

Clinical Management of Obstetric Complications II

(Gestational Diabetes, Preeclampsia,
IUGR)

*Frank Reister
Division of Obstetrics, Dept. of Obstetrics & Gynecology
University Hospital Ulm, Germany*

Gestational Diabetes

Gestational Diabetes



Gestationsdiabetes mellitus (GDM)

Evidenzbasierte Leitlinie zu Diagnostik, Therapie u. Nachsorge

der Deutschen Diabetes-Gesellschaft (DDG)

und der Deutschen Gesellschaft für Gynäkologie und Geburtshilfe (DGGG)

Gestational Diabetes



Gestationsdiabetes mellitus (GDM)

Evidence-based Guideline zu Diagnostik, Therapie u. Nachsorge

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Attending
Physician

Hospital

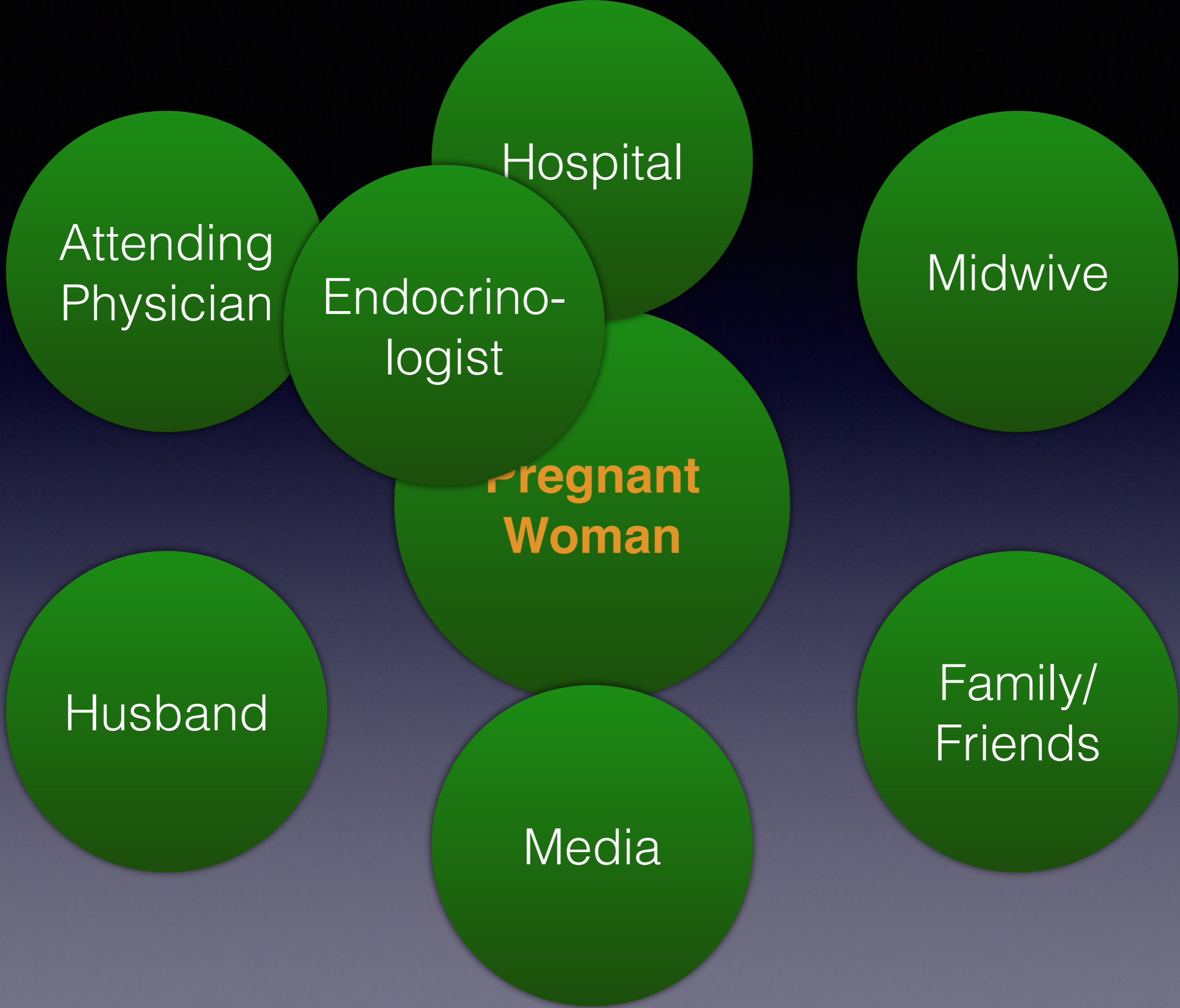
Midwife

**Pregnant
Woman**

Husband

Media

Family/
Friends



Hospital

Midwife

Attending
Physician

Endocrino-
logist

**Pregnant
Woman**

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Gestational Diabetes - Why Care?

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- Frequent! (up to 10%)
- Consequences for mother's health
- Short- and longterm consequences for baby
- Evidence for benefit of intervention
 - > but: what, how and who?

Gestational Diabetes - Why Care

HAPO-Trial:

linear correlation between blood sugar and bad outcomes

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 - > but: what, how and who?

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Gestational Diabetes -

Why Care?

- IUFD
- Shoulder Dystocia
- Perinatal asphyxia

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- Short- and longterm consequences for baby
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 - > but: what, how and who?

Increased risk for

- Diabetes
- Obesity
- Hypertension

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— **When, how, and who?**

Metabolic Syndrome

Gestational Diabetes - Why Care?

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- Short- and longterm consequences for baby
- Evidence for benefit of intervention
 - > but: what, how and who?

Issues

Issues

- Correct diagnosis
- Lifestyle
- Care
- Perinatal management

Pitfall: borderline-results
—> consider repeating of
the test

Issues

- Correct diagnosis
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Pitfall: borderline-results
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Issues

diagnosis

management

Angaben zu vorangegangenen Schwangerschaften

Jahr	Ausgang der Schwangerschaften und Geburten (Spontangeburt, Sectio, vag. Operation, Abort, Abruption, EU, Schwangerschaftsdauer in Wochen, Geburtsverlauf, Komplikationen, Kindsgewicht, Geschlecht):
03	Abort

Dextro-OGT-Test
am: 27.12.11
nüchtern: 85 mg/dl
nach 60 Min: 161 mg/dl
nach 120 Min: 104 mg/dl

Besonderheiten
Patientenname / Prot. Nr.
[redacted]

weitere Befunde: Untersuchung
HIV (ECL): durchgeführt
Variz. Zost. IgG: 2182 U/ml
TSH basal: 2.95 uU/ml

Datum der Untersuchung: 19.09.2011
Laborarzt: Dr. U. Friess
Laborstraße: L. 100-Str. 58
70774 Leinfelden, Tel. 07141 90930

4

Issues

diagnosis

management

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Issues

The 50g-oGCT fails in one out of four women w/ GDM

—> better: 75g-oGTT

- Correct diagnosis
- Lifestyle
- Care
- Perinatal management

Issues

- Correct diagnosis
- Lifestyle
- Care
- Perinatal management

Issues

- Correct diagnosis
 - Diet counselling
 - Sports
- Lifestyle
- Care
- Perinatal management

Issues

- Correct diagnosis

• Diet counselling

• Sports?...

- Lifestyle

- Care

- Perinatal management

Issues

- Correct diagnosis
- Lifestyle
- Care
- Perinatal management

• Diet counselling

• Get in motion...

Issues

- Correct diagnosis

- Diet counselling

- Get in motion...

- Lifestyle

- Care

We have to try hard to really attend to our patients...

- Perinatal management

Issues

- Correct diagnosis
- Lifestyle
- Care
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Blutglukose: Modifizierte Zielwerte bei bekanntem Abdominalumfang des Fetus

AU-Messungen ab 24 SSW
Kontrolle alle 2-3 Wochen

< 10. Perzentile
V.a. IUGR
path. Doppler

Nü < 105 mg/dl
< 5,8 mmol/l
1h < 160 mg/dl
< 8,9 mmol/l

10.-75. Perzentile

Nü < 95 mg/dl
< 5,3 mmol/l
1 h < 140 mg/dl
< 7,8 mmol/l

> 75. Perzentile
asymmetrische
Makrosomie

Nü < 85 mg/dl
< 4,7 mmol/l
1 h < 120 mg/dl
< 6,7 mmol/l

Blood glucose goals according to fetal abdominal circumference

**AU-Messungen ab 24 SSW
Kontrolle alle 2-3 Wochen**

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V.a. IUGR
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Perzentilen fetaler Abdominalumfang

ab 24 Schwangerschaftswochen (mm) nach Hadlock

SSW	10.Perzentile	50.Perzentile	75.Perzentile	90.Perzentile
24	181	197	206	213
25	191	208	218	225
26	201	218	229	237
27	211	230	241	249
28	220	240	251	260
29	230	251	263	272
30	239	261	273	283
31	249	271	284	294
32	258	281	294	304
33	267	291	305	315
34	275	300	314	325
35	283	309	323	335
36	292	318	333	344
37	300	327	342	354
38	308	336	352	364
39	316	344	360	373
40	324	353	369	382

Hadlock F: Radiology 1984;152:397

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Issues

- Correct diagnosis

- Lifespan

Talk about shoulder dystocia - give **realistic** figures on **persistent** brachial plexus injury

- Care

- Perinatal management

Issues

- Correct diagnosis

- Lifespan

Talk about shoulder

'Offer' C/S

figures on *persistent*
brachial plexus injury

- Care

- Perinatal management

Issues

- Correct diagnosis

Talk about shoulder

- Life

'Offer' C/S

But: do not *'recommend'*

- Care

- Perinatal management

Issues

- Correct diagnosis
- Lifelong *'Offer' C/S*
But: do not *'recommmend'*
- Care
- Perinatal management

Issues

- Correct diagnosis
- Lifestyle
 - But: do not *'recommmend'*
- Care
- Perinatal management

Issues

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- Lifestyle
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Issues

- Correct diagnosis

- Lifestyle

- Care

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- If good control w/o insulin: IOL @ 7 days post EDC
- If on insulin or poor control: IOL @ EDC (or earlier)
- No stress tests

Issues

- Correct diagnosis
- Lifestyle
- Care
- Perinatal management

Issues

Pre-existing Diabetes:

- Eyes/kidneys twice in preg.
- Pitfall: "AGA" and n AF in pts w/ end organ damage
- IOL @ EDC at the latest

diagnosis

• Care

• Perinatal management

Some Aspects on Preeclampsia Prediction

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- Late PE: not predictable

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 - ➔ Sensitivity 94% / Specificity 94%

Some Aspects on Preeclampsia Prediction

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- Early-onset PE:
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 - High-Risk Pts: PP 13/ut. artery doppler
 - ➔ Sensitivity 90% / Specificity 90%

Some Aspects on Preeclampsia Prediction

- Late
- Early

And why that?

- combined 1st trimester testing (MAP/ut. artery doppler/PAPP-A/PIGF/BMI/Hx)
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- High-Risk Pts: PP 13/ut. artery doppler
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Some Aspects on Preeclampsia Prediction

- Bujold 2010: ASS 100 starting @ < 16 wks halves the risk for early-onset PE and early IUGR

→ Sensitivity 90% / Specificity 90%

Some Aspects on Preeclampsia Prediction

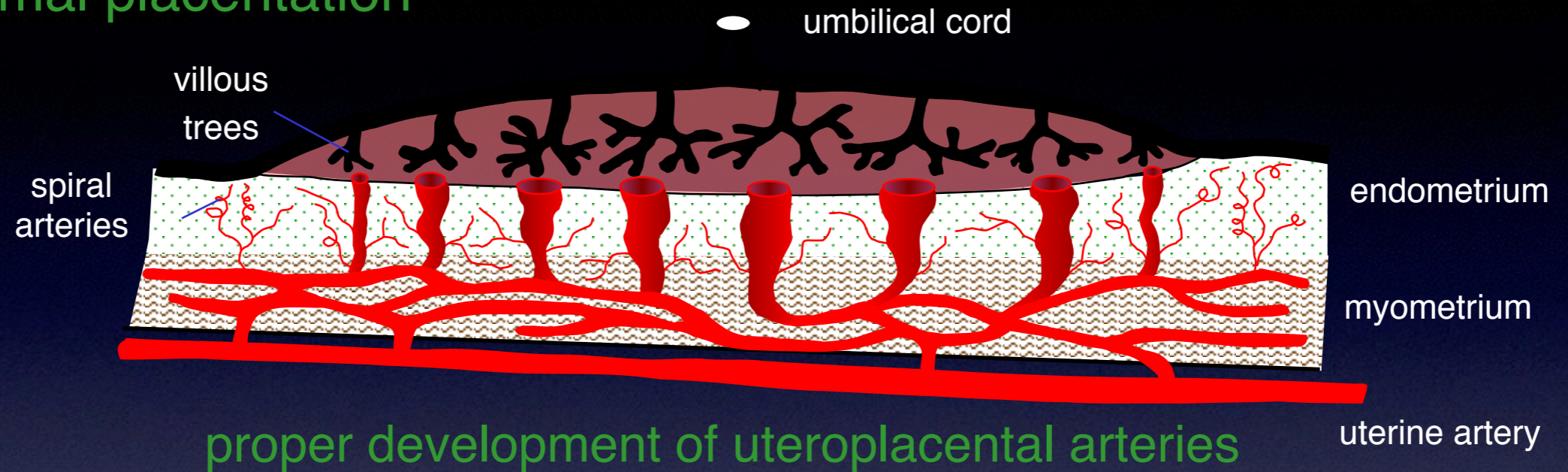
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Normal vs. Abnormal Placentation

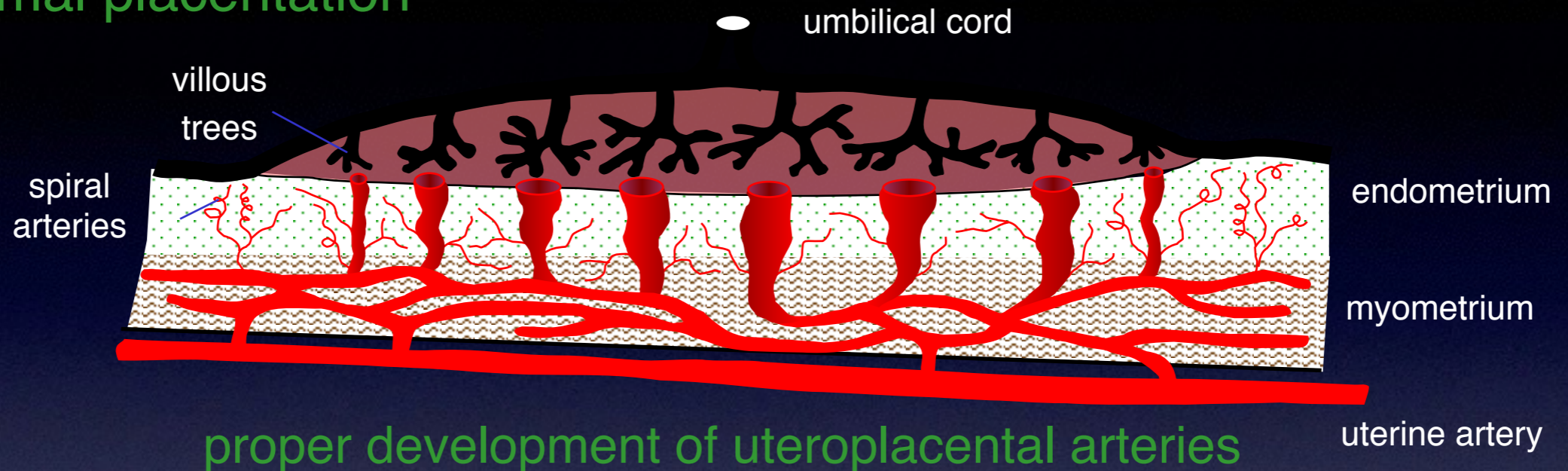
Normal vs. Abnormal Placentation

normal placentation

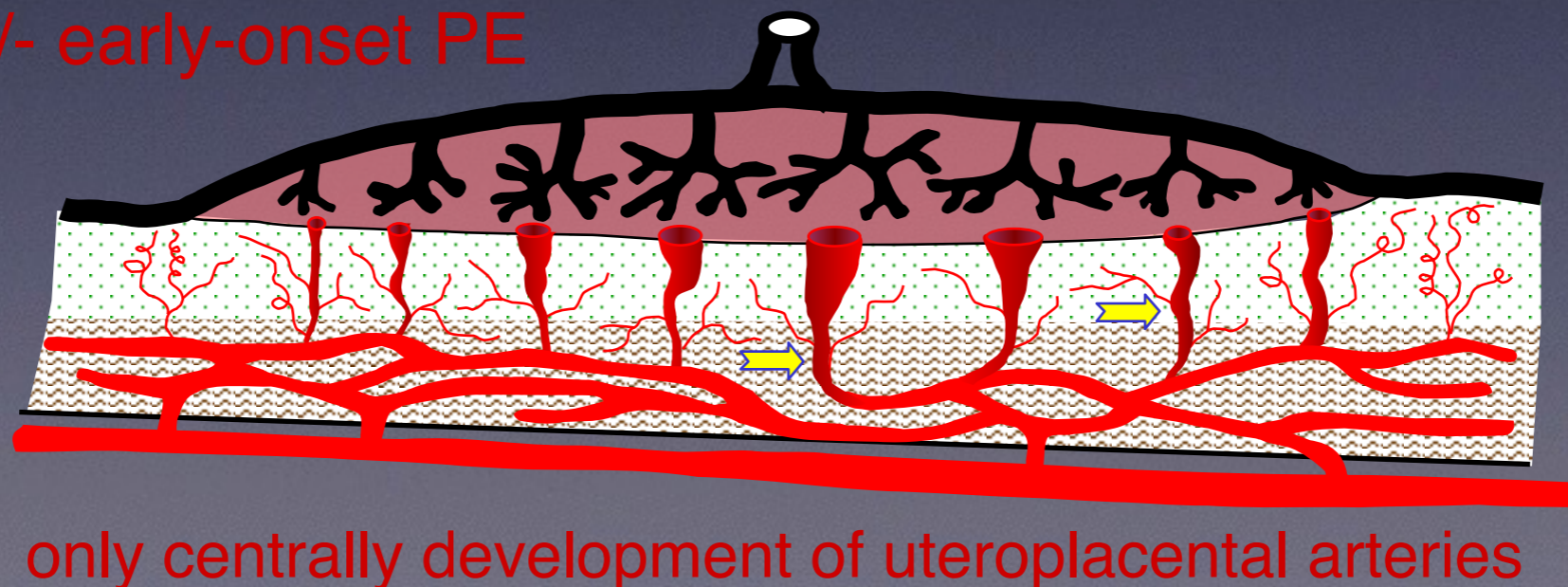


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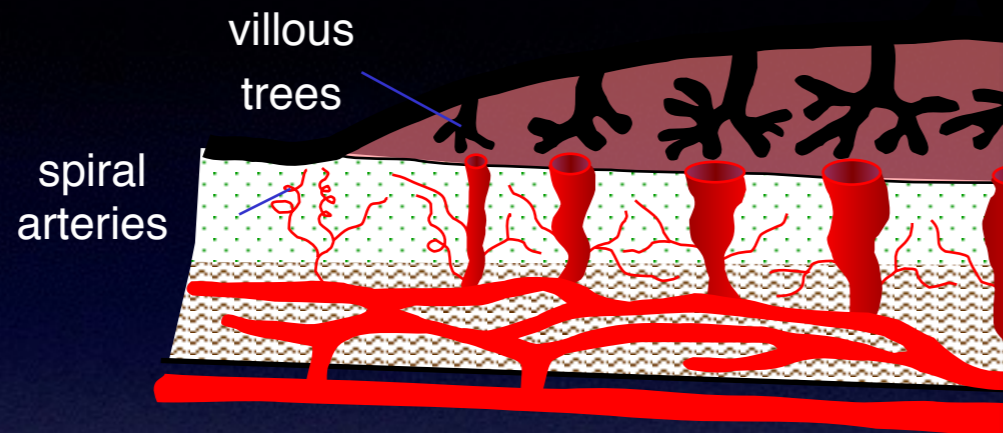


IUGR +/- early-onset PE

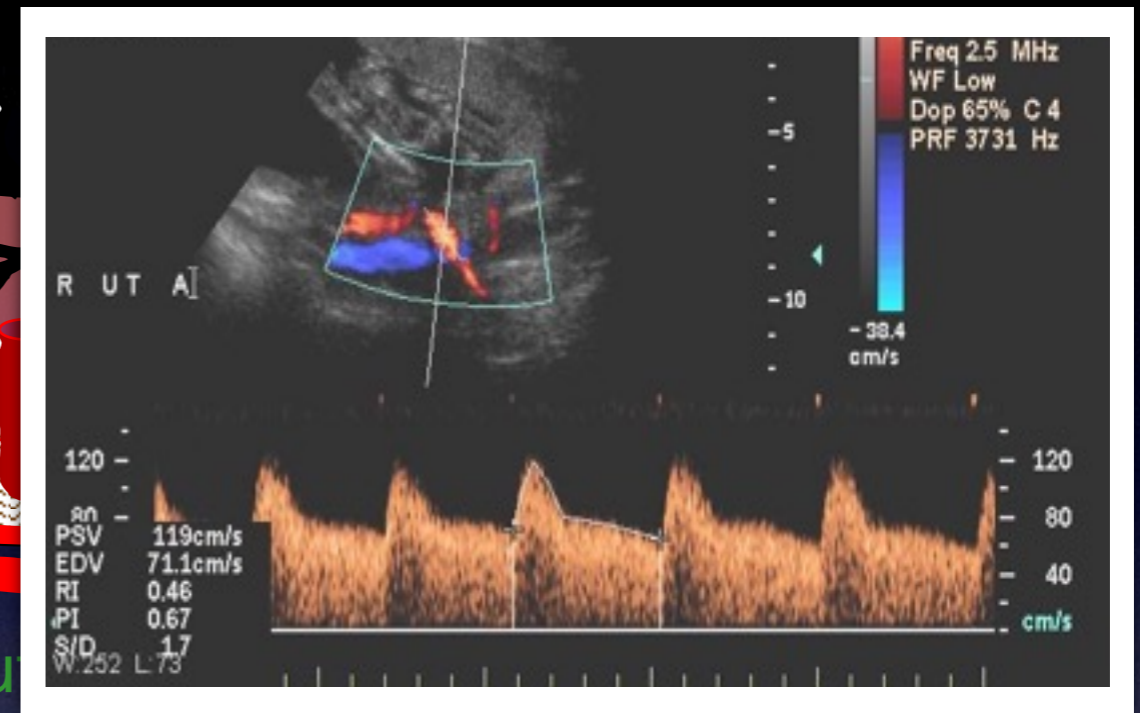


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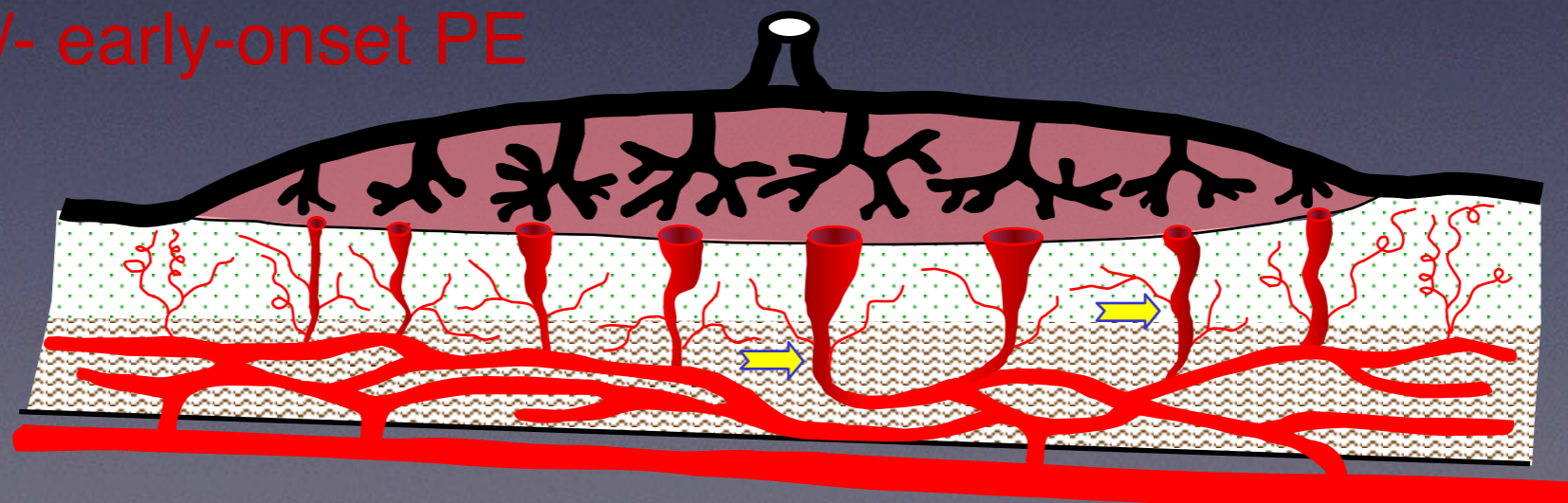
normal placentation



proper development of uteroplacental arteries



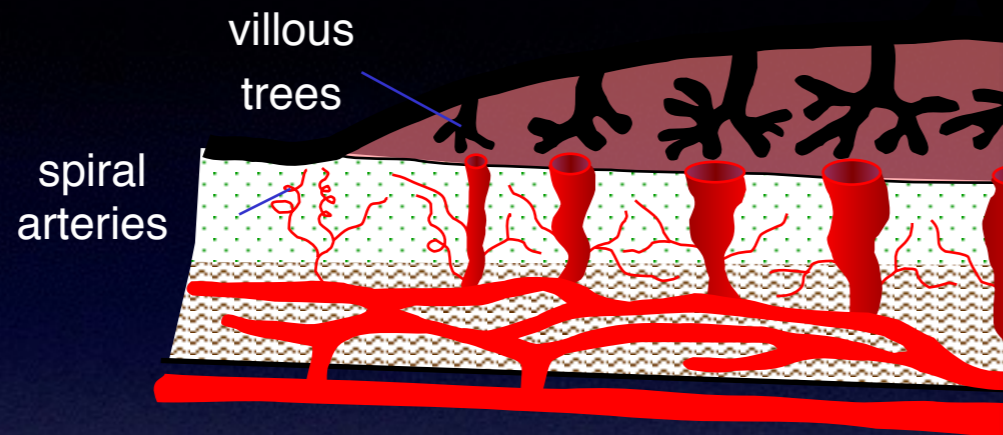
IUGR +/- early-onset PE



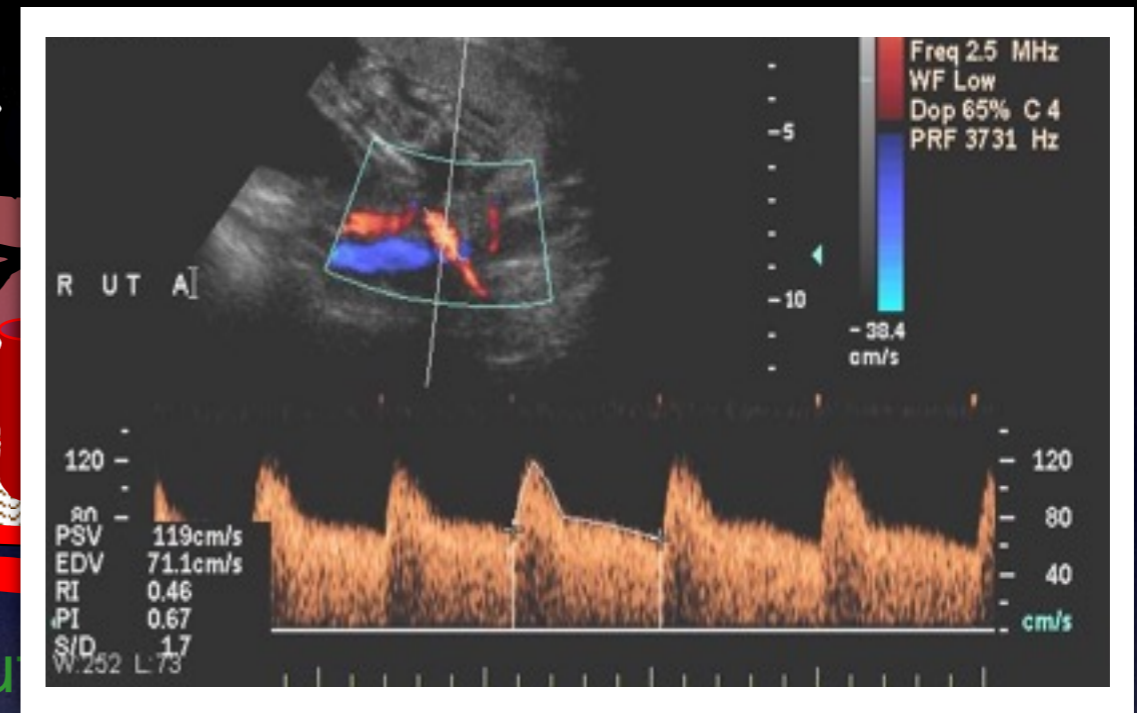
only centrally development of uteroplacental arteries

Normal vs. Abnormal Placentation

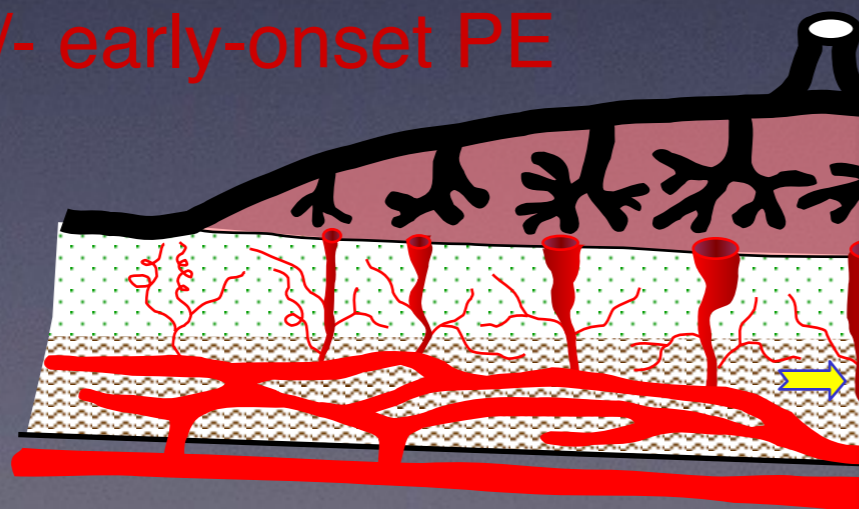
normal placentation



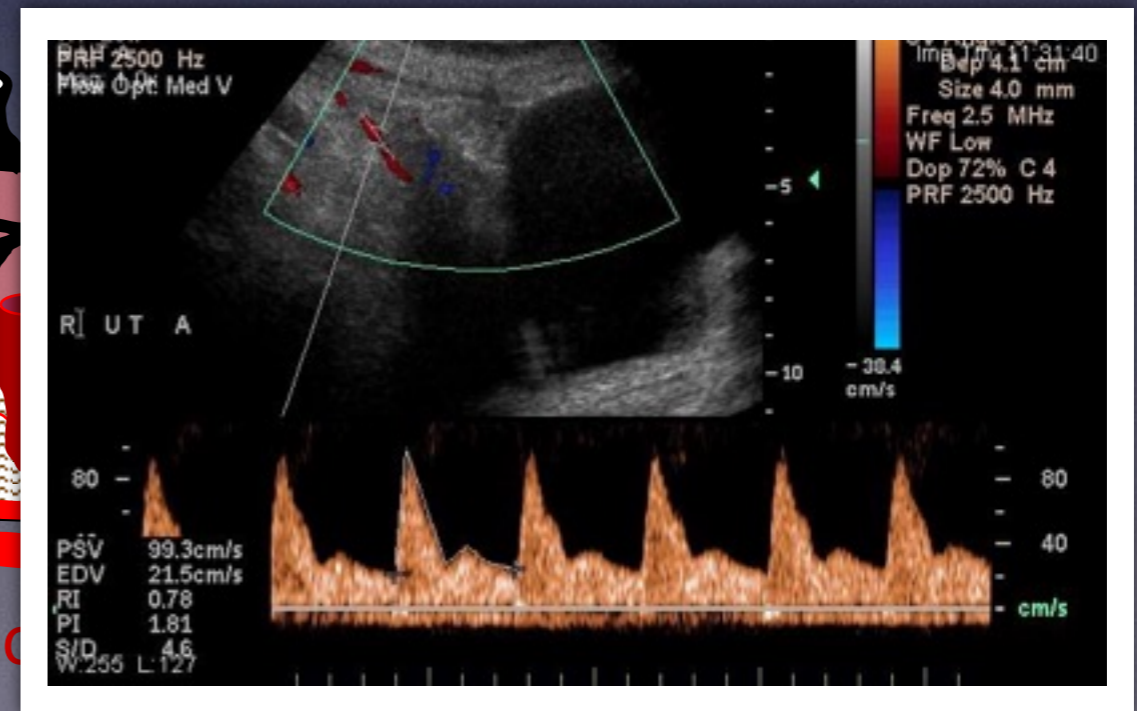
proper development of uterine arteries



IUGR +/- early-onset PE

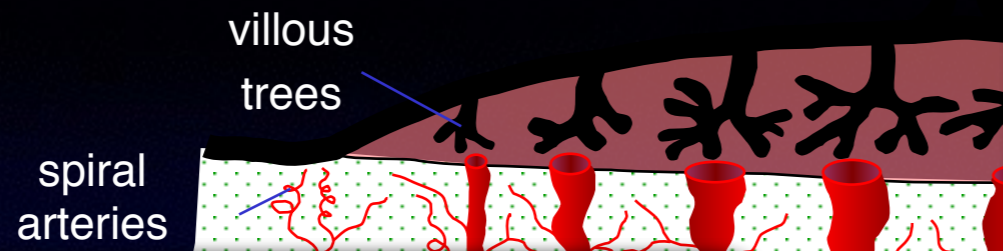


only centrally development of uterine arteries

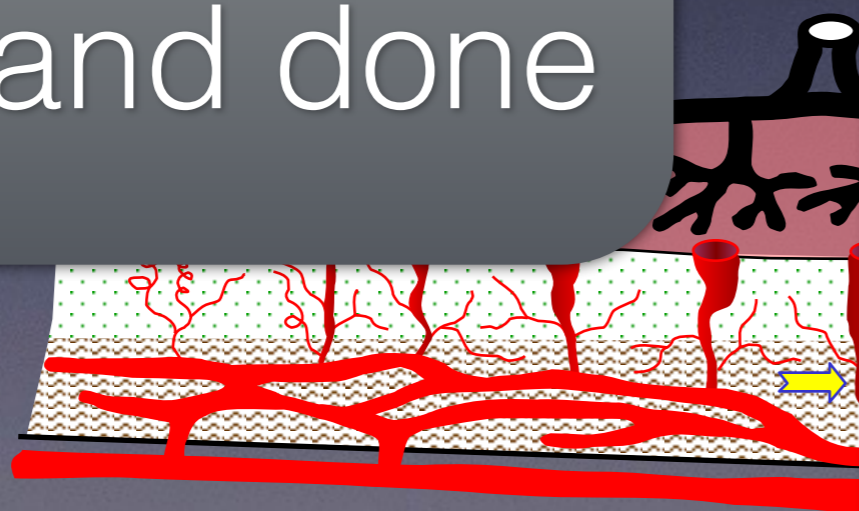


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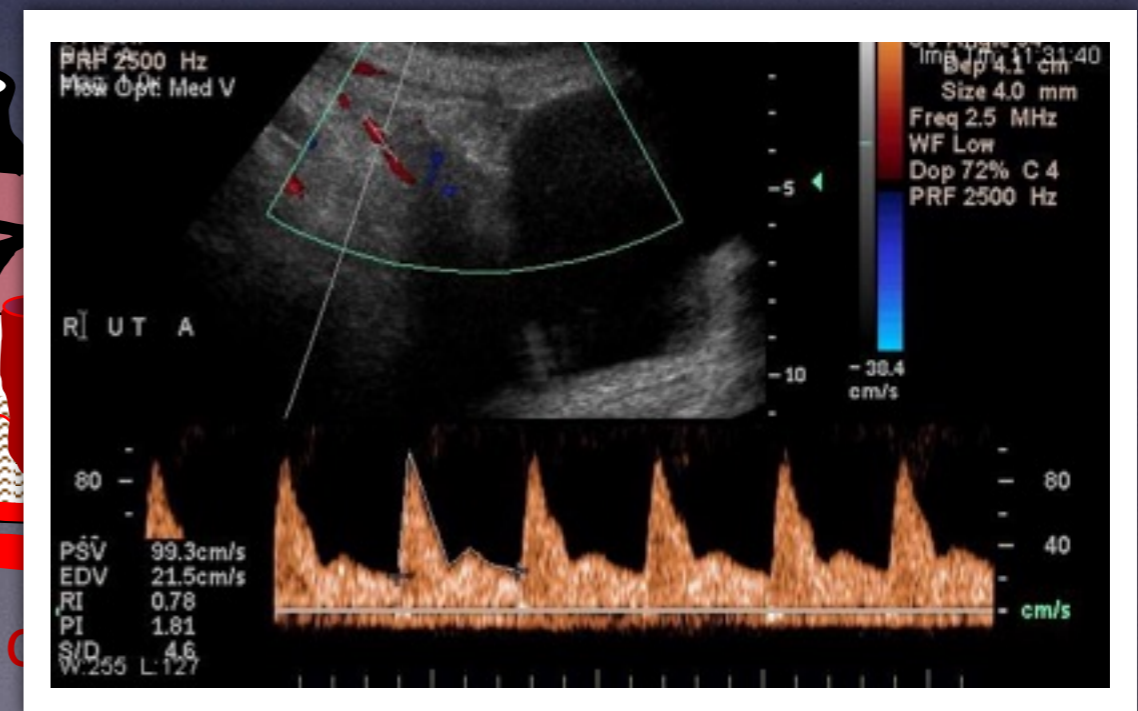
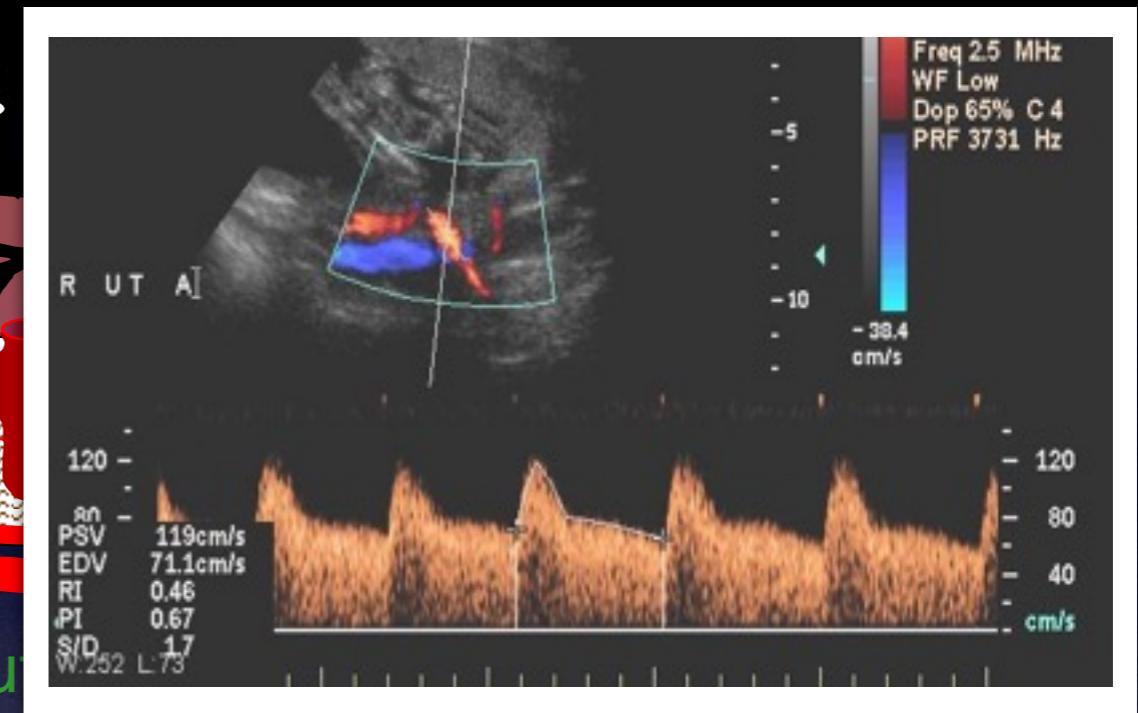
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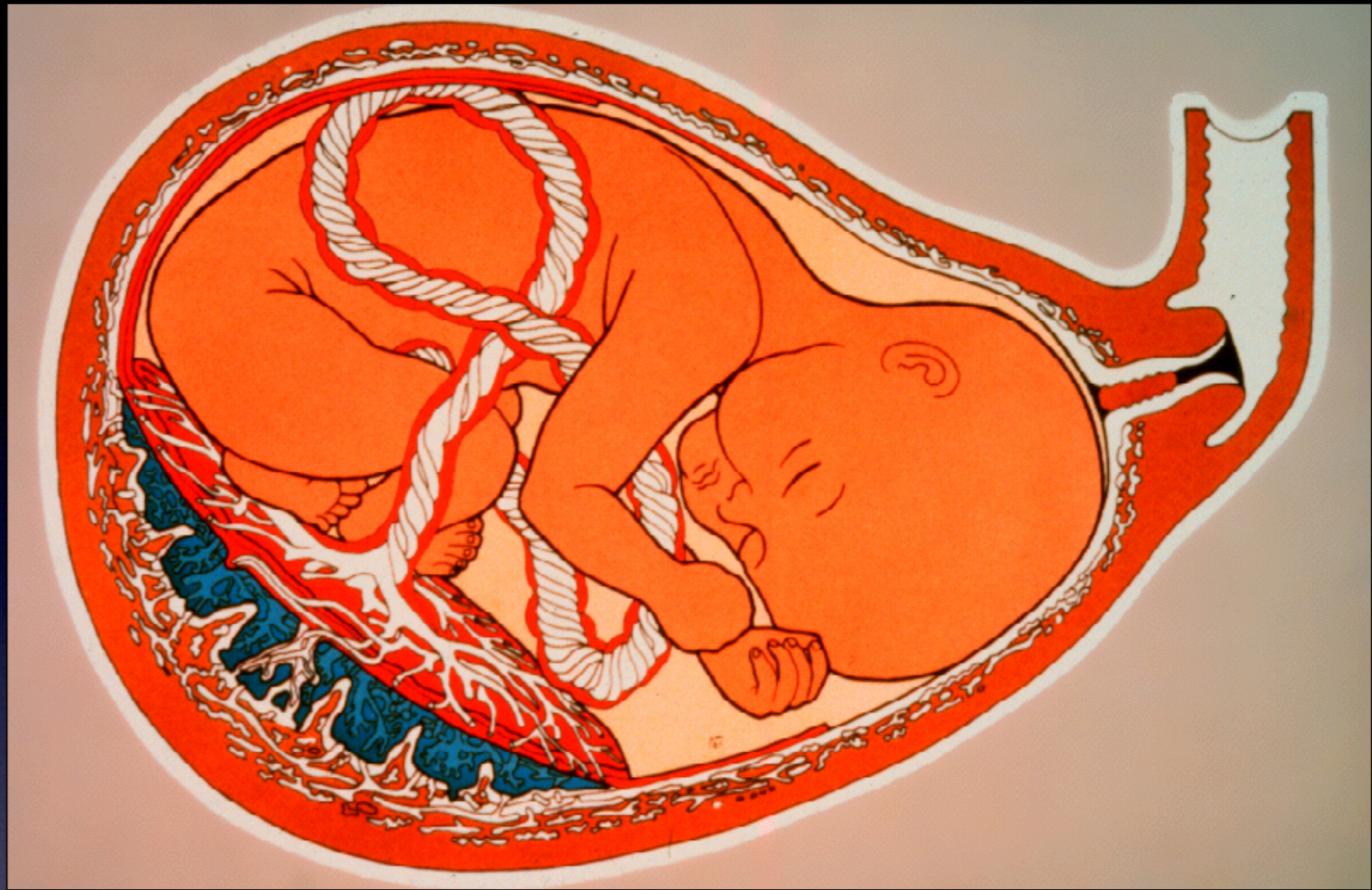


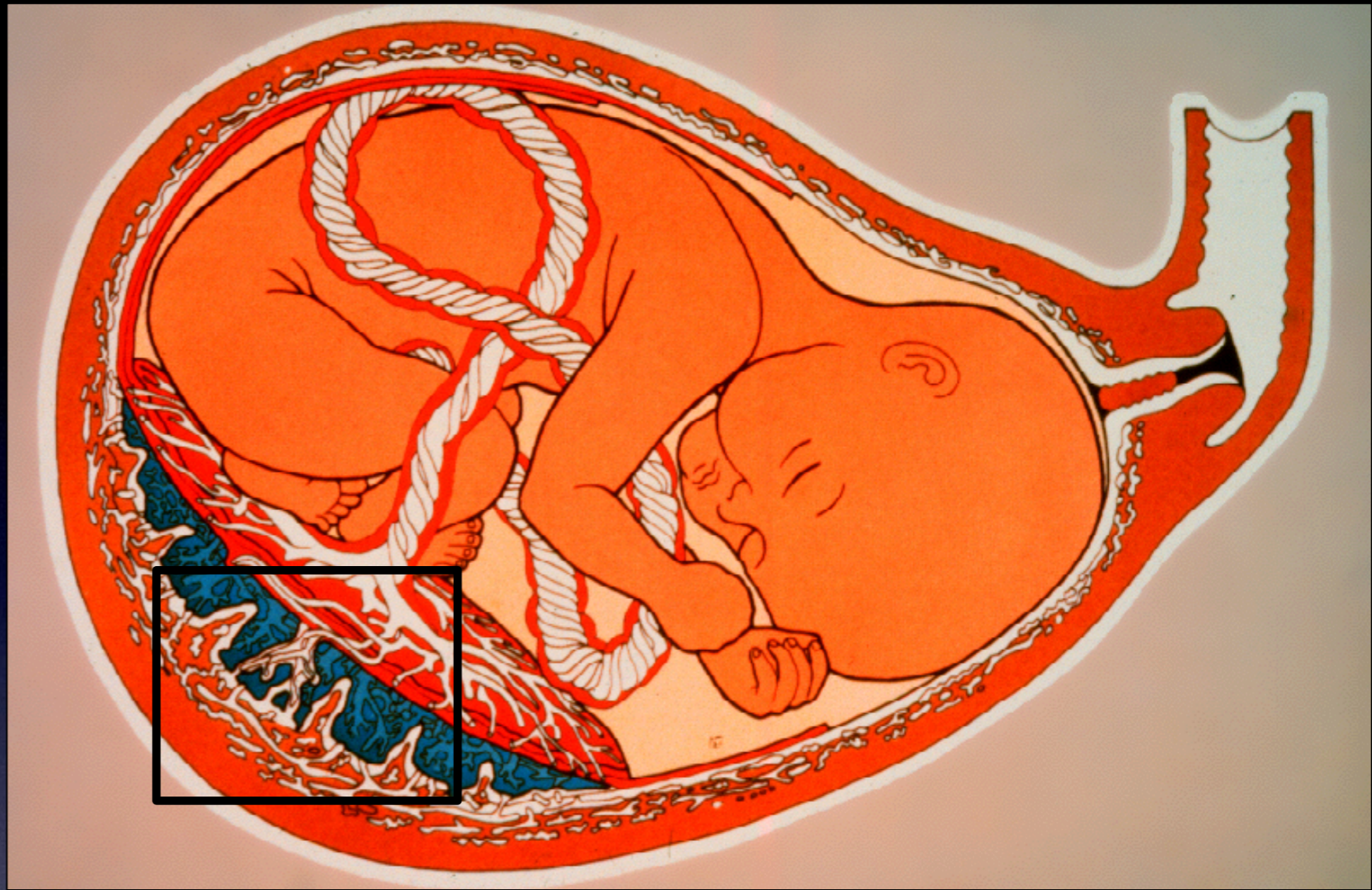
@ 16 (-20) wks
it's all
said and done

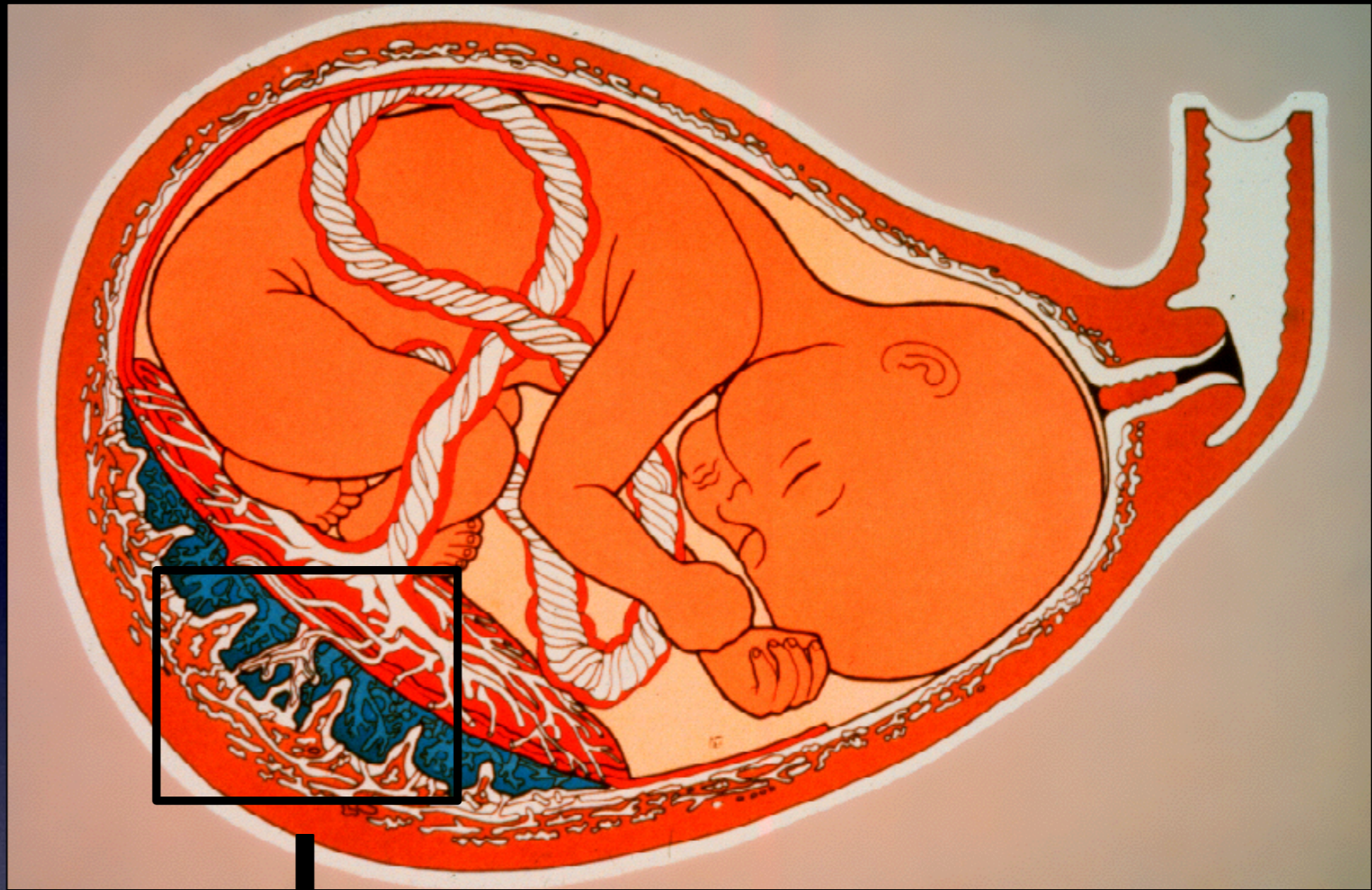


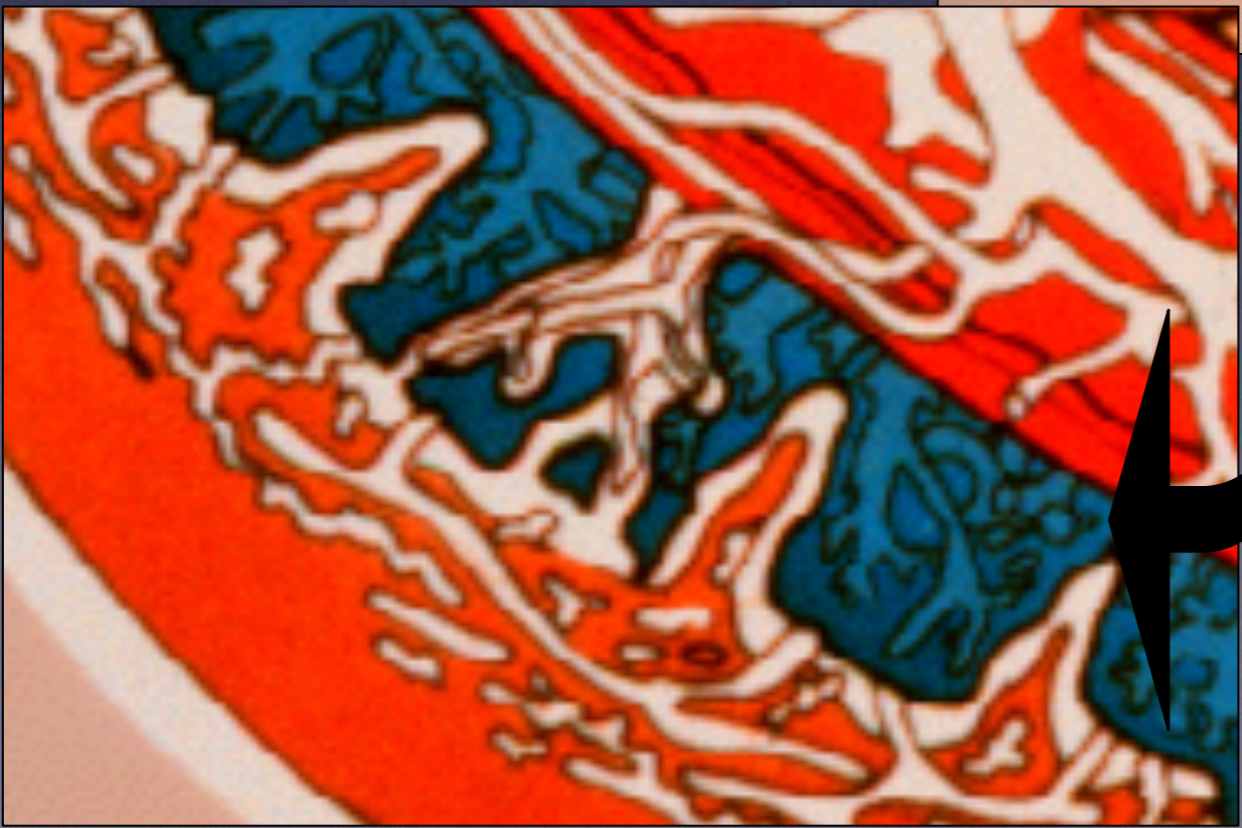
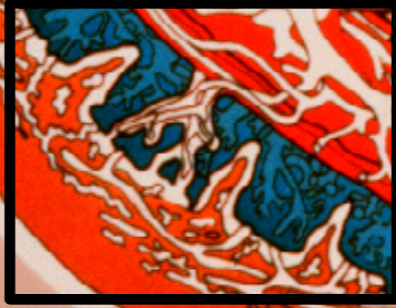
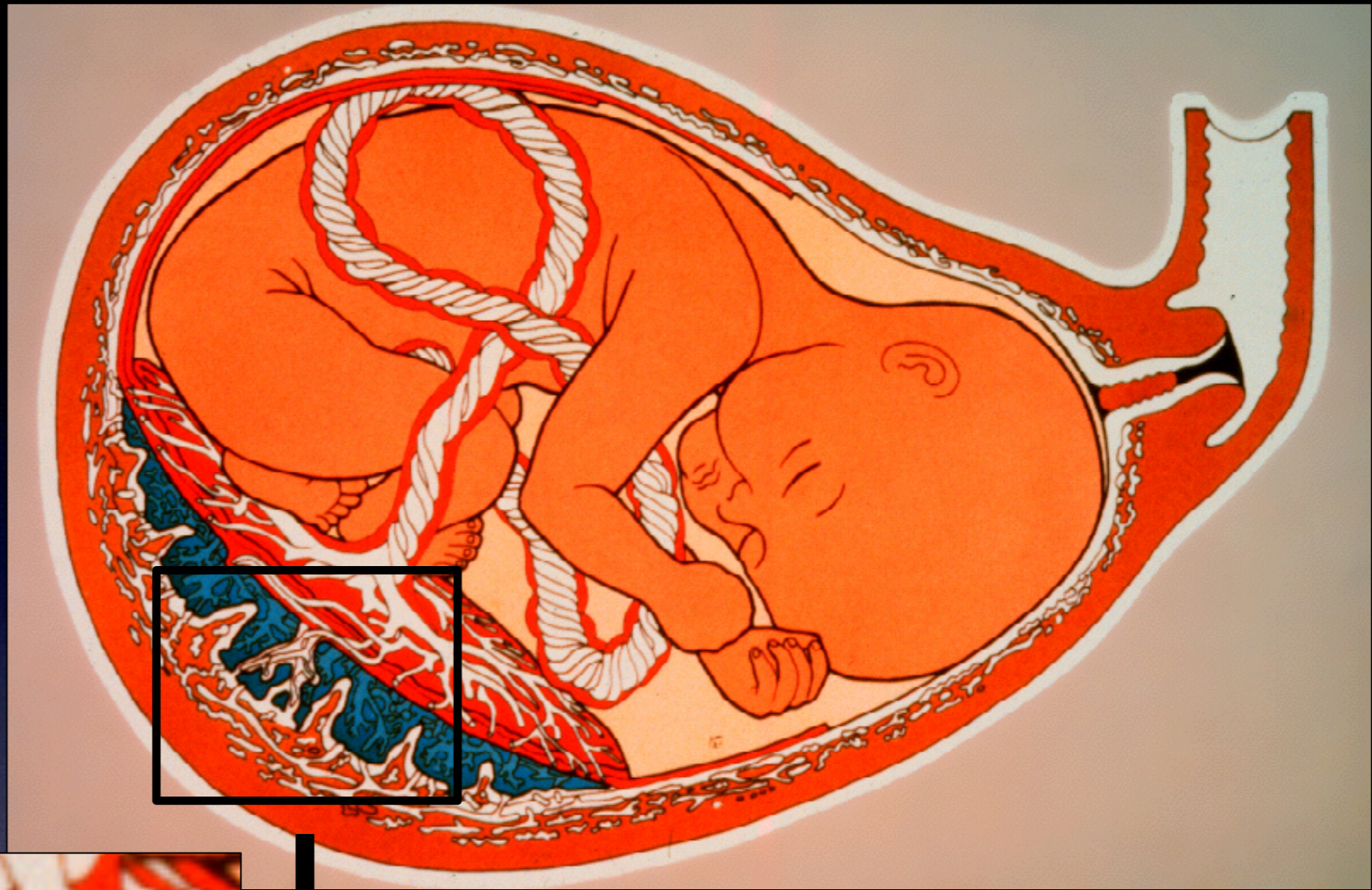
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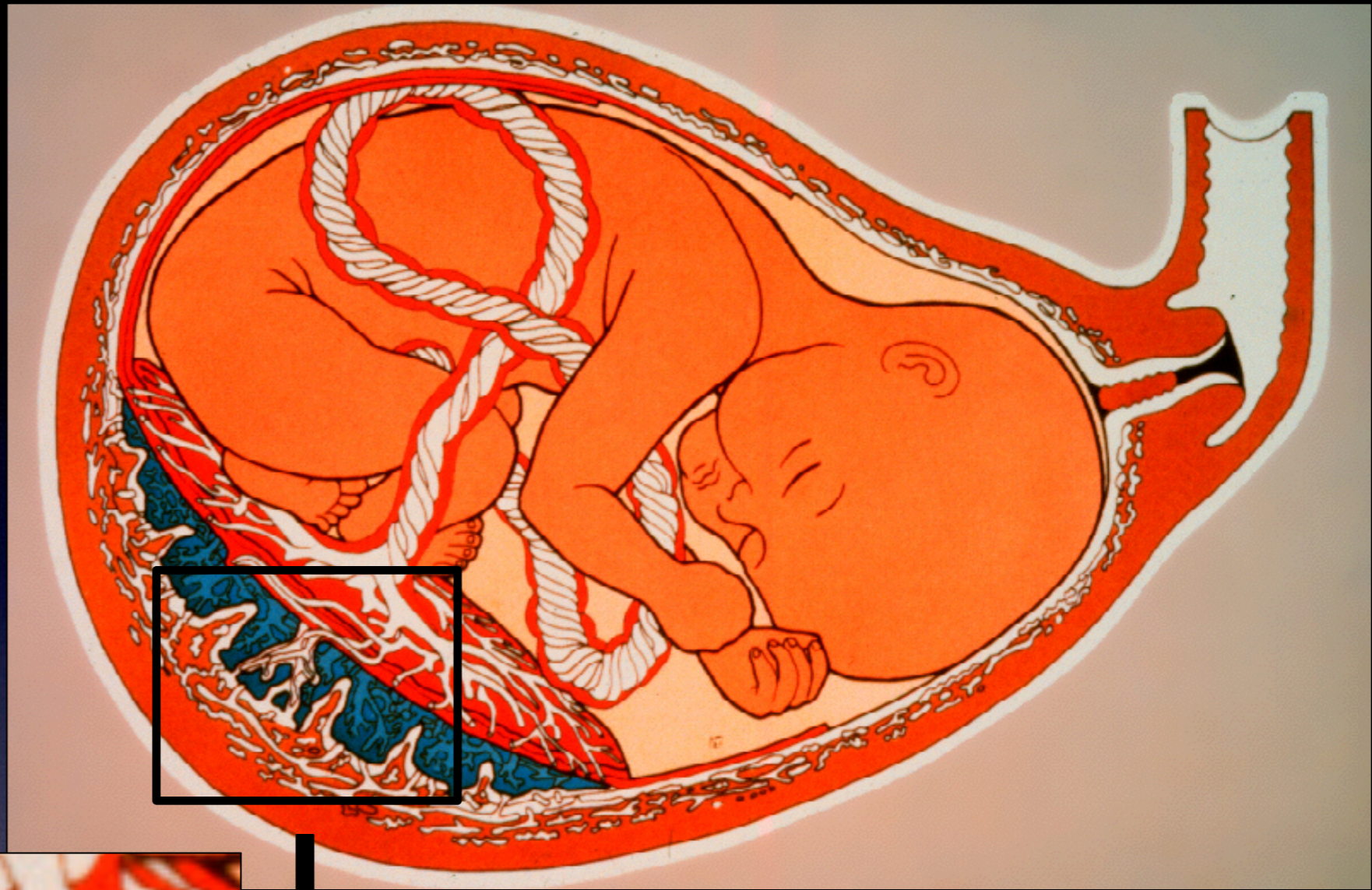




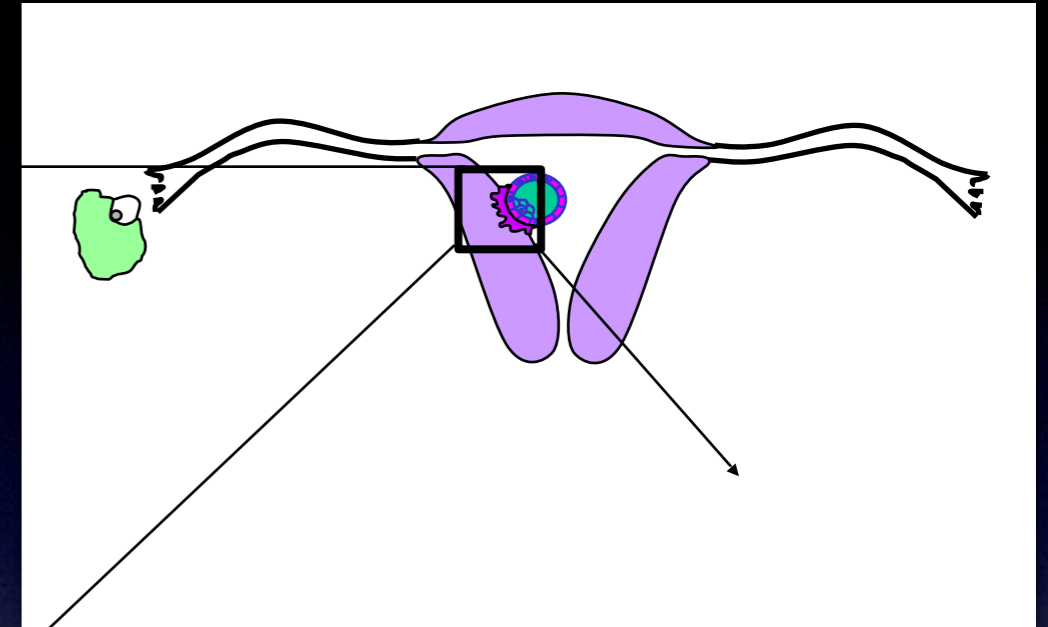
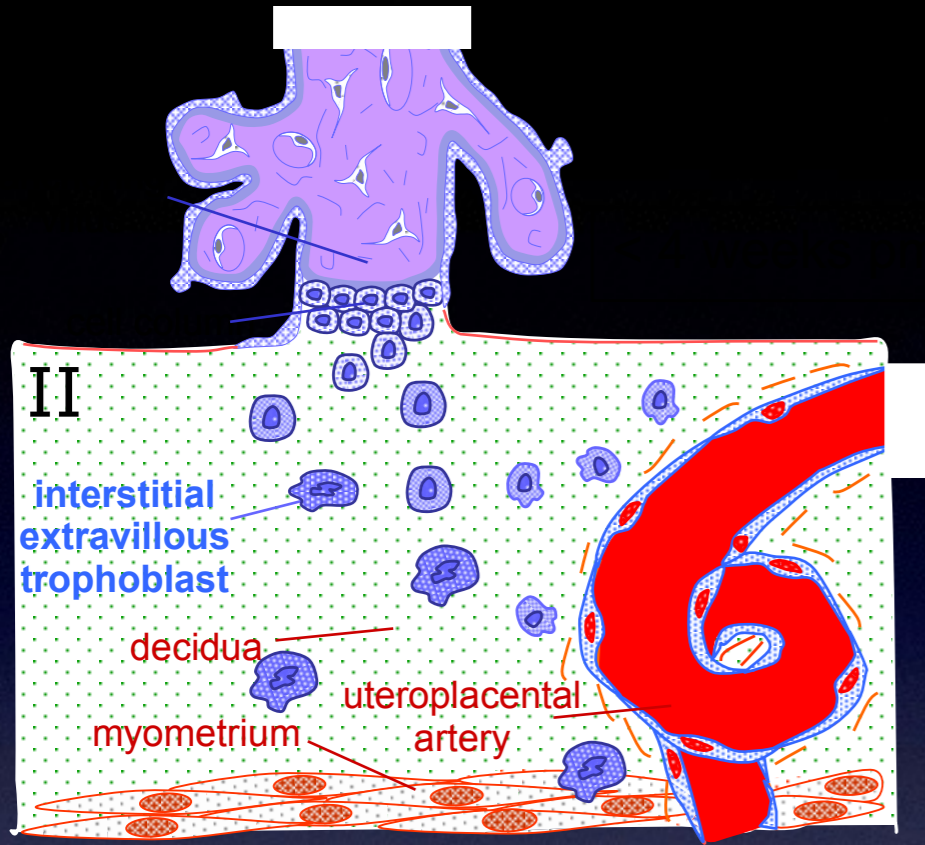






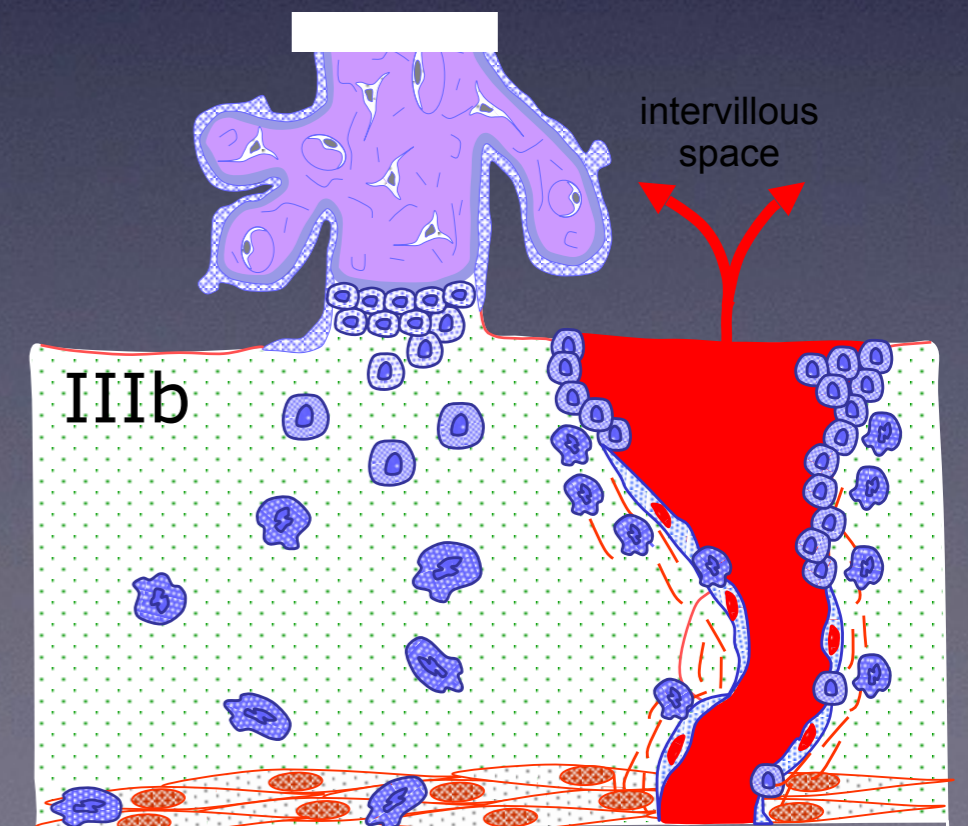
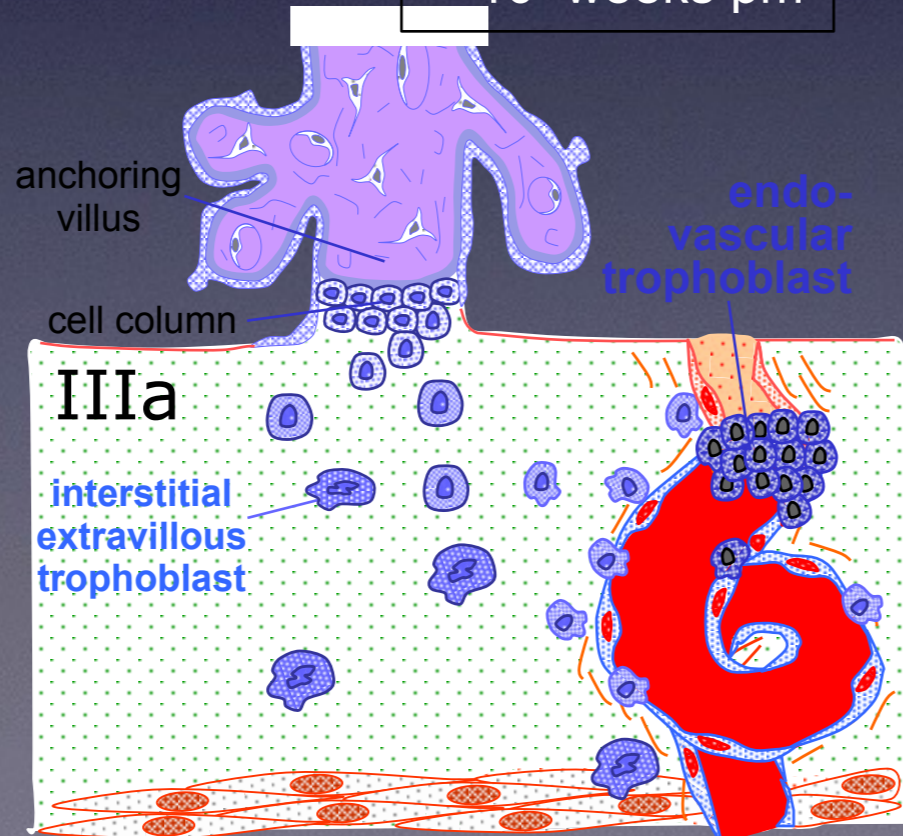


Development of Uteroplacental Arteries

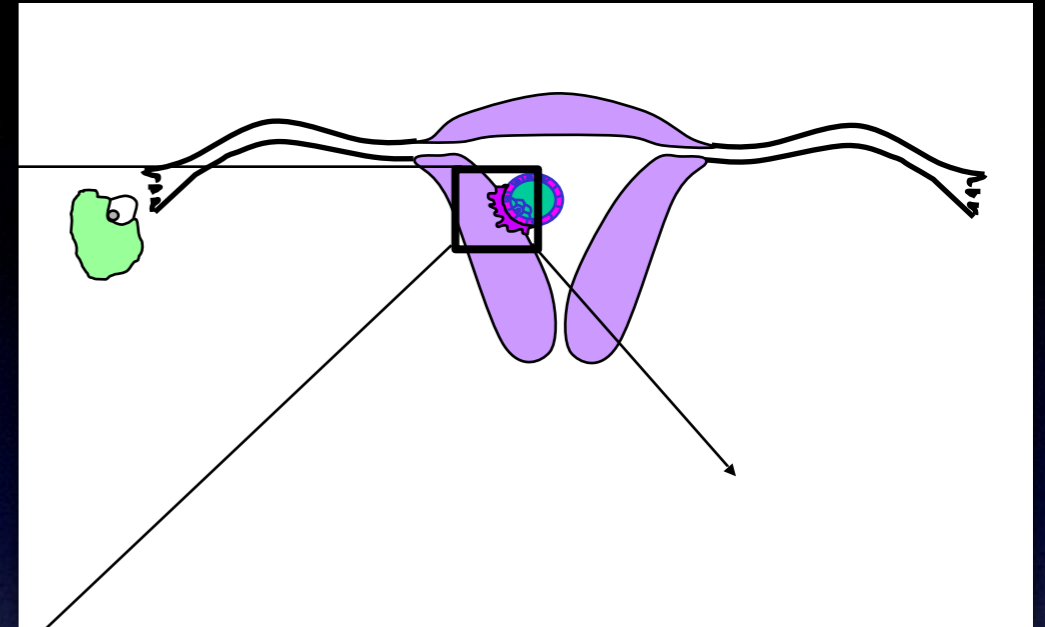
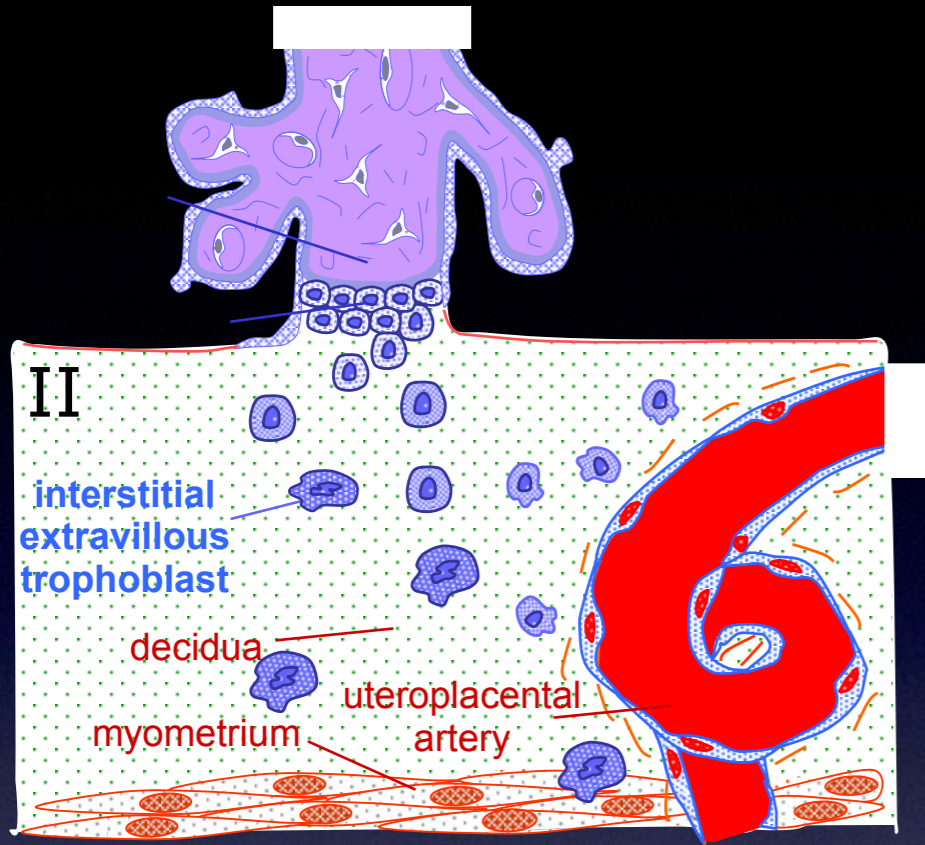


< 10 weeks pm

> 12 weeks pm

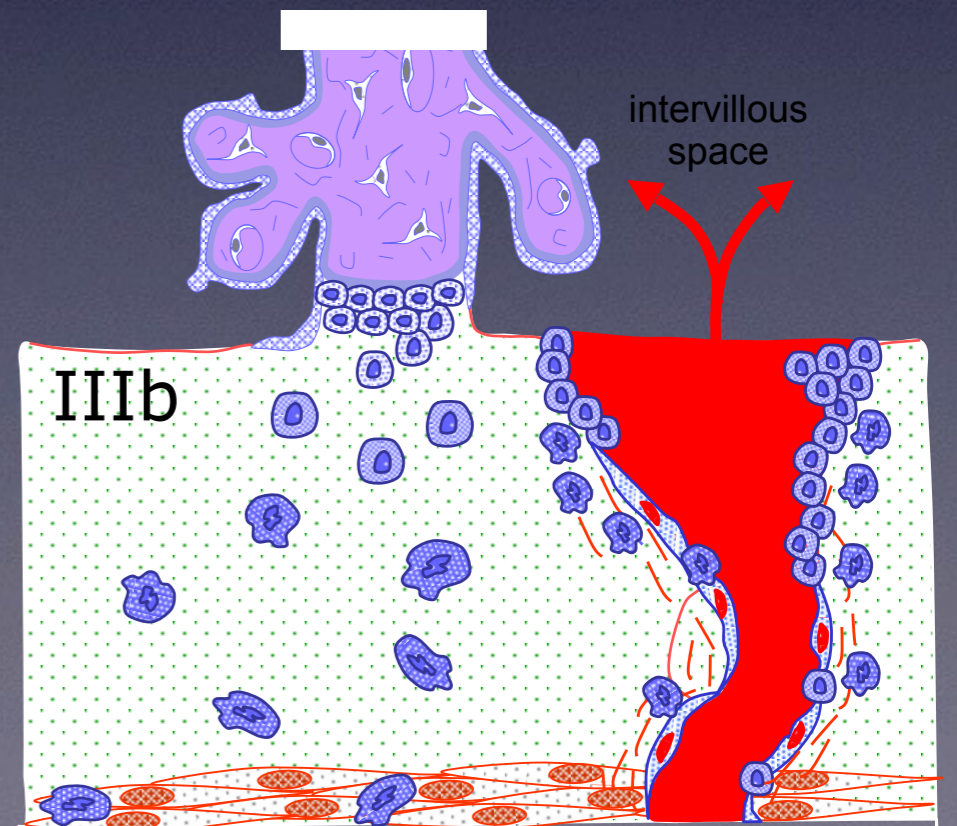
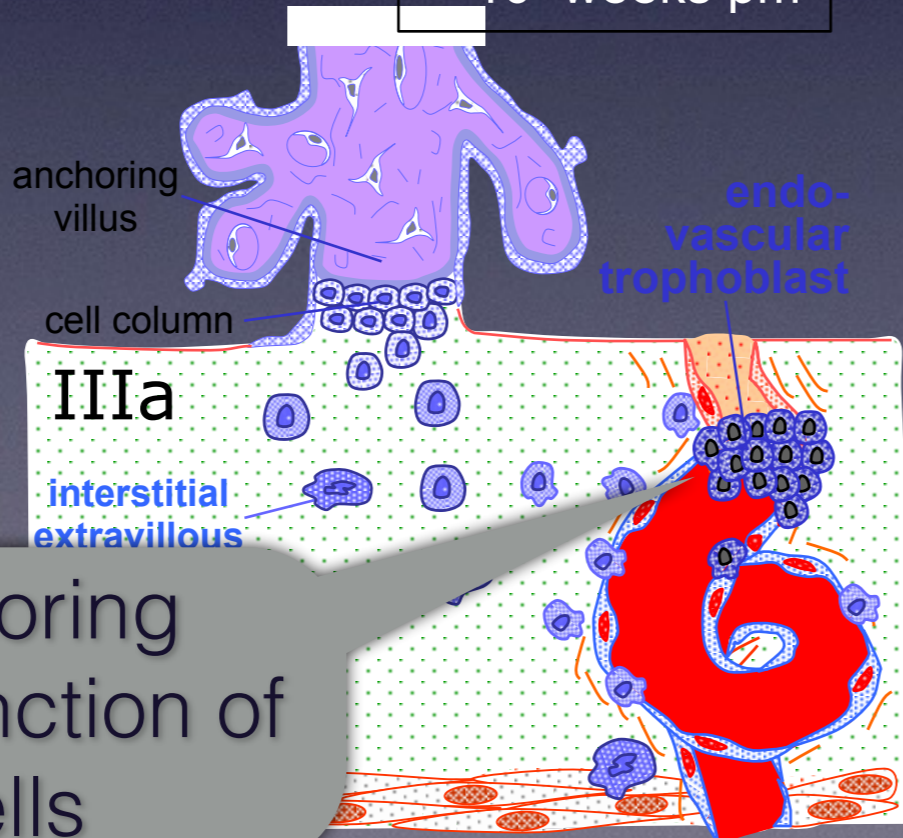


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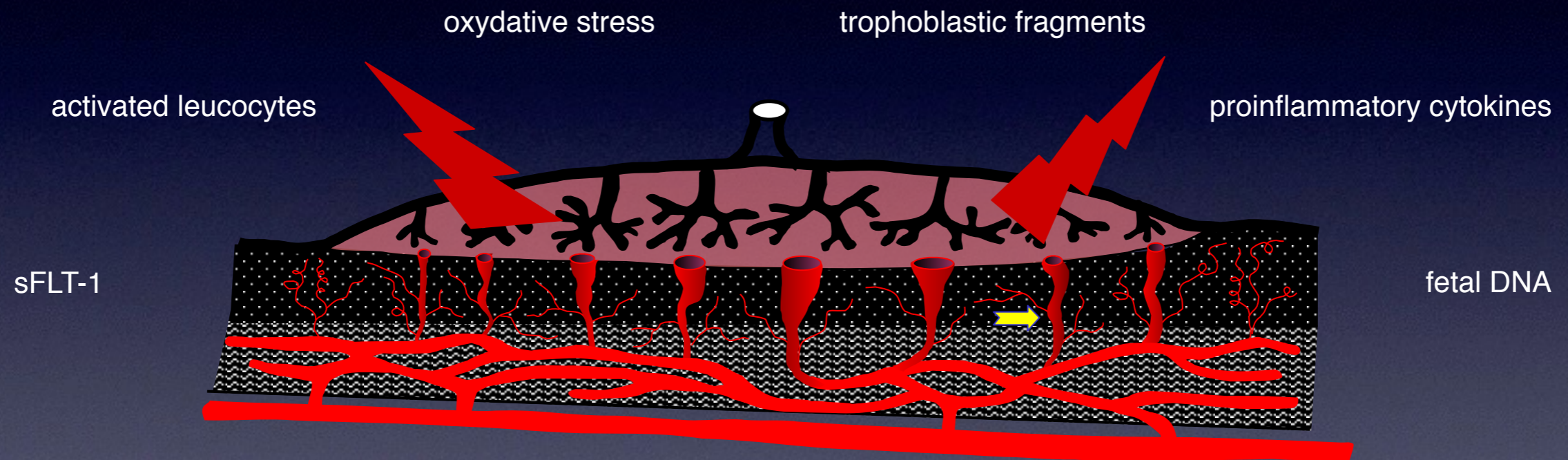
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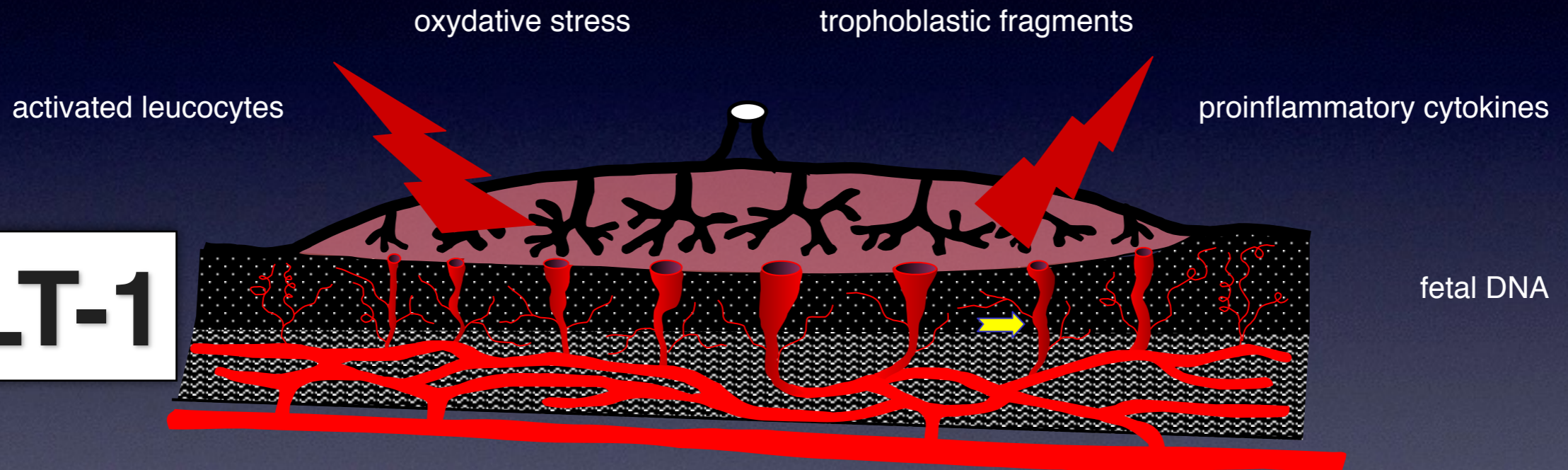


ASS is restoring the proper function of these cells

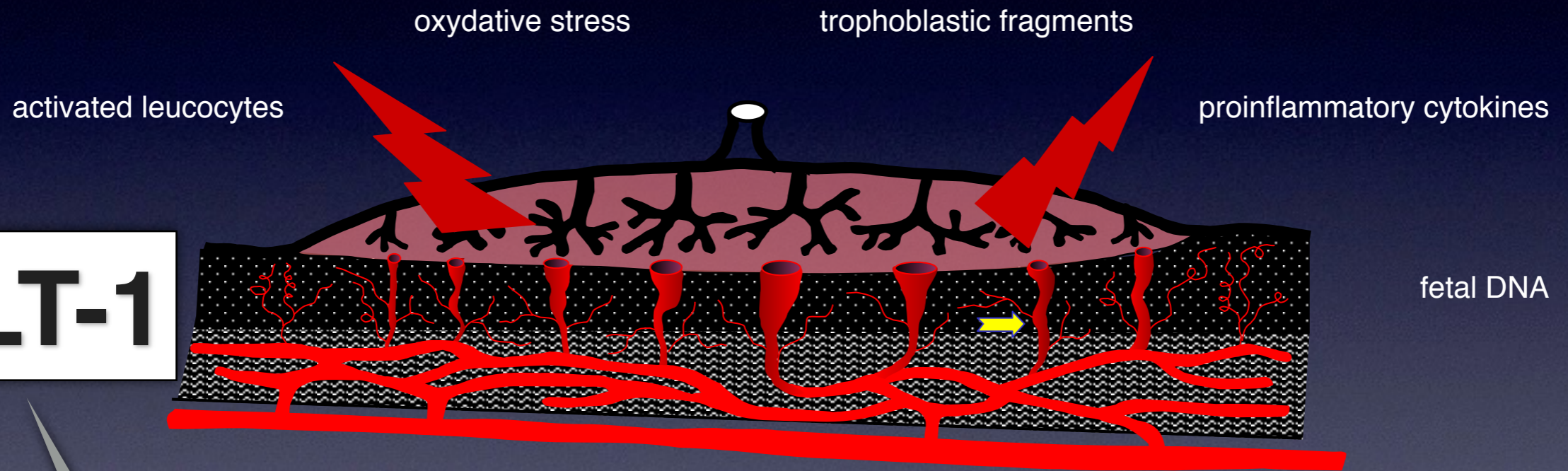
Angiogenesis - Antiangiogenesis



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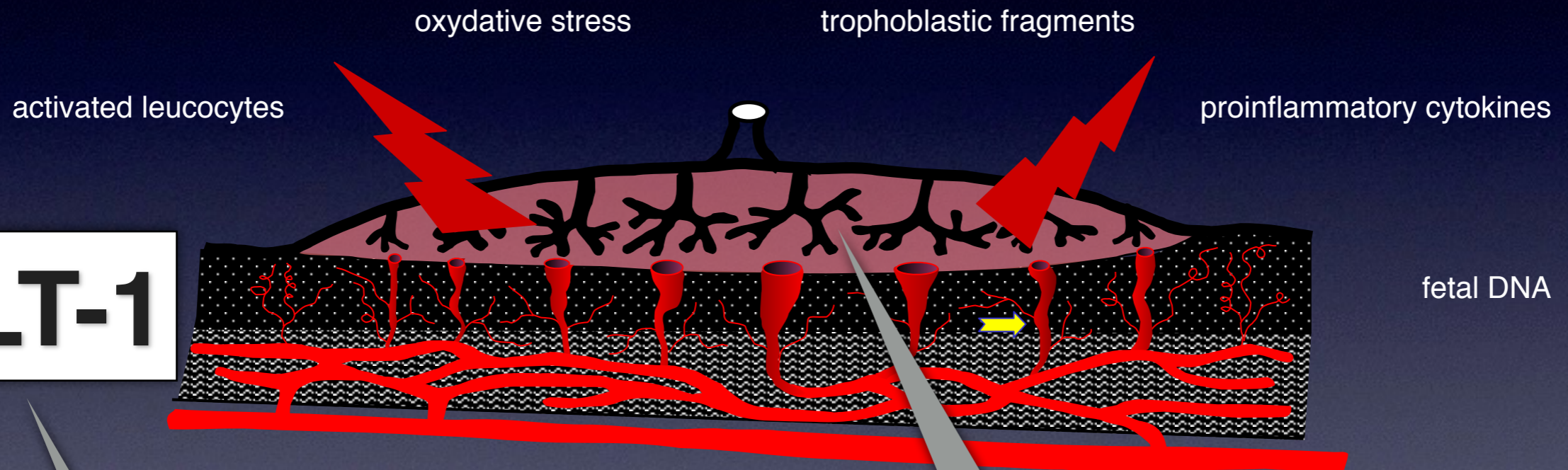
Angiogenesis - Antiangiogenesis



SFLT-1

antiangiogenic

Angiogenesis - Antiangiogenesis



SFLT-1

antiangiogenic

decreased production of
angiogenic Placental
Growth Factor ('PlGF)

Angiogenesis - Antiangiogenesis

In preeclamptic women there is decreased PlGF and increased sFLT-1.

This precedes the clinical onset of the disease by weeks or months.

Therefore it can potentially be used for screening.

It definitely can be used to distinguish PE from other, less worrisome clinical situations.

activated leucocytes

inflammatory cytokines

fetal DNA

sFLT-1

antiangiogenic

decreased production of angiogenic Placental Growth Factor ('PlGF)

Two Aspects on IUGR

Two Aspects on IUGR

Evaluation and management of the IUGR fetus

	Constitutionally small fetus	Fetus with structural and/or chromosome abnormality; fetal infection	Substrate deprivation; uteroplacental insufficiency
Growth rate and pattern	Usually below but parallel to normal; symmetric	Markedly below normal; symmetric	Variable; usually asymmetric
Anatomy	Normal	Usually abnormal	Normal
Amniotic fluid volume	Normal	Normal or hydramnios; decreased in the presence of renal agenesis or urethral obstruction	Low
Additional evaluation	None	Karyotype; specific testing for viral DNA in amniotic fluid as indicated	Fetal lung maturity testing as indicated
Additional laboratory evaluation of fetal well-being	Normal BPP/UAV	BPP variable; normal UAV	BPP score decreases; UAV shows evidence of vascular resistance
Continued surveillance and timing of delivery	None; anticipate term delivery	Dependent upon etiology	BPP and UAV; delivery timing requires balance of gestational age and BPP/UAV findings; fetal lung maturity testing often helpful

IUGR: intrauterine growth restriction; BPP: biophysical profile; UAV: umbilical artery velocimetry.

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Two Aspects on IUGR

'Normal SGA':

- Does not want to become bigger
- Does not need to become bigger

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Two Aspects on IUGR

'Normal SGA':

- Does not want to become bigger
- Does not need to become bigger

'Abnormal SGA':

- Would need to become bigger, but
- does not know how to become bigger

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Anatomy	Normal	Usually abnormal	Normal
Amniotic fluid volume	Normal	Normal or hydramnios; decreased in the presence of renal agenesis or urethral obstruction	Low
Additional evaluation	None	Karyotype; specific testing for viral DNA in amniotic fluid as indicated	Fetal lung maturity testing as indicated
Additional laboratory evaluation of fetal well-being	Normal BPP/UAV	BPP variable; normal UAV	BPP score decreases; UAV shows evidence of vascular resistance
Continued surveillance and timing of delivery	None; anticipate term delivery	Dependent upon etiology	BPP and UAV; delivery timing requires balance of gestational age and BPP/UAV findings; fetal lung maturity testing often helpful

IUGR: intrauterine growth restriction; BPP: biophysical profile; UAV: umbilical artery velocimetry.

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Two Aspects on IUGR

'Normal SGA':

- Does not want to become bigger
- Does not need to become bigger

'Abnormal SGA':

- Would need to become bigger, but
- does not know how to become bigger

'IUGR':

- Would need to become bigger, but
- can not become bigger

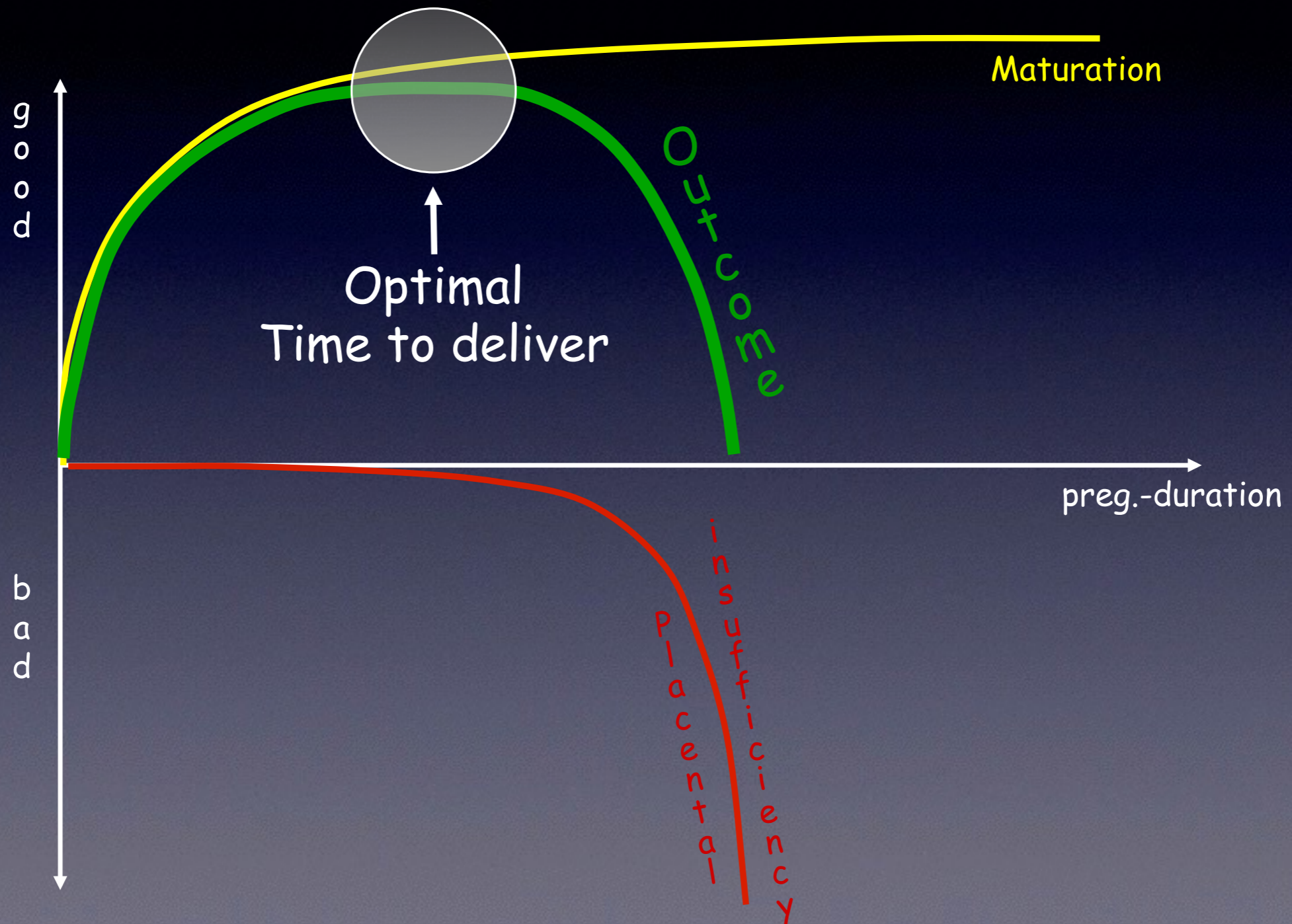
Evaluation and management of the IUGR fetus

	Constitutionally small fetus	Fetus with structural and/or chromosome abnormality; fetal infection	Substrate deprivation; uteroplacental insufficiency
Growth rate and pattern	Usually below but parallel to normal; symmetric	Markedly below normal; symmetric	Variable; usually asymmetric
Anatomy	Normal	Usually abnormal	Normal
Amniotic fluid volume	Normal	Normal or hydramnios; decreased in the presence of renal agenesis or urethral obstruction	Low
Additional evaluation	None	Karyotype; specific testing for viral DNA in amniotic fluid as indicated	Fetal lung maturity testing as indicated
Additional laboratory evaluation of fetal well-being	Normal BPP/UAV	BPP variable; normal UAV	BPP score decreases; UAV shows evidence of vascular resistance
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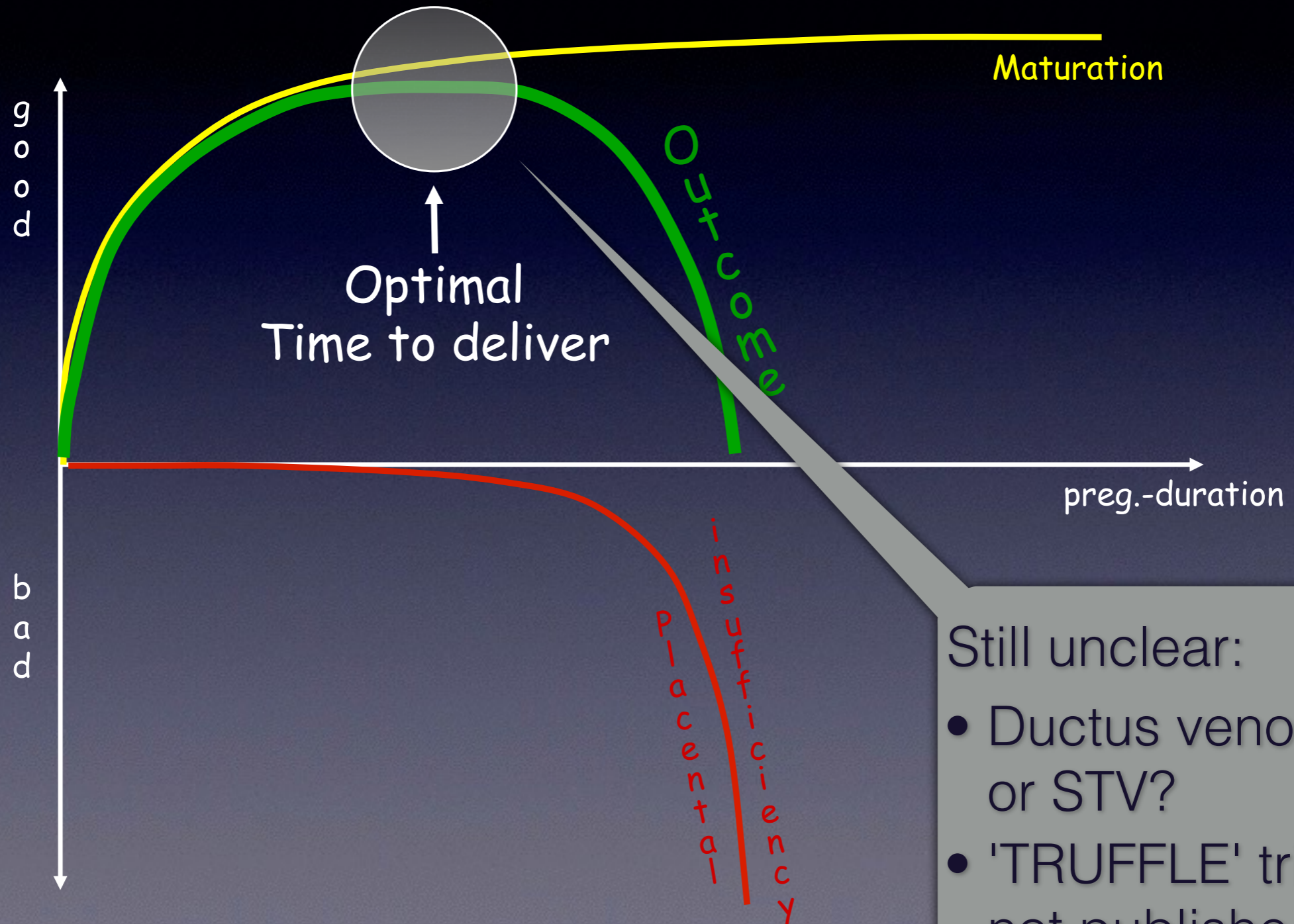
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Placental Insufficiency



Placental Insufficiency



Still unclear:

- Ductus venosus or STV?
- 'TRUFFLE' trial still not published



Thank
You

