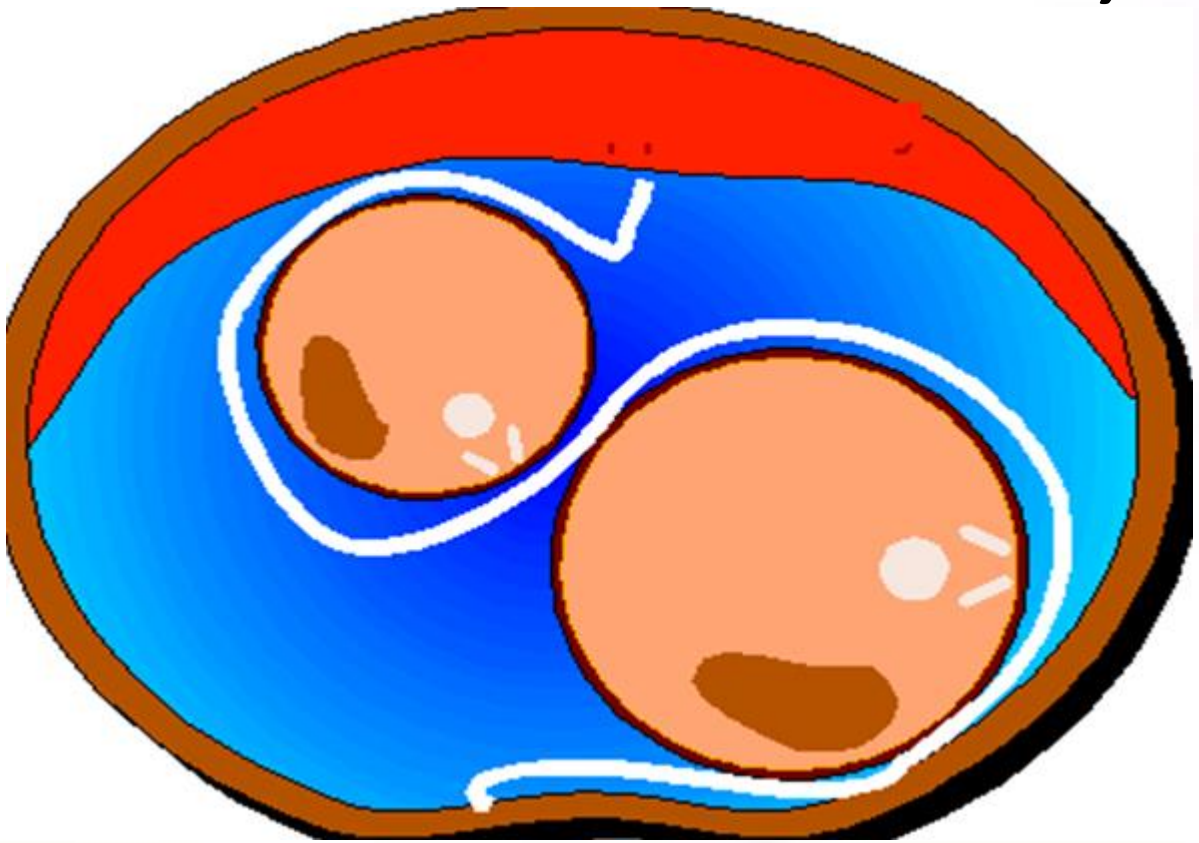

امروز تون
پر از
لطف خدا

Growth discordance
&
Selective Fetal Growth Restriction:
sFGR , sGR ,sIUGR



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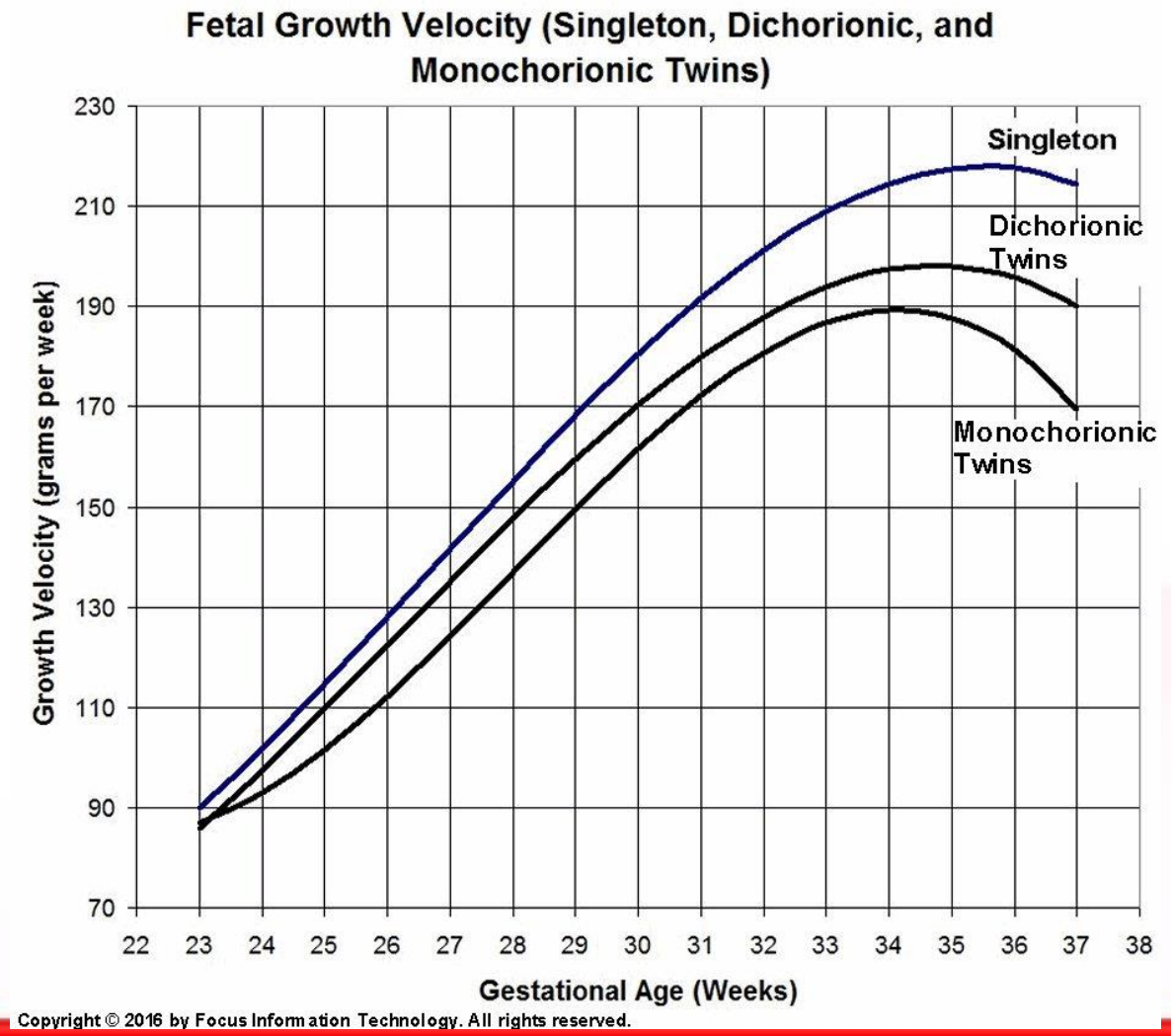
Learning Objectives

1. Growth patterns in twin pregnancy
2. Definition, Incidence, clinical significance, pathogenesis of sFGR
3. Chorionicity & growth discordance
4. Screening for sFGR
5. Overlap between TTTS and sGR
6. Classification of sFGR
7. Prognosis of sGR types
8. The management of sFGR
9. Time of delivery in sGR
10. Selective termination in management of sFGR
11. Antenatal corticosteroids therapy & mgso4

Growth patterns in twin pregnancy



Growth patterns in twin pregnancy

- In the 1th and 2nd trimesters, the growth rate of twins is not significantly different from that of singletons.
- In the 3th, particularly after 30 to 32 weeks, slower fetal growth in uncomplicated twin pregnancies than in uncomplicated singleton gestations is seen.
- A prospective cohort study reported that almost 40 percent of DC twins near term would be classified as SGA when a singleton growth standard is used.
- The slower growth rate has been attributed **to anomalous umbilical cord insertion and to placental crowding** (poor early development due to placental proximity).

Definition Of sFGR

One fetus is usually normal size
&
the other fetus has EFW<10th centile

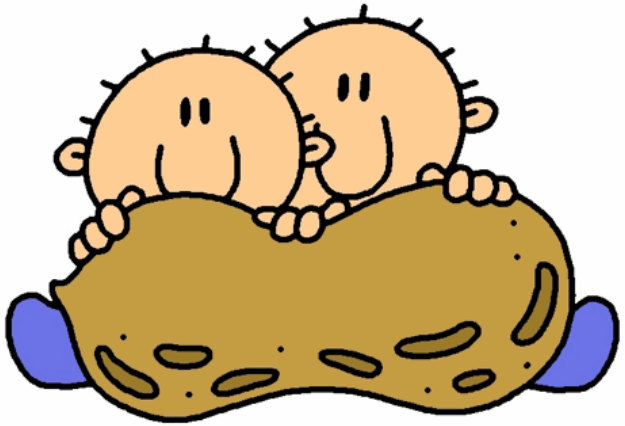
OR

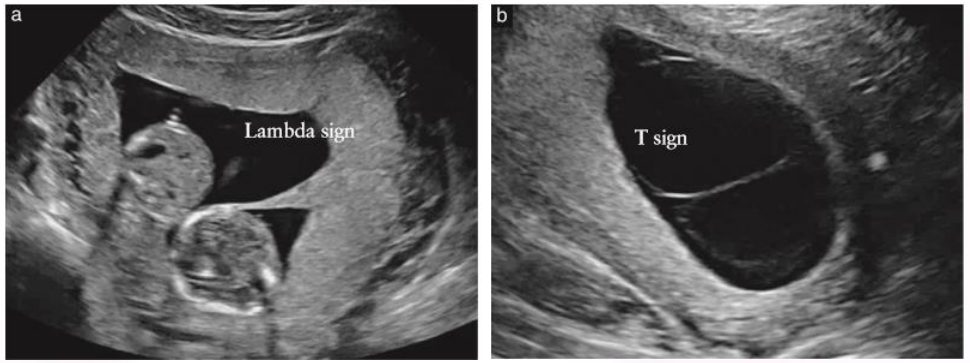
The intertwin EFW discordance is > 25%
(Even if both fetuses have an EFW greater than > 10th centile)

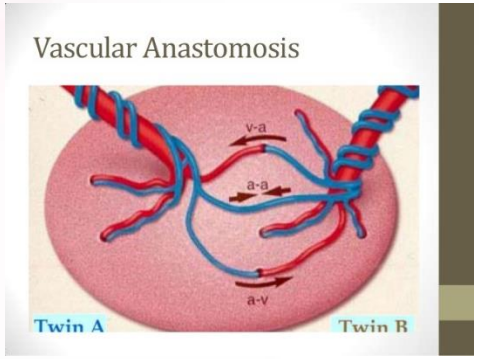
- A discordance cut-off of 20% seems acceptable to distinguish pregnancies at increased risk of adverse outcome

Chorionicity & growth discordance

- According to the chorionicity the pathogenicity growth discordance is different.
- DC twins have separate circulations, the pregnancy can be followed as in growth-restricted singleton pregnancy.
- In MC twins unequal sharing of the placenta due to the placental vascular anastomoses is the main cause of sIUGR.







St George's University of London

sFGR Delphi

Diagnostic features

DC twins

Solitary: EFW <3rd centile

Contributory: at least 2/3

- EFW <10th centile
- **EFW discordance ≥25%**
- Umbilical PI >95th centile

MC twins

Solitary: EFW <3rd centile

Contributory: at least 2/4

- EFW <10th centile
- **EFW discordance ≥25%**
- Umbilical PI >95th centile
- AC <10th centile

Incidence of sFGR

- sIUGR affects approximately 10–15% of monochorionic (MC) twin pregnancies.

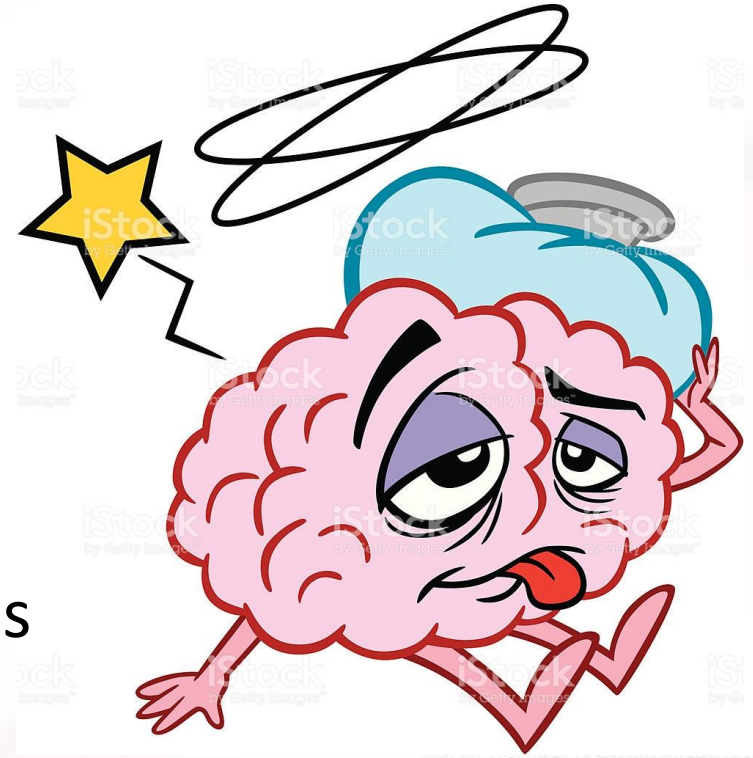
Clinical significance of sFGR

This condition is of clinical significance due to the potential risk of :

- **Intrauterine fetal death (IUFD)**
- **Adverse neurological outcome**

OR

For both twins



Screening

From 16+0 weeks of gestation, EFW should be calculated and documented

The every scan Should be include , as a minimum:

- Fetal biometry measurements (head, abdominal and femur measurements), using Hadlock 2 formula
- Measurement and recording of DVP depth of both sacs
- Evaluation of fetal bladders (i.e. size and visibility).

overlap' between mild TTTS and sGR?

Screening

THE FORMULA

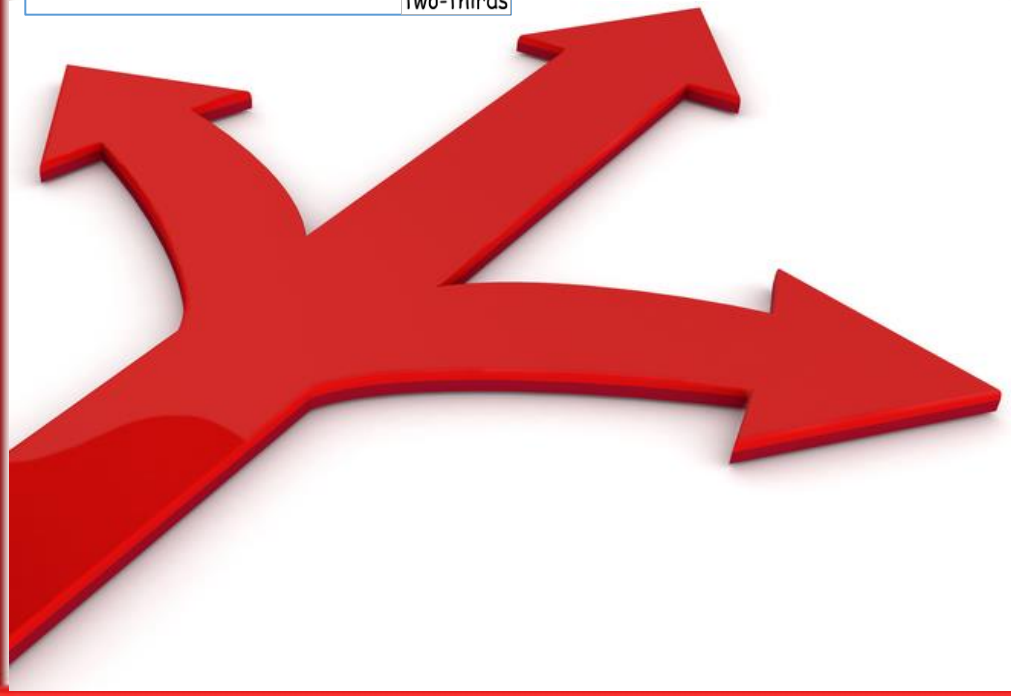
For calculation percentage EFW :

- **([larger twin EFW – smaller twin EFW]/larger twin EFW) x 100**

Growth abnormalities in twins manifest in three ways:

One twin is SGA (< 10 centile)

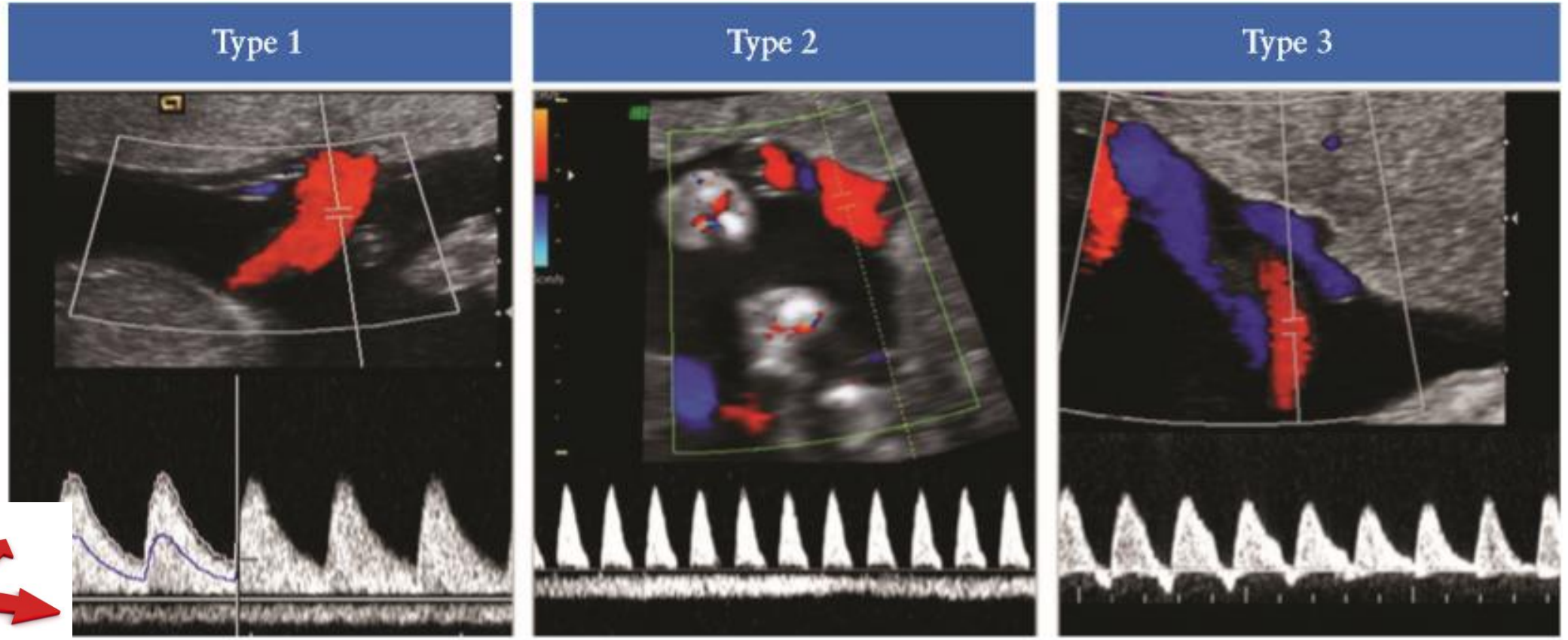
Both twin are SGA



One twin is significantly smaller than the other twin
(ie, growth discordance)
although neither is SGA

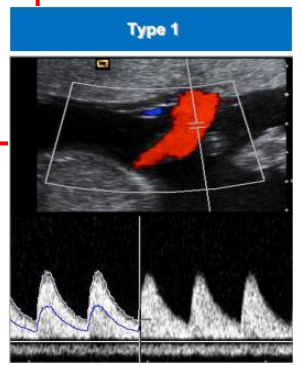
Classification of monochorionic twin pregnancy complicated by sFGR

The classification of sFGR depends on the pattern of end-diastolic velocity in the umbilical artery

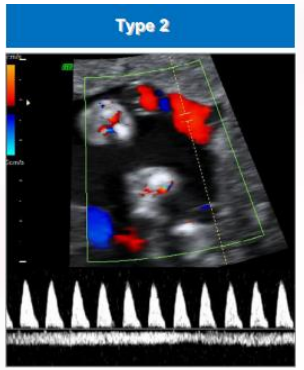


Types of selective growth restriction

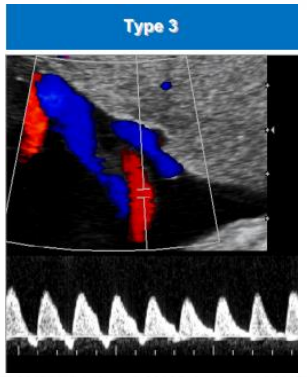
Type I Growth discordance but positive diastolic velocities in both fetal umbilical arteries.



Type II Growth discordance with absent or reversed end-diastolic velocities (AREDV) in one or both fetuses.



Type III Growth discordance with cyclical umbilical artery diastolic waveforms (positive followed by absent then reversed end-diastolic flow in a cyclical pattern over several minutes [intermittent AREDV; iAREDV]).



Prognosis of sFGR according to types

Type I :

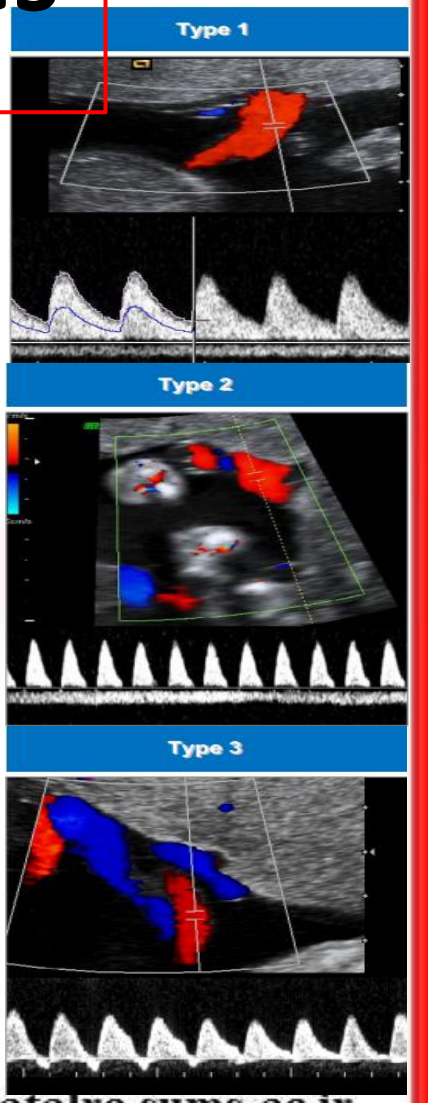
- Relatively good outcome (more than 90% perinatal survival/ in-utero mortality rates of up to 4%).

Type II :

- Poorest prognosis :high risk (up to 29%) of intrauterine demise of the growth-restricted twin and/or preterm delivery: Mean gestational age at delivery: 29 weeks

Type III :

- 10–20% risk of **unexpected fetal demise of the smaller twin** (even if stable ultrasound features and/or normal cCTG hours or days before)
- 10–20% risk of **neurological injury in the larger twin**.



The management of sFGR: Identification the cause

- A detailed anomaly scan
- Screening for viral infections (TORCH)
- Amniocentesis may also be required to exclude chromosomal abnormalities as a cause of early growth restriction
- Then management is different according to chorionicity

The management of sFGR: surveillance of fetal growth

- Surveillance of fetal growth should be undertaken **at least every 2 weeks** with:

- Fetal Doppler assessment by:

➢Umbilical artery PI

➢MCA PI & PSV

Note If umbilical artery Doppler velocities are abnormal:

the Doppler assessments should be undertaken in line with national guidance, measuring ductus venosus waveforms.

Follow-up of twin pregnancy complicated by sFGR

- **In DC pregnancy** complicated by sFGR, fetal Doppler should be assessed approximately every 2 weeks, depending on the severity.

- **In MC twin pregnancy** complicated by sFGR, fetal growth should be assessed at least every 2 weeks, and **fetal Doppler** at least **weekly**

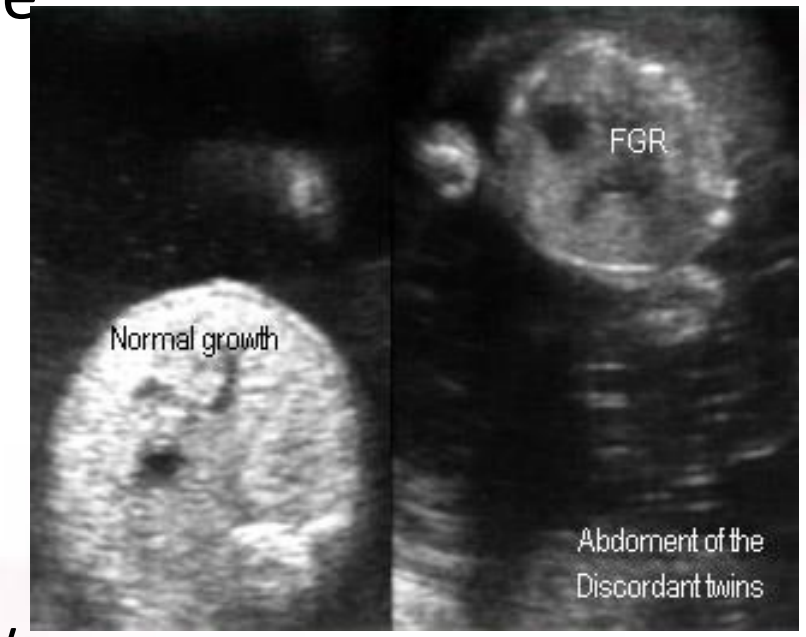
The timing of delivery in DC twin pregnancy complicated by sFGR

- The timing of delivery should be determined based on a risk–benefit assessment and according to the wishes of the parents, guided by obstetric and neonatal counseling.
- Delivery is usually not recommended before 32–34 weeks' gestation.
- Monitoring for progressive deterioration of umbilical artery, MCA and DV Doppler, and of biophysical profile scores.
- These pregnancies should be managed in specialist centers with the relevant expertise

Timing of delivery in MC twin complicated by sFGR

The aim is to:

1- Prolong pregnancy to at least viability and to achieve appropriate gestation for delivery (32–34 weeks)



2- Avoid the complication of single fetal death and the consequences for the surviving fetus.

- There is limited evidence to guide the management **of MC twins** affected by sFGR.
- Abnormal ductus venosus Doppler waveforms (reversed flow during atrial contraction) or cCTG short-term variation should trigger consideration of delivery.

Time of delivery in sGR

Type	Time of delivery	Note
Type I sGR	Planned delivery should be considered **by 34–36 weeks**	If there is satisfactory fetal growth velocity and normal umbilical artery Doppler waveforms.
Type II and III sGR	Delivery should be planned **by 32 weeks**	Unless fetal growth velocity is significantly abnormal or there is worsening of the fetal Doppler assessment

Selective termination of sFGR

- Prior to viability (24- 26 weeks), If there is a substantial risk of fetal demise of one co-twin, to protect the appropriately grown co-twin, selective termination of pregnancy may be considered.

➢**Sign of significant risk of single fetal demise:**

The small twin has a significantly reduced fetal growth velocity (change in measured AC < 1 SD over 14 days) in the presence of umbilical artery Doppler abnormalities,

➢**Methods of selective termination:**

Vaso-occlusive techniques, such as bipolar cord occlusion or radiofrequency ablation

- **The incidence of severe cerebral injury in MC twins complicated by sFGR is approximately 10%**
- It is associated with:

- **Abnormal umbilical artery Doppler**
- **Single IUD**
- **low gestational age at birth**
- Interestingly, the risks of neonatal morbidity (38% vs 19%), particularly RDS (32% vs 6%) and cerebral lesions, are higher in the larger than in the smaller cotwin.

It is important to prospectively inform parents that:

- In sGR and TTTS (even after apparently successful treatment):
- There can be acute transfusional events (which are neither predictable nor preventable) and therefore:

Despite regular monitoring, there may still be adverse perinatal outcomes.

راهنمای کشوری ارائه خدمات مامایی و زایمان

(بازنگری سوم)

حاملگی چند قلویی

طبقه بندی و ارزیابی چند قلو یی بر اساس کوریونیسیتی جنین است.

توضیحات

* آسپیرین روزانه ۸۰ میلی گرم در مادران با سن ۴۰ سال یا بیشتر، حاملگی اول، فاصله بین دو بارداری بیش از ۱۰ سال، نمایه توده بدنی ۳۵ و بالاتر، سابقه فامیلی پره اکلامپسی از ۱۲ هفتگی تا تولد تجویز شود.

** در موارد دوقلویی مونو کوریون احتمال سندرم TTTS وTRAP وجود دارد.

نکته ۱: در موارد گزارش دو قلوهای به هم چسبیده یا حاملگی مولار در یکی از قل ها ادامه مراقبت ها توسط پریناتالوژیست انجام شود.

نکته۲: موارد زیر در بارداری چند قلویی باعث کاهش زایمان زودرس نمی گردد بنابراین به صورت روتین توصیه نمی شود: استراحت در منزل، تجویز توکولیتیک خوراکی، عمل سرکلاژ (اندازه گیری طول سرویکس نیازی نیست مگر در موارد پر خطر)، تجویز پروژسترون خوراکی و تزریقی، تجویز کورتیکواستروید بدون هدف

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مونوکوریون و دی آمنیون**

انجام سونوگرافی آنومالی اسکن و بررسی حجم مایع آمنیوتیک از هفته ۱۶ تا ۱۸ بارداری توسط فرد متبحر

حداکثر میزان پاکه عمودی بیشتر از ۸ سانتیمتر در یک ساک و کمتر از ۲ سانتیمتر در ساک حاملگی دیگر

بله

- تکرار سونوگرافی هر ۳- ۲ هفته یک بار تا ختم بارداری
- داپلر عروق شریان مغزی در هر سونوگرافی از هفته ۲۸- ۲۶ بارداری

تخمین وزن جنین کمتر از منحنی ۱۰٪ یا ناهمخوانی رشد بیشتر از ۲۵٪ یا هر دو

ارجاع به پریناتالوژیست

References

- ACOG. (2014). Multifetal Gestations: Twin, Triplet, and Higher-Order Multifetal Pregnancies. The American College of Obstetricians and Gynecologists.
- ISUOG Practice Guidelines (2016): role of ultrasound in twin pregnancy

Antenatal corticosteroids for pregnancies at risk of preterm delivery

- A standard dosing for antenatal corticosteroids for **both singleton and multiple gestations** believed to be at increased risk for preterm delivery within seven days is recommended.
- **Routine prophylactic administration to all twin pregnancies should be avoided and may have adverse effects**
- ACOG recommends one course of antenatal corticosteroids to all multiple gestations between 23 and 34 weeks at risk for delivery within seven days, if neonatal resuscitation of a periviable neonate is planned.
- ACOG also supports use of a single course of rescue steroids in pregnancies <34 weeks at imminent risk of preterm delivery within the next seven days and had a prior course of antenatal corticosteroids at least seven days previously.

Magnesium sulfate for pregnancies at risk for preterm delivery

- Magnesium sulfate appears to reduce the severity and risk of cerebral palsy in infants if administered before preterm birth <32 weeks of gestation, **regardless of fetal number**

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تجویز کورتیکوستروییدها به منظور تسریع رسیدگی ریه جنین :

- در هفته۲۶ تا ۳۴ بارداری:

✓ ۱۲ میلی‌گرم بتامتازون به صورت عضلانی و تکرار آن بفاصله ۲۴ ساعت

✓ یا ۶ میلی گرم دگزامتازون بصورت عضلانی ۴ دوز به فاصله ۱۲ ساعت

تجویز منیزیوم سولفات جهت حفاظت عصبی نوزاد :

- در هفته ۲۴- ۳۲ بارداری ۱۲در صورتی که وقت کافی وجود دارد :

✓تزریق ۶ گرم سولفات منیزیوم اولیه و بعد هر ساعت ۲ گرم حداقل تا ۱۲ ساعت

Take home massage

- **Determination of chorionicity** has the major role in management of twin pregnancy: (**please note to clear documentation & save it**)
- **IUFD & Adverse neurological outcome can occur due to sFGR in MC twins.**
- All MC should be screen and assess for sFGR every 2 weeks by ultrasound.
- The risks of neonatal morbidity , particularly respiratory distress syndrome and cerebral lesions, **are higher in the larger** cotwin.
- The incidence of severe cerebral injury in MC complicated by sFGR is approximately 10% .
- **Please prospectively inform parents that** in sGR and TTTS, **despite regular monitoring, there may still be adverse perinatal outcomes.**
- **Routine prophylactic administration of chorticosteroid to all twin pregnancies should be avoided and may have adverse effects.**

References

- *IRAN national guideline 1396 (2017)*
- *UpToDate, Inc.* ***2018***
- *ISUOG WS: Complications of twins: how to image, how to manage" at ISUOG's World Congress in Vienna, in* ***2017***
- *RCOG Green-top Guideline No. 51 Monochorionic Twin Pregnancy, Management* ***2016***
- *ISUOG Practice Guidelines: role*


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