, other than breech

Twin, Multiplets

Maternal condition. Please specify the maternal condition as indication for CS:

Fetal condition. Please specify the fetal condition as indication for CS:

Fetal distress

Labour stagnation/arrest, failure to progress (no full dilatation)

Prolonged 2nd stage (full dilatation)

Failed instrumental delivery (failed vacuum, failed forceps)

Urgent obstetric condition: suspected ruptured uterus, cord prolaps, suspected abruption -> please specify the urgent obstetric condition:

Other, please specify other indication for the current caesarean section:

Unknown

* + 1. Grade of urgency?

Category I   
 Category II  
 Category III

Category IV

Not known

Afbeelding met schermafbeelding

Automatisch gegenereerde beschrijving

* + 1. Was the placenta left in situ?

Yes

* Were antibiotics administered?

Yes:

* Type:
* Duration:      days

No

Not known

No

* 1. Was a hysterectomy performed

No

Yes

* + 1. In which type of hospital was it performed?

Second line hospital

Third line hospital (hospital with MIC and NICU)

* + 1. Was this planned/anticipated?

Yes

Yes, placenta left in situ

Yes, with difficult/piecemeal/partial removal

No

Failed removal/detachment of placenta

Severe postpartum bleeding:

Other, please specify reason unplanned hysterectomy:

Not known

* + 1. The hysterectomy was:

Total

Subtotal

* + 1. Moment of hysterectomy if different from delivery date:      weeks and      days after delivery.
    2. Who performed the hysterectomy?

1st surgeon:

- (sub)speciality 1st surgeon:

- Grade 1st surgeon:  junior  senior

*Knop: Add second surgeon*

2nd surgeon:

- (sub)speciality 2nd surgeon:

- Grade 2nd surgeon:  junior  senior

*Knop: Add third surgeon*

3d surgeon:

- (sub)speciality 3rd surgeon:

- Grade 3d surgeon:  junior  senior

* + 1. Was interventional radiology support involved

Yes

* + were preventive interventional radiology measures taken

Yes

No

* + were haemostatic interventional radiology procedures done

Yes

No

* + please copy report of interventional radiology here :

No

* 1. Please indicate below all other therapies used to prevent or treat haemorrhage

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Treatment | Yes | Rank order in which given (1,2,3…) | Prophylactic (P) or therapeutic (T) | |
| P | T |
| *Oxytocin singe bolus* |  |  |  |  |
| *Oxytocin infusion* |  |  |  |  |
| *Misoprostol (Cytotec)* |  |  |  |  |
| *Carbetocine (Pabal)* |  |  |  |  |
| *Carboprost (Prostin 15M)* |  |  |  |  |
| *Tranexamic Acid* |  |  |  |  |
| *Methylergometrine (methergine)* |  |  |  |  |
| *Recombinant activated factor VII* |  |  |  |  |
| *Intrauterine balloons* |  |  |  |  |
| *B-Lynch or another brace suture* |  |  |  |  |
| *Uterine artery ligation* |  |  |  |  |
| *Internal iliac artery ligation* |  |  |  |  |
| *Intra-abdominal packing* |  |  |  |  |
| *Artery embolisation* |  |  |  |  |
| *Balloon tamponade* |  |  |  |  |
| *Intraaortic balloon occlusion* |  |  |  |  |
| *Internal iliac artery (IIA) balloon occlusion* |  |  |  |  |
| *Other* |  |  |  |  |
| *If other, please specify therapy to prevent or treat haemorrhage:* |  | | | |

* 1. What was the total estimated blood loss during delivery?

     ml

Not known

* 1. Were blood products given?

No, not indicated

No, the patient refused

Yes:

|  |  |
| --- | --- |
| Type of blood product | Total units |
| *Whole blood or packed red blood cells* |  |
| *Fresh frozen plasma* |  |
| *Platelets* |  |
| *Cryoprecipitate* |  |
| *Cell salvaged blood* |  |
| *Other blood product* |  |
| *If other blood product given, please specify which:* | |

Not known

* 1. What was the clinical placenta accreta spectrum classification?

Not applicable

**Following general terminology:**

Placenta accreta

Placenta increta

Placenta percreta

**Following the FIGO classification:**

**Grade 1**: abnormally adherent placenta (placenta adherent or creta) - attached directly to the surface of the middle layer of the uterine wall (myometrium) without invading it

**Grade 2**: abnormally invasive placenta (increta) - invasion into the myometrium

**Grade 3**: abnormally invasive placenta (percreta) invasion may reach surrounding pelvic tissues, vessels and organs.

Grade 3a (limited to the uterine serosa)

Grade 3b (with urinary bladder invasion)

Grade 3c (with invasion of other pelvic tissue/ organs)

* 1. What was the pathological classification?

Not applicable

**Following general terminology:**

Placenta accreta

Placenta increta

Placenta percreta

**Following the Hecht classification (see Figure below):**

**Grade 1**: non-invasive without gross thinning of the uterine wall

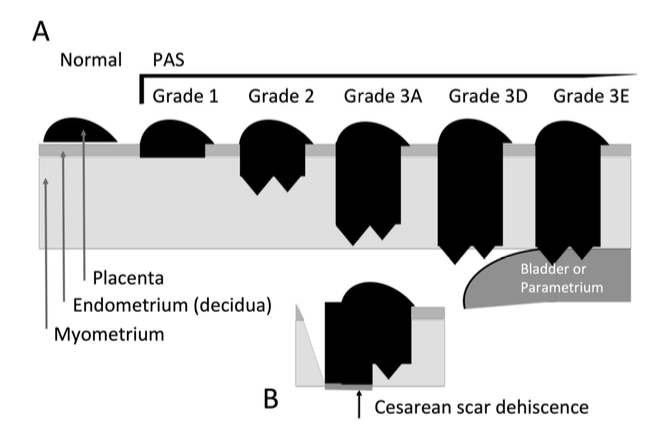
**Grade 2**: superficial invasion: shows thinning of the uterine wall below the placenta, with preservation of at least 25% of the wall thickness relative to uninvolved myometrium

**Grade 3**: deep invasion

Grade 3a (shows thinning of the uterine wall below the placenta, with preservation of less than 25% of the wall thickness relative to uninvolved myometrium)

Grade 3d (shows disruption of the uterine serosa)

Grade 3e (shows invasion into extrauterine structures)



1. **Woman’s outcome**
   1. Were there any surgical complications

Not applicable (no surgery)

No

Yes

Bladder

Ureter

Bowel

Other, Please specify other surgical complications

* 1. Was the woman admitted to an Intensive Care Unit?

Yes

Was this planned (pre-operatively)?

Yes

No

Did she receive any inotropic medication?

Yes

No

How many days:

Specify unit:

ICU

PACU

Other; please specify other unit:

No

Not known

* 1. Did the woman die?

Yes

No

* 1. Duration of stay in the hospital during her delivery:

      days

Still hospitalised

Not known

1. **Infant outcome (of this pregnancy)**

Infant 1 outcomes

* 1. Birthweight

     g

Not known

* 1. Was the infant stillborn (>= 22 weeks)?

Yes

No

* + 1. Apgar scores

Not known

* + 1. Complete the umbilical cord blood gas analysis if known:
    - Arterial pH:
    - Venous pH:

Not known

* + 1. Did any major infant complications occur?

Yes

Respiratory distress syndrome   
 Intraventricular haemorrhage   
 Necrotising enterocolitis   
 Neonatal encephalopathy   
 Severe jaundice requiring phototherapy   
 Major congenital anomaly  
 Severe infection e.g. septicaemia, meningitis   
 Exchange transfusion

Other? Please specify other major infant complications :

No

Not known

* + 1. Did the infant die?

Yes

No

Not known

1. **Additional information?**

### Please use this space to enter any other information you feel may be important:

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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