Obstetrical Management of Placenta Accreta Spectrum

George: come to Interlaken : let's talk about accreta management !

Easy-peasy for an obstetrician
Wake up the anesthesist
Call the gynecologic oncologist
Eventually inform the interventional radiologist
Alert the blood bank

Jean-Marie Pellegrinelli / Senior Obst. / HUG - Geneva

Obstetrical Care of Placenta Accreta Spectrum

Word of advice
As obstetrician i'm very good for rising an alert on problems, but not really good to solve them

First experience as a junior
Patient with two prior c-section and a placenta praevia
Major hypervascularization of the lower uterine segment: SENIOR alerted.

He didn't really listened to me: excellent outcome
Was he right ?
Were we just lucky ?

Jean-Marie Pellegrinelli / Senior Obst. / HUG - Geneva

Obstetrical Care ?

Evolving Approaches to PAS Management

hybrid operating rooms
intraortic balloons / ureteral stents
placenta removed – left in place – with or without methotrexate

Different caretakers / hospitals
Rare situations for small hospitals
Obstetricians not always aware of the patients at risk

Understanding Placenta Accreta Spectrum

Etiology

PAS is an iatrogenic disease caused by changes in gynaecological and obstetrical practices.

Risks

PAS can lead to severe haemorrhage and death, with mortality rates from 0.05% up to 7%.

Issues

Antenatal diagnosis and dedicated multidisciplinary care are crucial for better outcomes.

Increasing Incidence of PAS

1 Global Prevalence

PAS occurs in 1 in 817 births or
1 in 313 caesarean sections.

2 Risk Factors

Previous uterine surgeries, especially caesarean sections, increase PAS risk.

3 Caesarean Rates

Caesarean rates have risen significantly, from
9% in 1989 to 23% in 2023 in Geneva
Brazil 56% of births

4 Praevia and prior c-sectons

3% PAS after one c-section
11% PAS after two c-sections
40 % PAS after three c-sections
> 60 % PAS after > three c-sections

Nevetheles: with a priori cesarean section BUT absence of a placenta praevia: risk of PAS is low

Diagnosis and Classification of PAS

Histological Classification

PAS is traditionally classified as accreta, increta, or percreta based on invasion depth.

Clinical Approach

A shift towards clinico-pathological classification is occurring to optimise management.

Risk Factors

PAS risk depends on the size and amount of placenta developing within the scar area.

Pathophysiology of PAS

1

Scarred Myometrium

Allows trophoblast to induce vascular changes in adjacent uterine vessels.

2

Fibrin Deposition

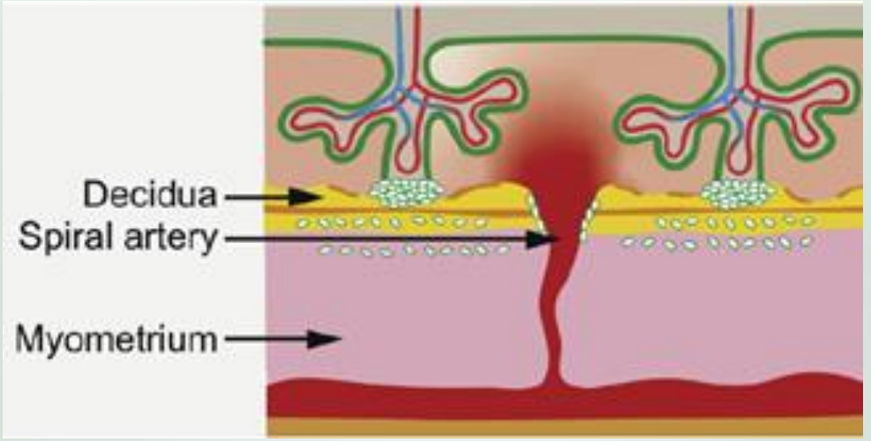
Causes distortion of surrounding placental cotyledons.

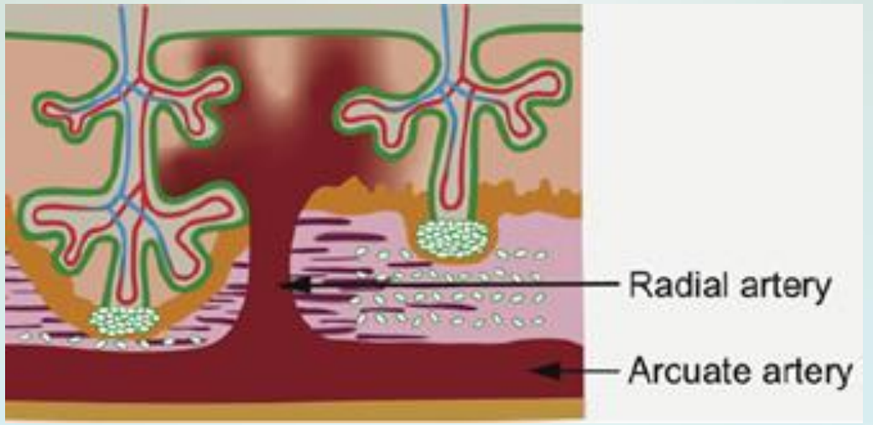
3

Loss of Cleavage Zone

Adhesion to structures without capacity to develop cleavage area.

Any attempt to manually remove the placenta in the more adverse phenotypes can cause an uterine disruption and significant bleeding





Changing Perceptions of PAS

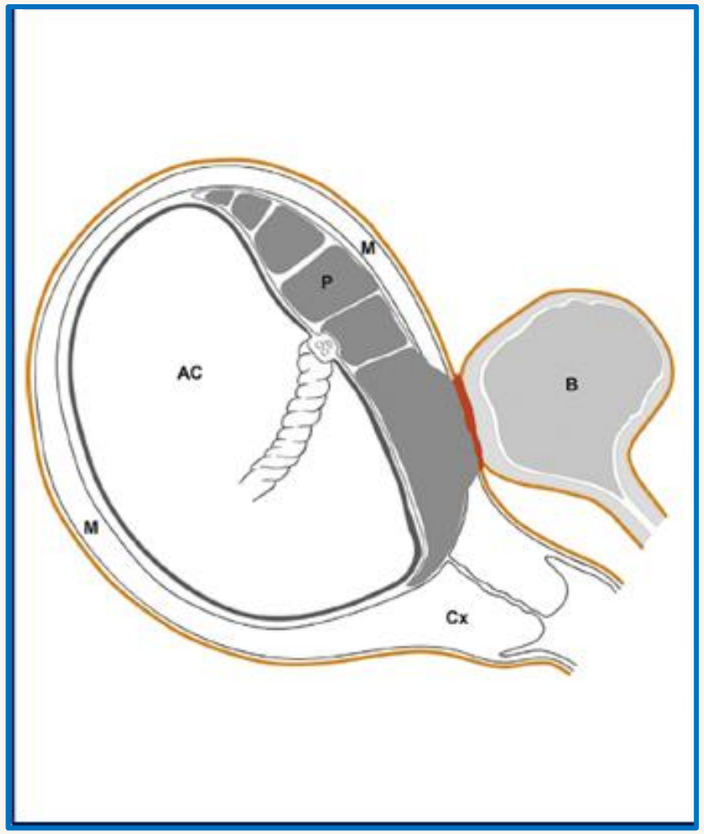
Old View	New View
Placental Invasion	Placental Extrusion
Dichotomous Approach	Less Radical Management
Villous Tissue Penetration	Consequence of Surgical Remodeling

Searching for placenta percreta: a prospective cohort and systematic review of case reports

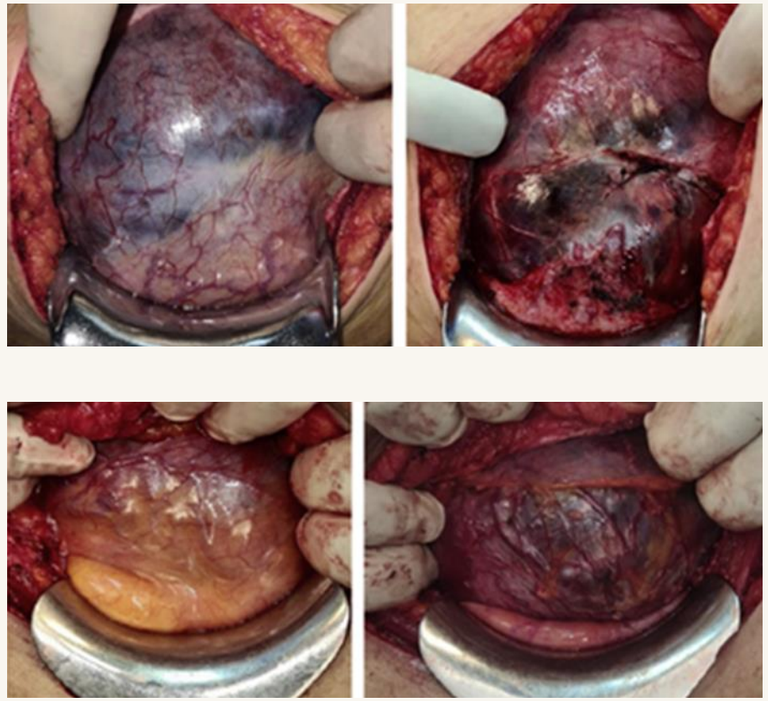
Eric Jauniaux, MD, PhD, FRCOG; Jonathan L. Hecht, MD; Rasha A. Elbarmelgy, MD; Rana M. Mohamed M. Thabet, MD; Ahmed M. Hussein, MD

Conclusion: our study supported the concept that placenta accreta is not an invasive disorder of placentation but the consequence of postoperative surgical remodeling or a preexisting uterine pathology and found no histologic evidence supporting the existence of a condition where the villous tissue penetrates the entire uterine wall

Clinical Presentation and Diagnosis



Schematic diagram of an antenatal ultrasound

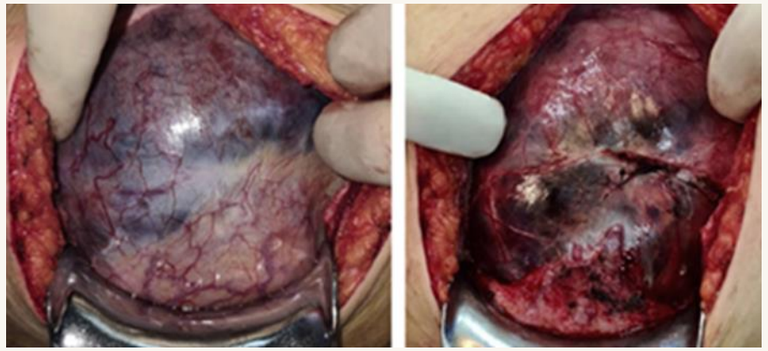


A-B
Intraoperative views at 37 weeks
Before – after bladder dissection

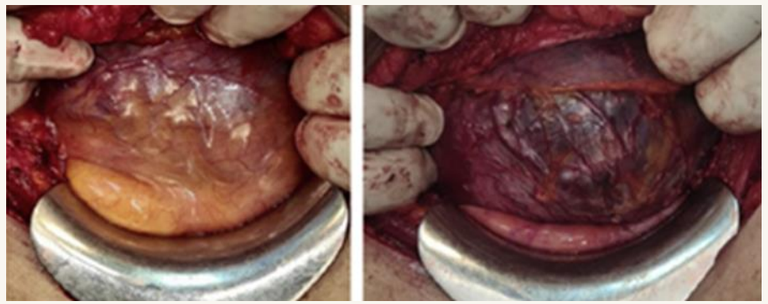
C-D
Intraoperative views at 37 weeks
Before – after bladder dissection

Accreta / dehiscence ?

Clinical Presentation and Diagnosis



A-B PAS



C-D No PAS

Bluish purple colouring and distension of the uterine wall – hypervascularity

In this type of situation, assessing the degree of adhesion before an intraoperative staging is very difficult.

Clinical Presentation and Diagnosis

Ultrasound Screening

Mandatory for patients with placenta previa and previous caesarean section.

Reduced Blood Loss

Antepartum diagnosis significantly reduces blood loss and transfusions.

Asymptomatic Presentation

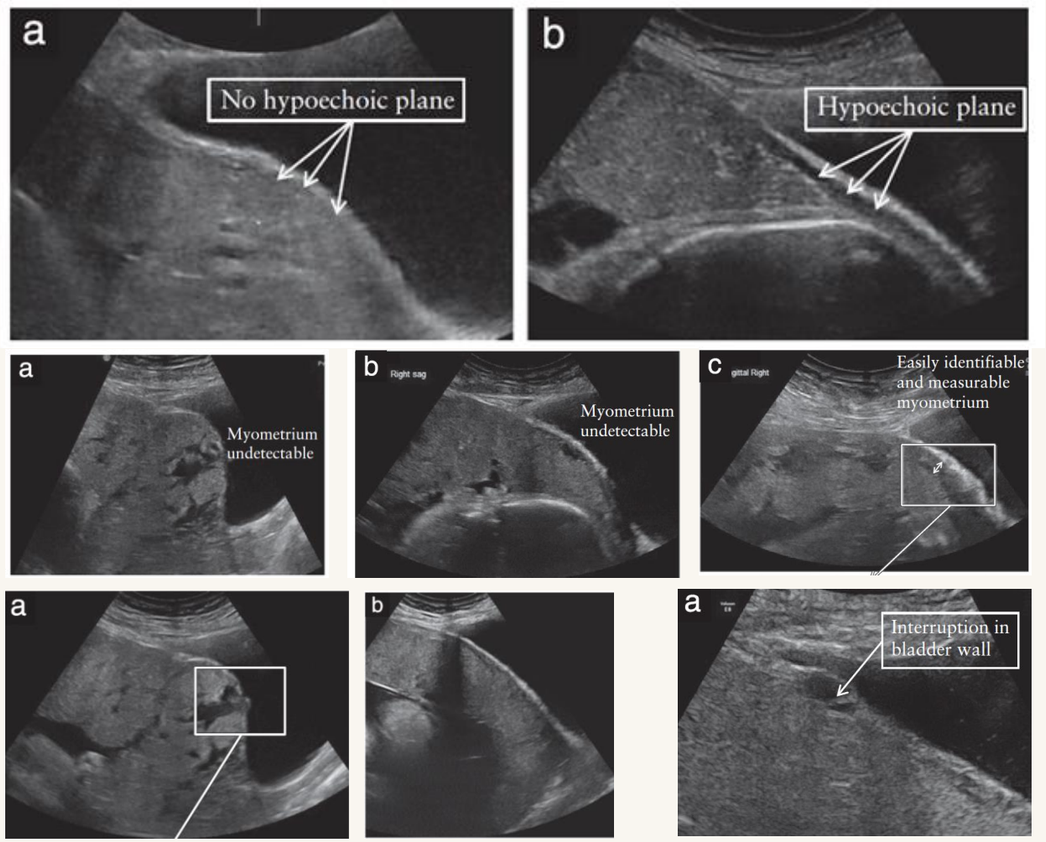
Most patients with PAS are asymptomatic.

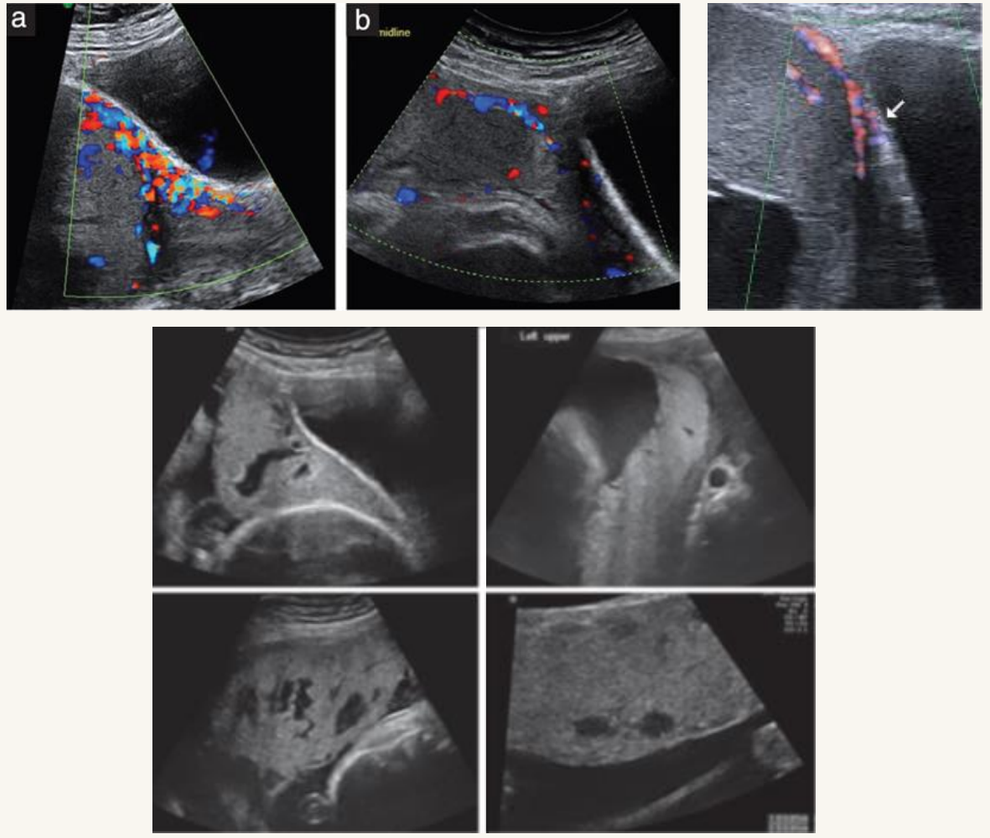
Ultrasound Screening

Many ultrasound markers have been proposed
Consensus 2016 11 signs
Delphi 2023 7 signs

4 signs of scar remodeling next to the placenta
3 signs witness the hypervascularization due to recruitment of periuterine vessels

Ultrasound Signs of PAS





Scar Remodeling Signs

Include loss of clear retroplacental space, myometrial thinning, placental bulge and loss of continuity ot the hyperechogenic bladder wall

Hypervascularization Signs

Include uterovesical hypervascularity and abnormal placental lacunae.

Diagnostic Accuracy and Management

1 **Ultrasound Accuracy**

Sensitivity and specificity of over 90% for detecting accreta.

2 **Multiple Signs**

Combination of signs increases positive predictive value of the bleeding risk assessment.

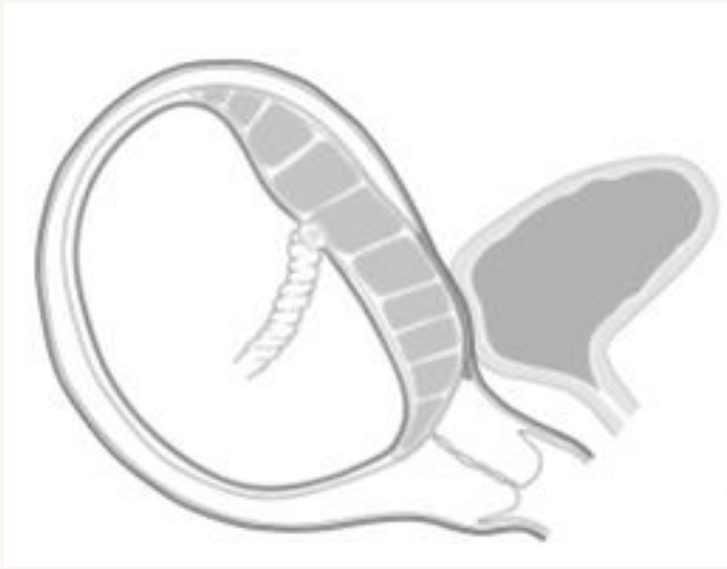
3 **Referral**

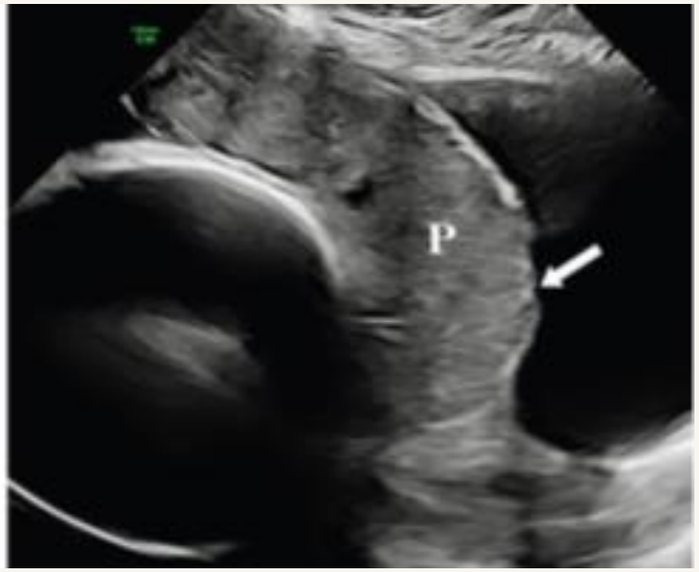
Suspicious cases should be referred to a reference centre.

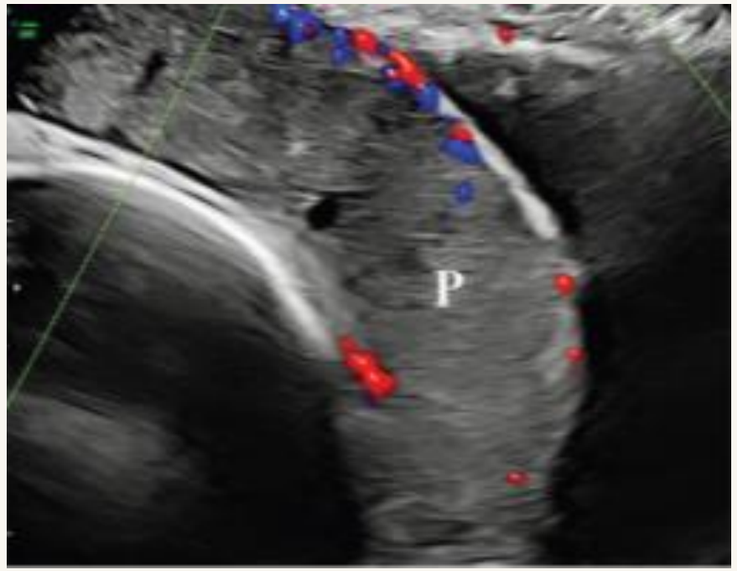
Distinguishing antenatally a PAS from a uterine dehiscence with hypervascularity remains difficult,
Ultrasound signs are very similar.

However the NPV is very effective in the presence of risk factors
In a scarred uterus with a placenta previa, the absence of ultrasound signs practically allows PAS to be ruled out.
MRI appears to have no benefit except in cases of posterior placenta.

Anesthesist's Diagnostic Accuracy ?

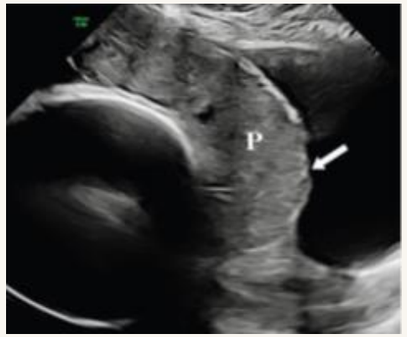


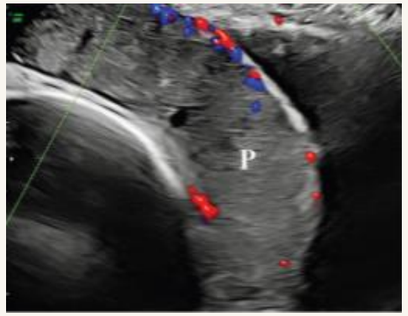




PAS on not PAS ?

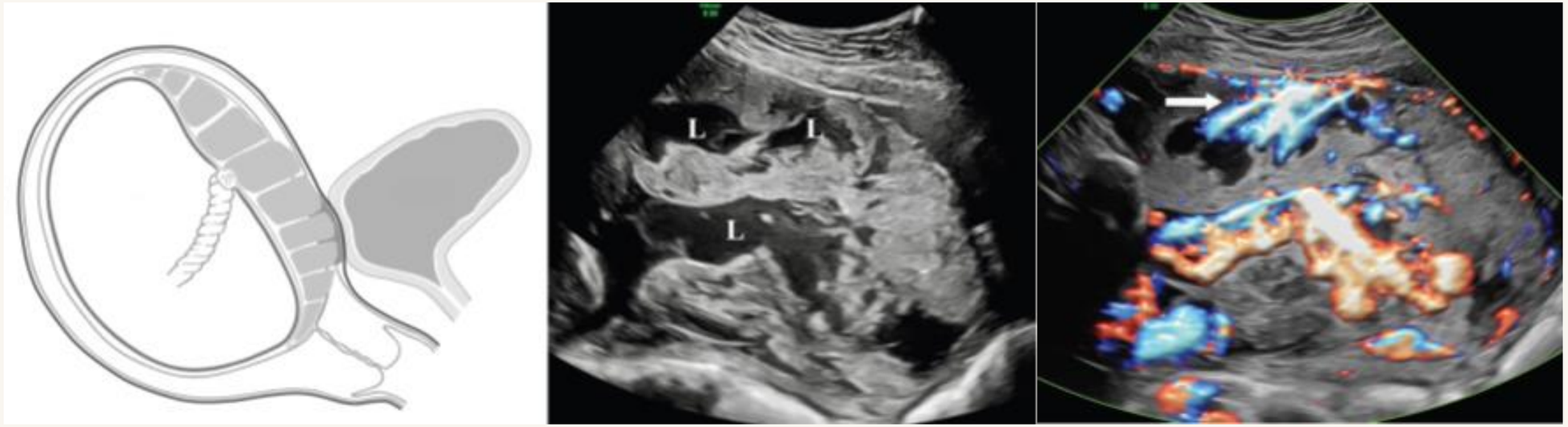
Anesthesist's Diagnostic Accuracy ?





NON ACCRETA PLACENTA PRAEVIA
Large area of dehiscence between the lower uterine segment and the bladder.
Longitudinal transabdominal view of the lower uterine segment, showing placenta previa and myometrial thinning (arrow).
Color Doppler mapping showing normal uteroplacental vasculature.
Intraoperative image, showing an extended area of uterine dehiscence occupying the entire lower uterine segment anterior wall.
Hussein 2022

Anesthesist's Diagnostic Accuracy ?



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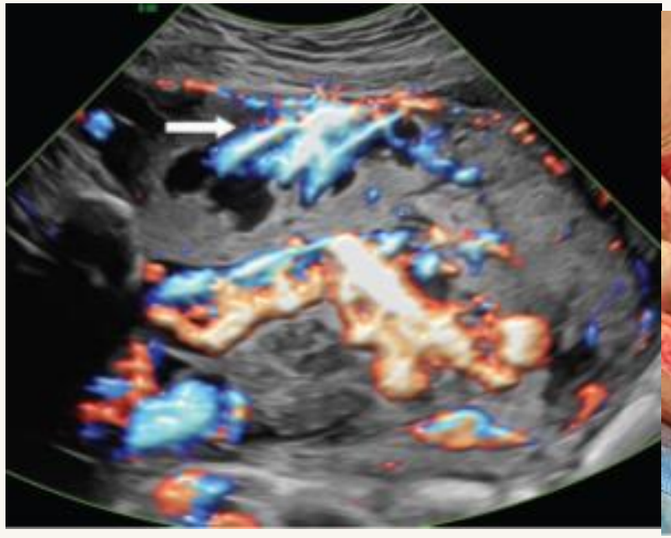
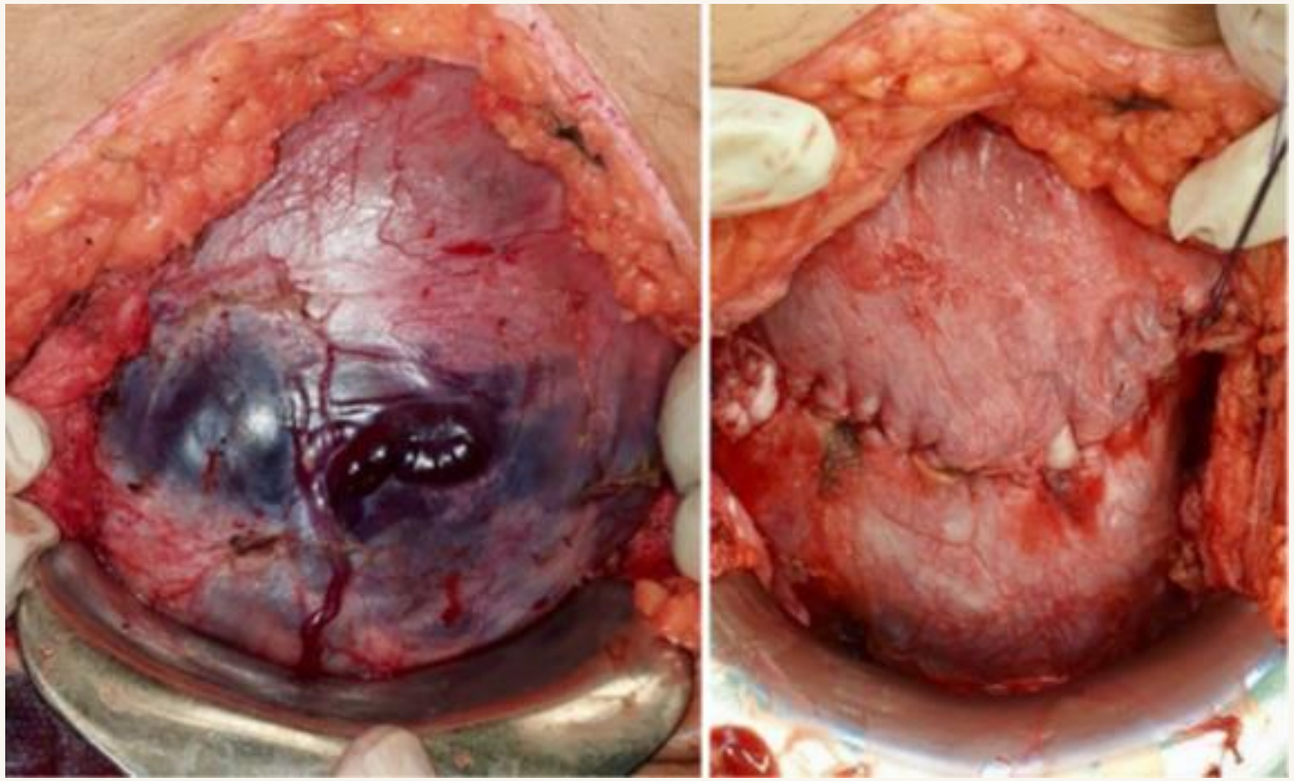
Anesthesist's Diagnostic Accuracy ?



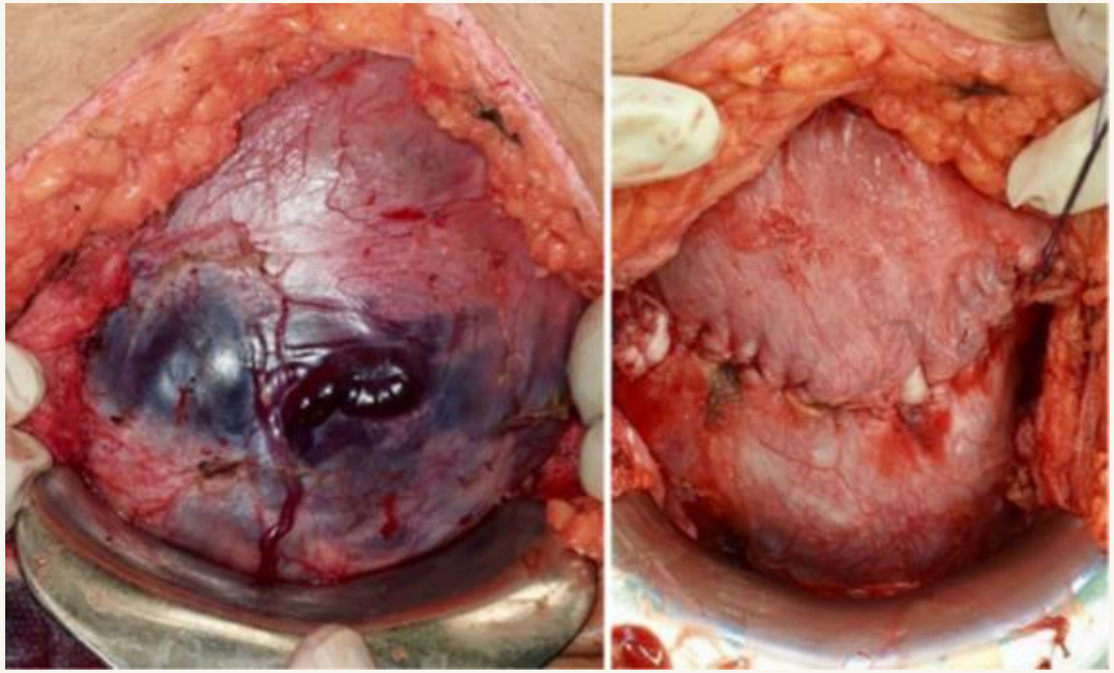
PLACENTA PREVIA ACCRETA
Longitudinal view of the lower uterine segment, showing placenta previa with large lacunae (L).
Color Doppler images showing large feeder vessels (arrow).
Intraoperative image, showing an area of focal uterine dehiscence of the lower uterine segment anterior wall (*) and dense tangled bed of vessels and multiple vessels running craniocaudally and laterally in the anterior perimetrium.
Note an area of adhesion involving the bladder (arrow)

Anesthesist's Diagnostic Accuracy ?



PAS on not PAS ?

Anesthesist's Diagnostic Accuracy ?



Intraoperative images of a case of NON ACCRETA placenta previa at 36 weeks' gestation, showing (left) the anterior uterine wall with a large area of dehiscence covered by dilated vessels before hysterotomy.
Right a view after transverse lower segment hysterotomy and reconstruction of the lower uterine segment.

Challenges in Prenatal Diagnosis of PAS

Summary

Accurate prenatal diagnosis of Placenta Accreta Spectrum (PAS) is challenging.

Sonographic signs can be confusing for inexperienced sonographers.

Even seasoned practitioners struggle to distinguish between dehiscence and PAS.

PAS is not a binary condition

Ranges from abnormal adherence to involvement of surrounding pelvic structures.

Varying grades of PAS co-exist in the same placental bed.

The intraoperative appearance and architecture of the uteroplacental interface varies significantly from case to case

But

Describing topographically the location and extent of the PAS helps to prepare possibles surgeries

Important to take into account the affected uterine wall (anterior, posterior or lateral)

And the level of damage (on or under the vesicouterine fold). .

Intrapartum Care: basics

1

Haemorrhage Prevention

Haemorrhage is the leading preventable cause of death.

Time is blood; blood is life.

Be ready and react quickly.

2

Preparedness

Patient should be at the right place (referral)

Ensure readiness with equipment, protocols, and a skilled team.

3

Blood Management

Consider cell saver, normovolaemic haemodilution, and discuss blood refusal contingencies early.

Create your setting: what works in one center doesn’t absolutely work in all centers (HUMAN FACTORS; distance to hospitals)

Learn one from another

Treatment Approaches for PAS

Conservative Management
(Placenta in situ)

Uterine-Sparing
Surgical Techniques

Cesarean
Hysterectomy

International PAS Management Approaches

Conservative management with placenta left in situ, potentially combined with other technique

PACCRETA Study (Sentilhes) : lower rates of severe bleeding and maternal morbidity

Higher rates of embolization – endometritis and readmission.

Fertility sparing in 70-88 % of cases. 22-28% risk of recurrence of PAS

Median time to resolution is 6-9 months (expulsion or resorbtion).

Secondary hysterectomy in 20-58 %

Focal resection and myometrium reconstruction techniques

Jaraquemada – OSCS ; Chandraharan – triple P procedures

Reduces morbidity and is fertility sparing.

In extensive and deep cervical or lateral accreta these techniques may not be possible.

Caesarean hysterectomy as first-line treatment, depending on resources and setting

Associated with ureteral catheters or intentional cystotomy.

Needs a strong set of surgical skill

Has high rate of urinary morbidity.

In deep and low placenta very difficult surgery (access and proximity to neurological and vascular structure).

Patient-Specific Management

Antenatal Diagnosis

Ability to anticipate severity influences management decisions.

Local Resources

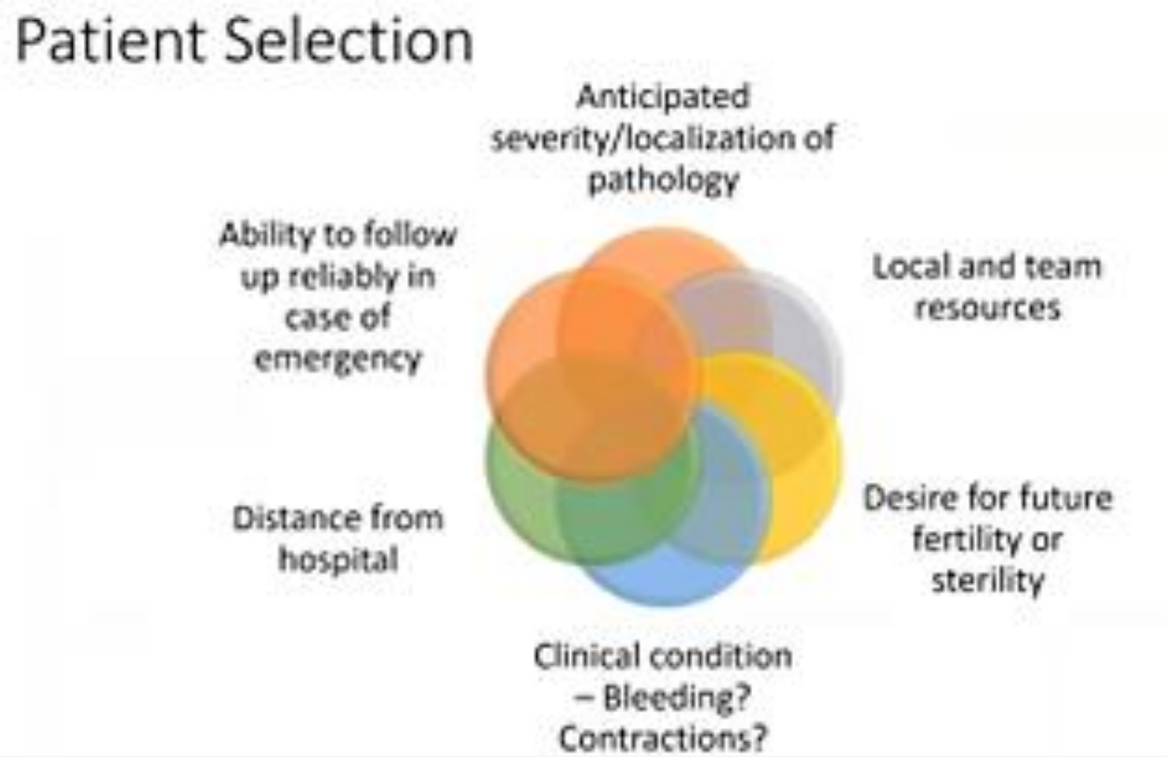
Team capabilities and available resources affect treatment options.

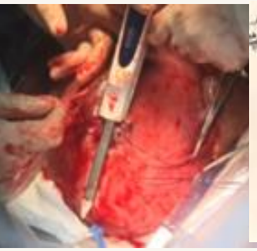
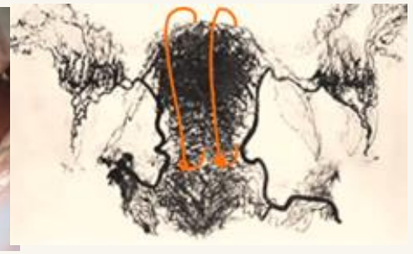
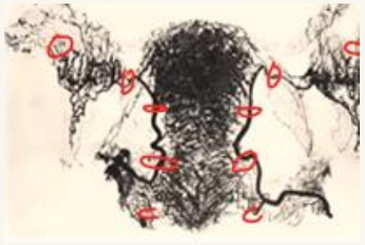
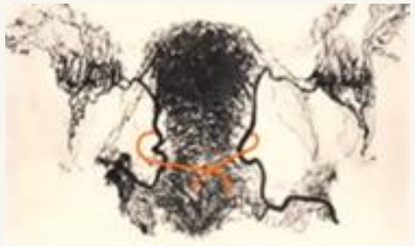
Future Fertility

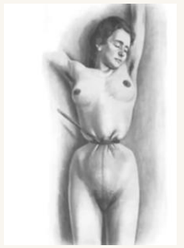
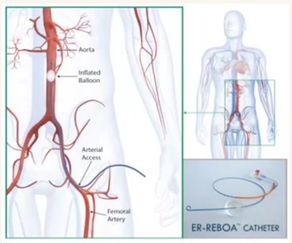
Patient's desire for future pregnancies is a key consideration.

Clinical Condition

Urgent procedures may limit management options.



Caesarean Hysterectomy Techniques

1

Lethal Triad

Address bleeding, hypothermia, and acidosis to prevent coagulopathy.

2

Bloodless Technique

Use electrocautery, pre-uterotomy sutures, and uterotomy sealing for minimal blood loss.

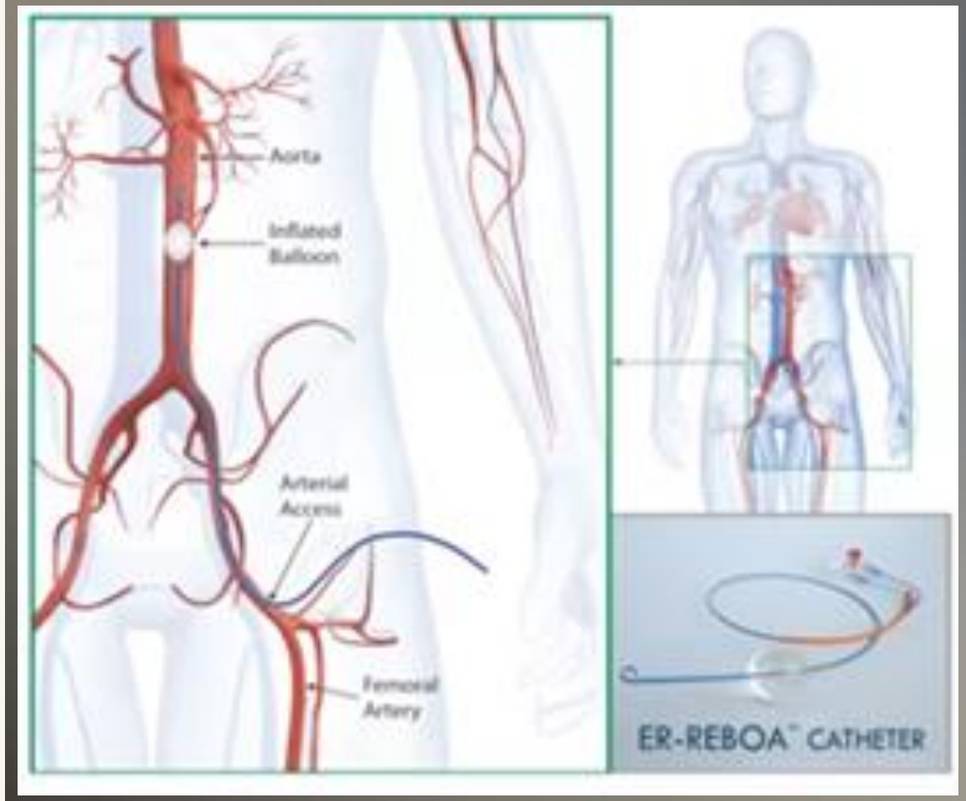
3

Vascular Control - Compression

Employ strategies to prevent and treat excessive intraoperative bleeding.

Vascular Control Strategies

Experienced Teams	Low frequency of vascular device use
Most Teams	Ensure availability of vascular control strategies
REBOA Catheter	Helpful for patient stabilisation _> -> Vascular surgeon assistance



Timing of Delivery in PAS

1

ACOG Recommendation

Schedule delivery between 34-36 weeks to avoid emergency caesarean sections.

2

RCOG Recommendation

Recommend delivery between 35-37 weeks, considering associated risks.

3

Factors to Consider

Adjust timing based on premature birth risks, contractions, or bleeding.

Severity Paradox

Some authors assert that more severe accreta cases may have lower bleeding risk.

Caution Required **Extensive Percreta**

Deep, extensive percreta may not bleed until surgically disturbed.

Colombian experience and telemedicine

PAS management: individualized on expected surgical morbidity patient desire for uterine preservation, logistical factors including geography, organization of care, and insurance.

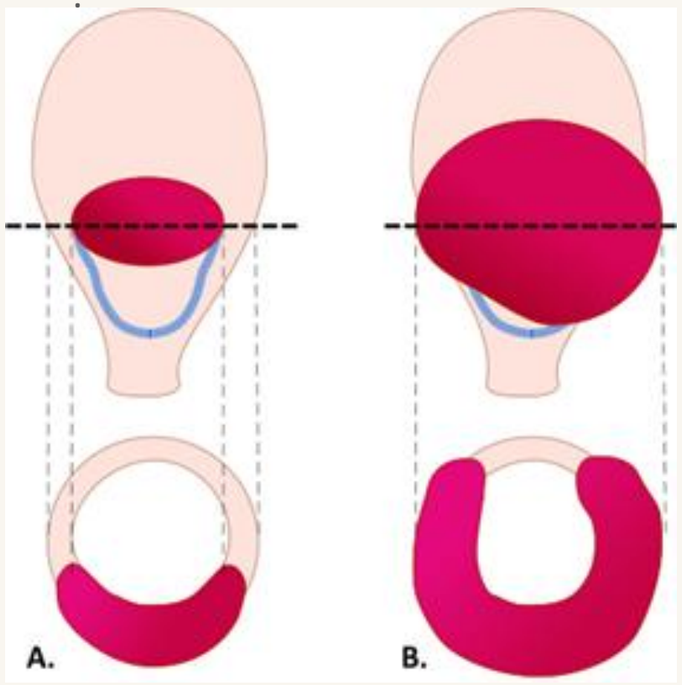
Unclear diagnosis in a context of dehiscence of the uterine scar treated by cesareans hysterectomy is over-treating a condition that could be managed in up to 80% by standardized peripartum protocols of a conservative approach.

Jaraquemada and Nieto: standardization of this approach with movies, hands on trainings, seminars, online discussion of cases: OSCS One Step Conservative Surgery.

Antenatal topographical classification of PAS with intraoperative staging makes it possible to sort cases that may benefit from OSCS.

Colombian experience and telemedicine

Three conditions for determining a patient's eligibility for OSCS are
1) Absence of vesicouterine fibrosis allowing separation of the bladder from the uterus and ligations on demand
2) Presence of >2cm of healthy myometrium upstream of the cervix
3) Myometrial integrity of at least 50% of the uterine circumference in axial section.



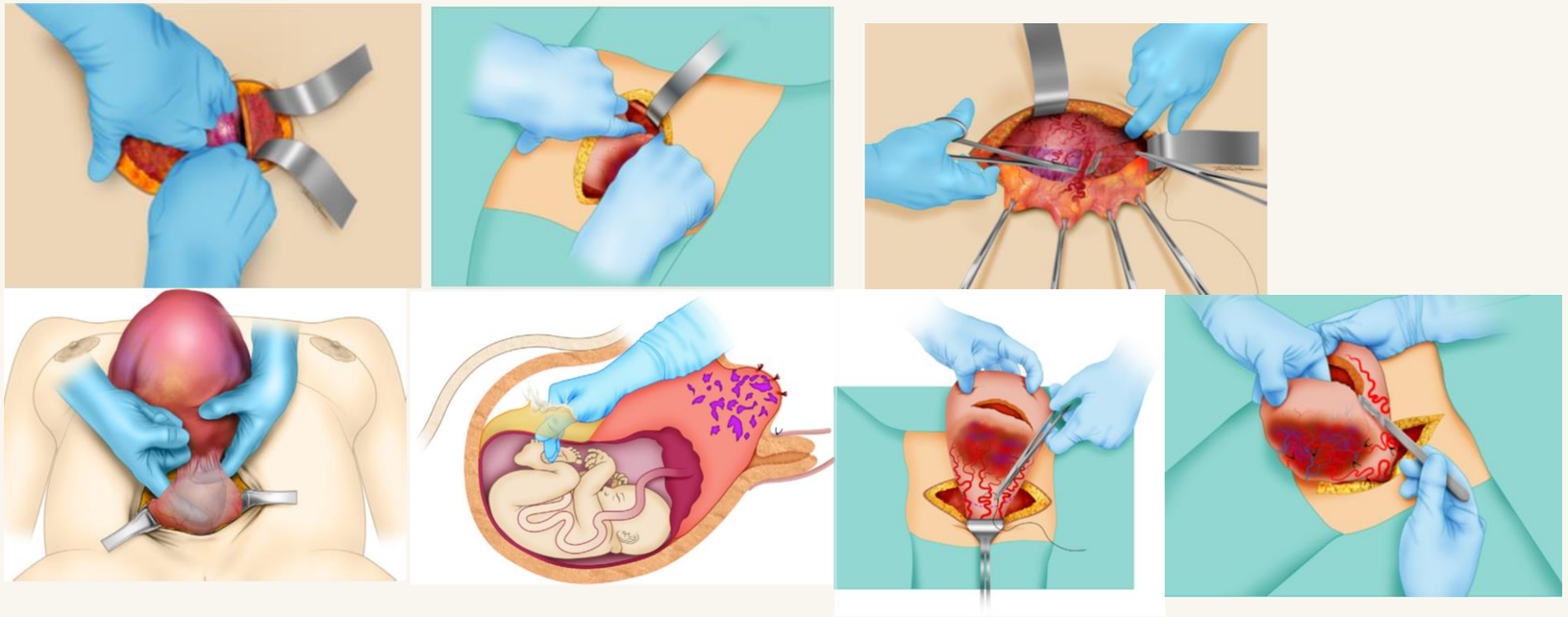


TABLE 1

Management options for PAS: comparison of general characteristics

Variable	OSCS	Hysterectomy	Expectant (placenta in situ)
Does it require specific training?	Yes	Yes	Yes
Does it consume resources?	Few	Variable	Many
Postoperative follow-up time	Brief	Brief	Prolonged
Is the problem resolved in the first surgery?	Yes	Yes	No
Allows individualized management?	Yes	No	No
Does it have publications that support its usefulness?	Yes	Yes	Yes
Does it have additional benefits?	Yes[a]	No	No
Maternal morbidity	Low	High	Variable
Future pregnancy and recurrence	202 full controlled cases. No recurrence, previa, PPH, or hysterectomy	No	Possible, with ≥25% possibility of recurrence

OSCS, one-step conservative surgery; *PAS*, placenta accreta spectrum; *PPH*, postpartum hemorrhage.

[a] Preserves fertility and shortens the surgical time.

Nieto-Calvache. One-step conservative surgery for placenta accreta spectrum, move by move. Am J Obstet Gynecol MFM 2022.

Take home messages

1. Every patient with placenta previa and a history of cesarean section requires PAS screening.
2. The risk of PAS increaseswith the association of a history of c- section and placenta previa.
3. In case of placenta previa without a history of c-section: the probability of PAS is low.
4. Detection of PAS is a crucial issue for planning a safe cesarean section, thus reducing maternal morbidity and mortality.
5. Ultrasound is the examination of choice to evaluate PAS. The diagnostic criteria are currently standardized.
6. Intraoperative staging is an essential tool, particularly for conservative management.