



IX. National Congress

24 - 27 September 2014 Harbiye Military Museum

Management of Single Fetal Death

Isaac Blickstein, MD

Common knowledge:

Twin pregnancies >> twin deliveries

- ▶ **more early (unknown) losses**
- ▶ **more early (embryonic) losses**
- ▶ **more late (fetal) losses**

Common knowledge (II):

The vanishing twins syndrome

- ▶ Unknown incidence
- ▶ Unknown etiology
- ▶ Unknown consequence



Incidence of the VTS (Pinborg et al)

1/10 of all ART singletons
started as twins

If single **fetal** death is associated with CP

**Is the Vanishing Twin Syndrome
also associated with CP in
the survivor ?**

A hypothesis for the aetiology of spasstic crebral palsy –the vanishing twin

Pharoah PO, Cooke RW.

Dev Med Child Neurol. 1997 May;39:292-6.

Reflections on the hypothesis for the etiology of spasstic crebral palsy –the vanishing twin

Blickstein I.

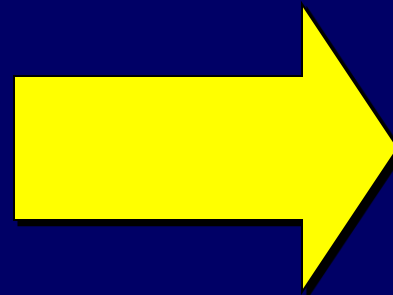
Dev Med Child Neurol. 1998 May;40:358.

CP & VTS (Pinborg et al)

Significant correlation between
VTS > 8wks and brain damage
in ART twins

THE VANISHING TWIN SYNDROME

Sonographic
curiosity



Clinical
entity

The Regio Emilia studies on VTS@ART

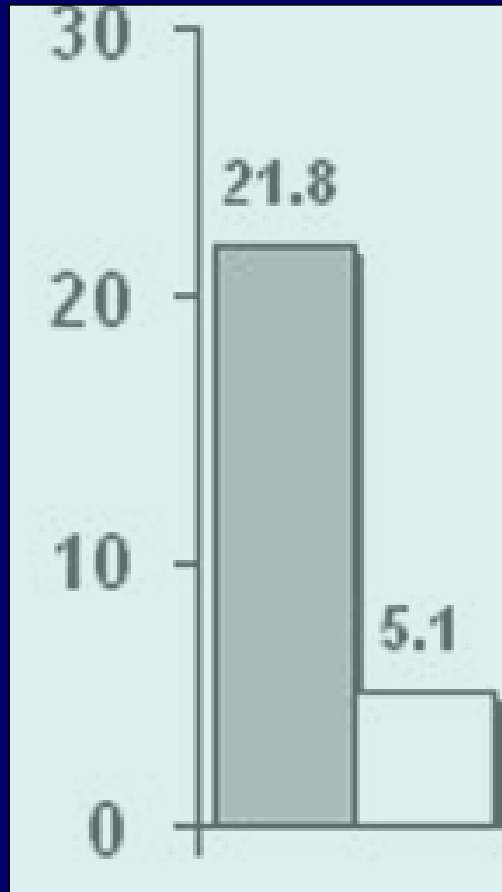
Obstetrical outcome

Psychological vulnerability

Early survival

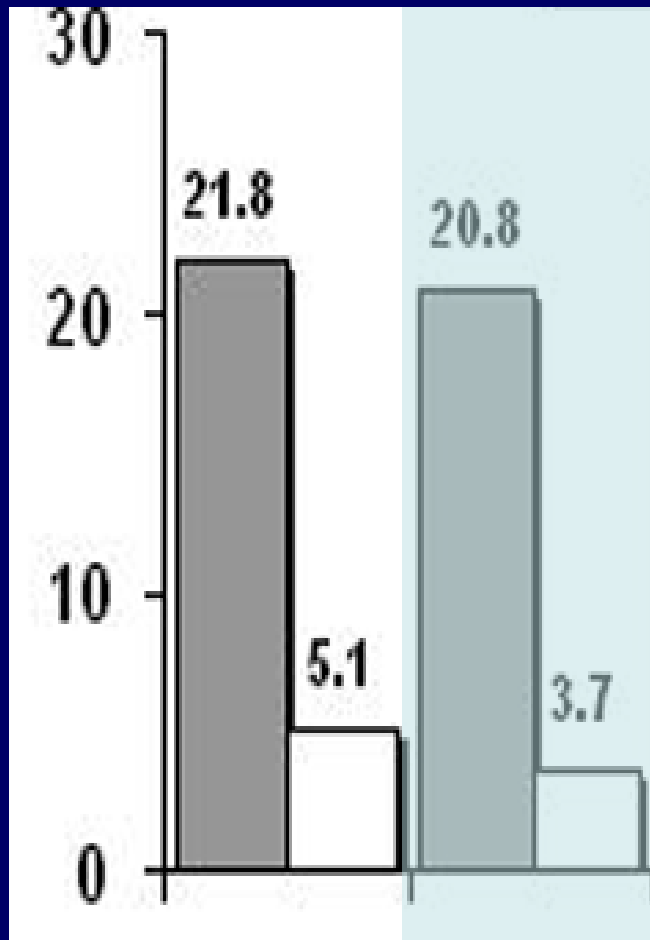
Loss of entire pregnancy after ART: twins vs. singletons

Tummers et al (2003)



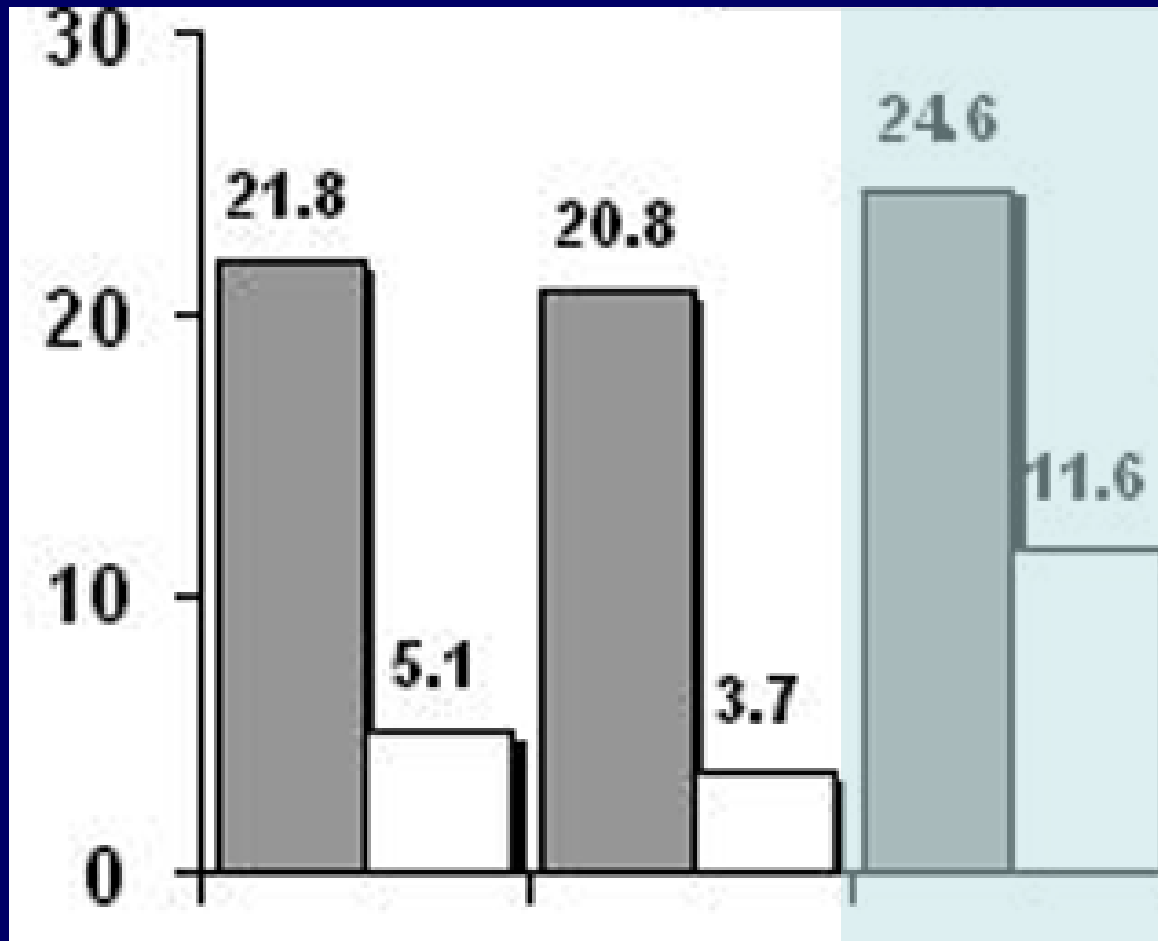
Loss of entire pregnancy after ART: twins vs. singletons

Zegers-Hochschild et al (2003)



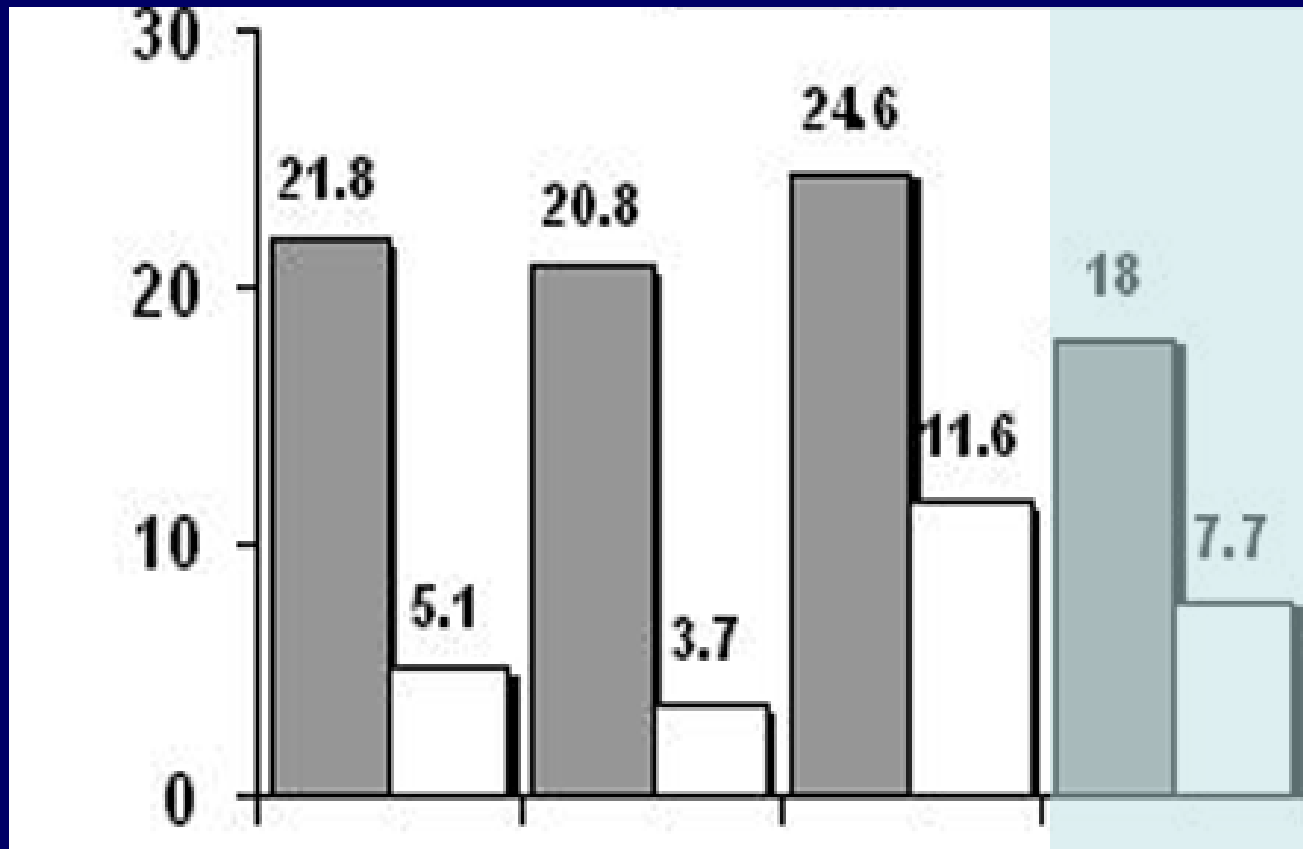
Loss of entire pregnancy after ART: twins vs. singletons

La Sala et al (2004)



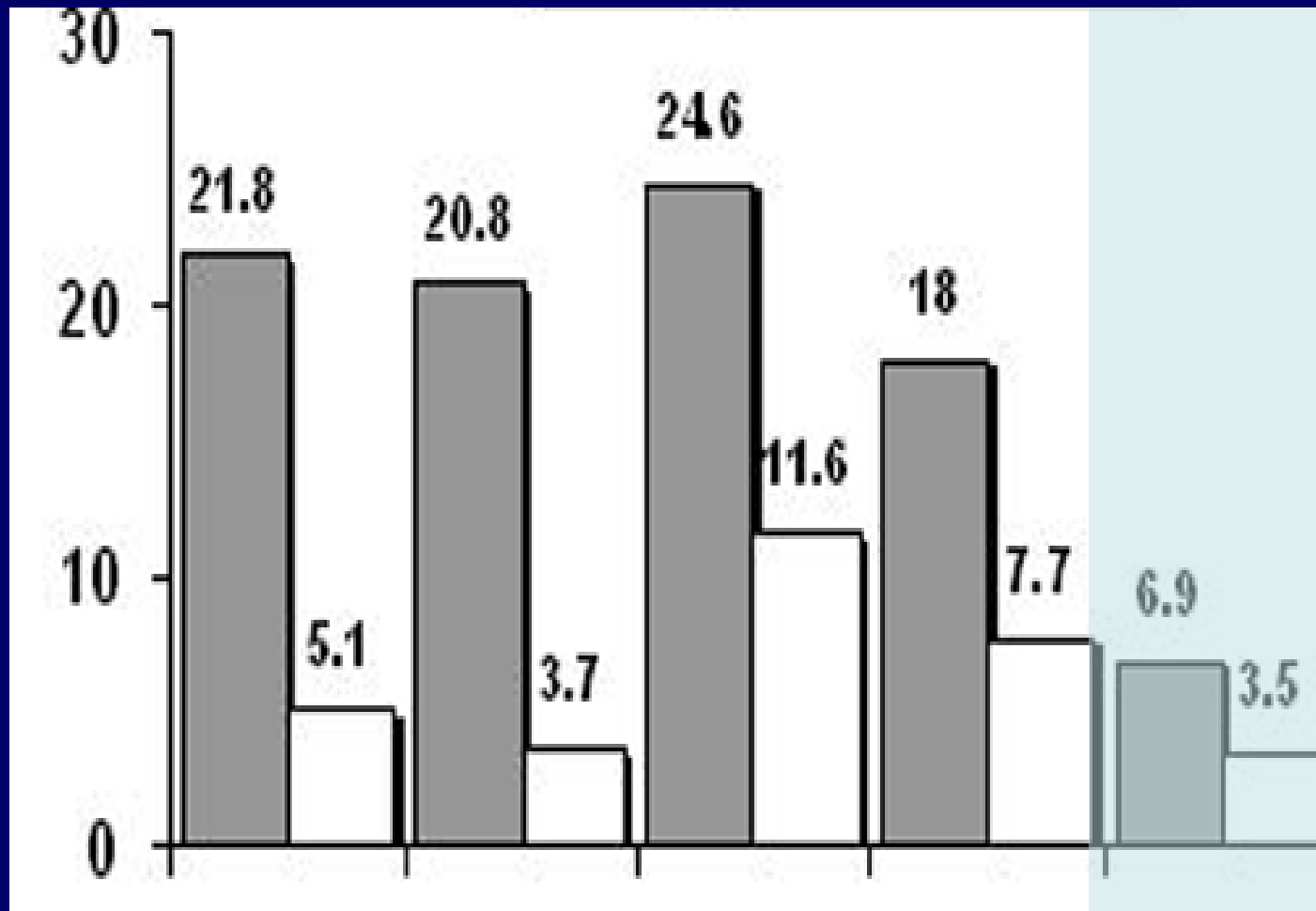
Loss of entire pregnancy after ART: twins vs. singletons

Matias et al (2006)



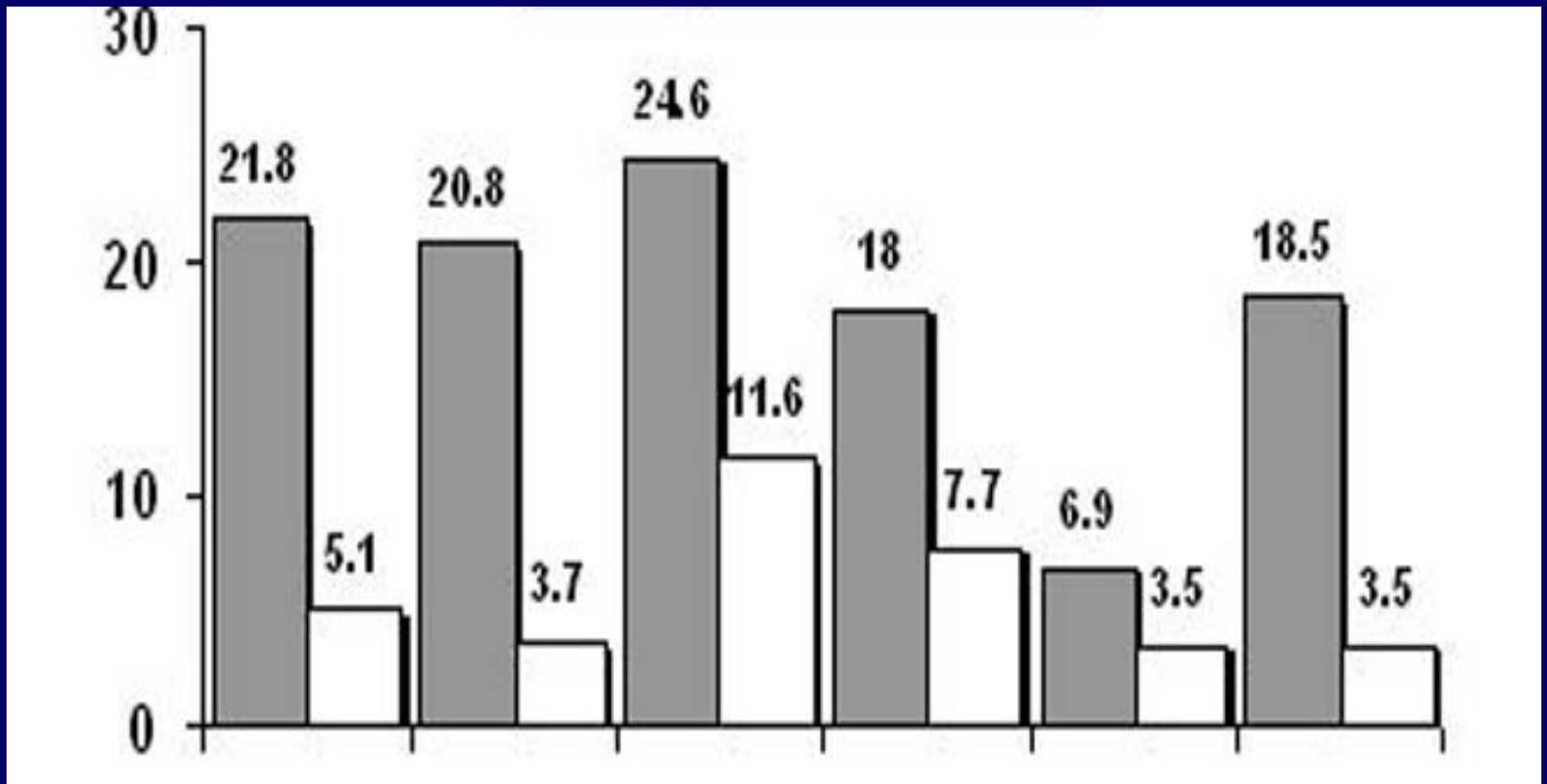
Loss of entire pregnancy after ART: twins vs. singletons

Pinborg et al (2005)



Loss of entire pregnancy after ART: twins vs. singletons

Lambers et al (2006)



Loss of entire pregnancy after ART: twins vs. singletons

Loss of entire twin pregnancy

= $p_1 + p_2$

or

< $p_1 + p_2$

ART only ? (luteal support)

Hyperplacentosis ?

Twin to twin support ?



Outcome of single fetal death depends on:

Chorionicity

Gestational age at diagnosis

Interval since fetal death

Maternal effect:
(probably) **None**

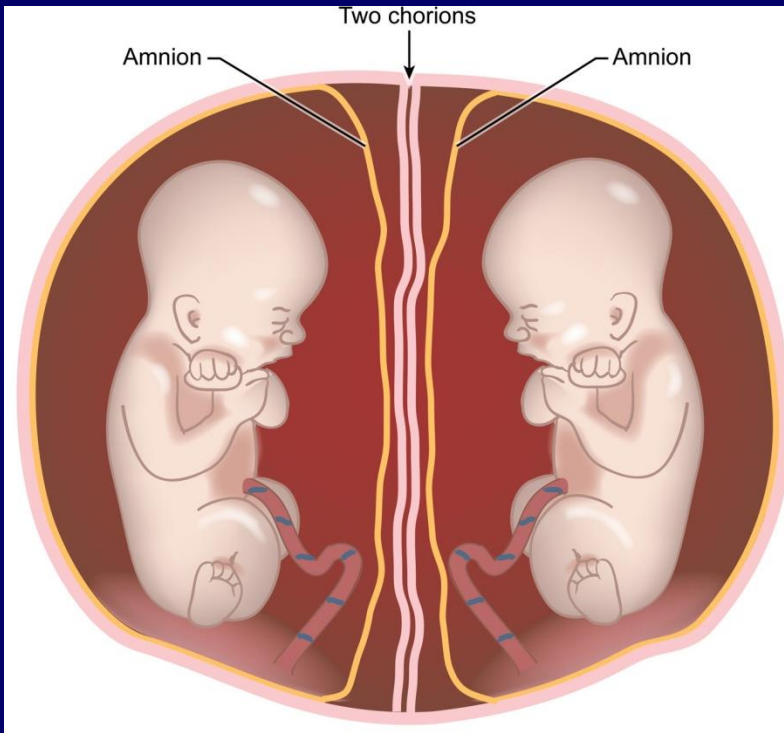
Outcome depends on:

Chorionicity

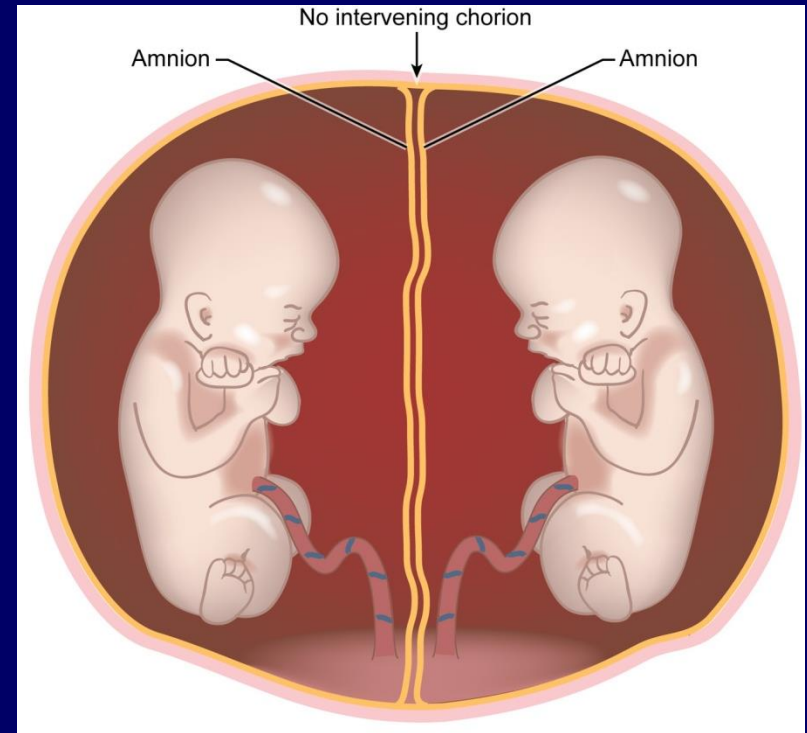
Gestational age at diagnosis

Interval since fetal death

Twins



DC



MC

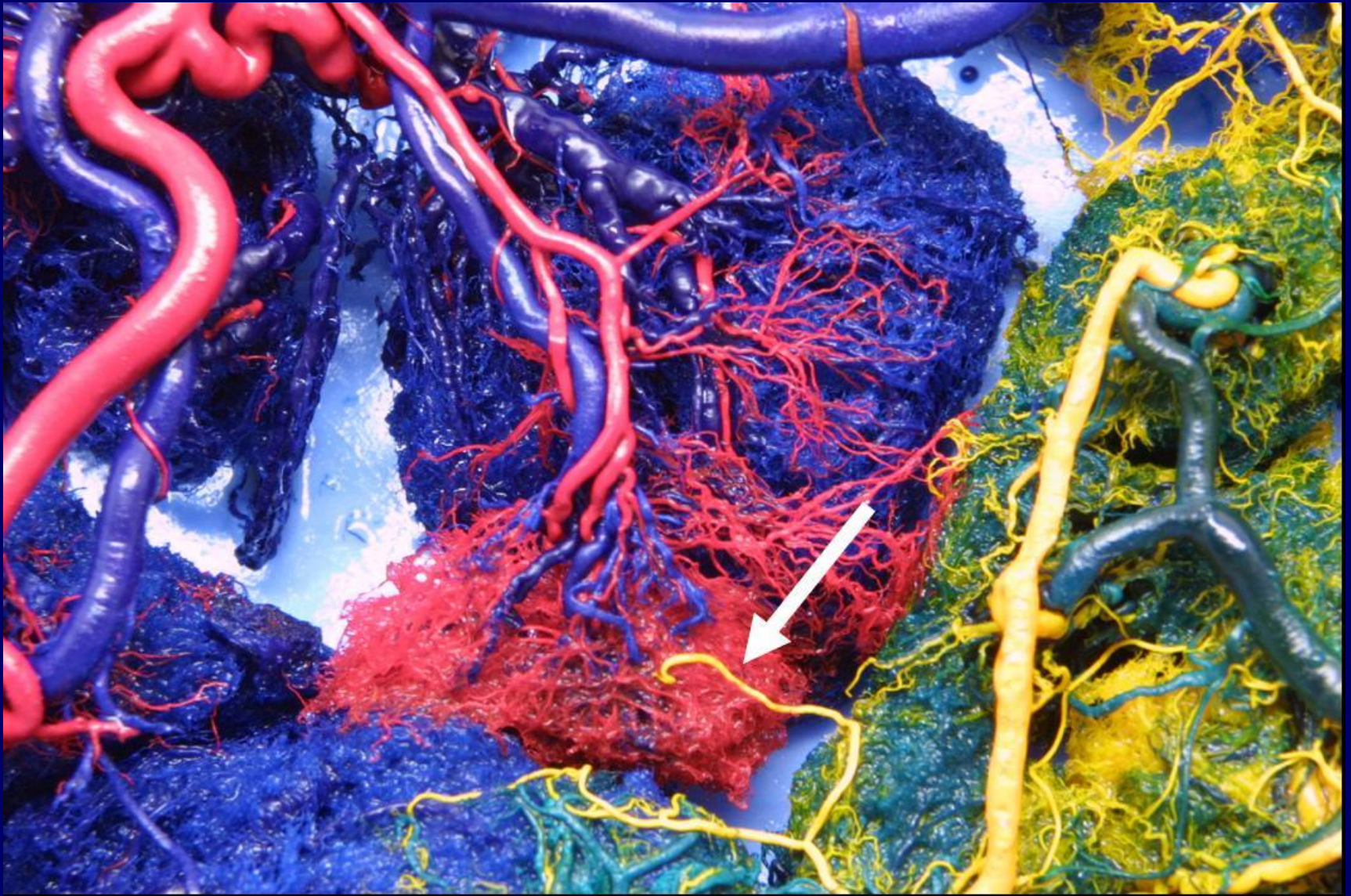
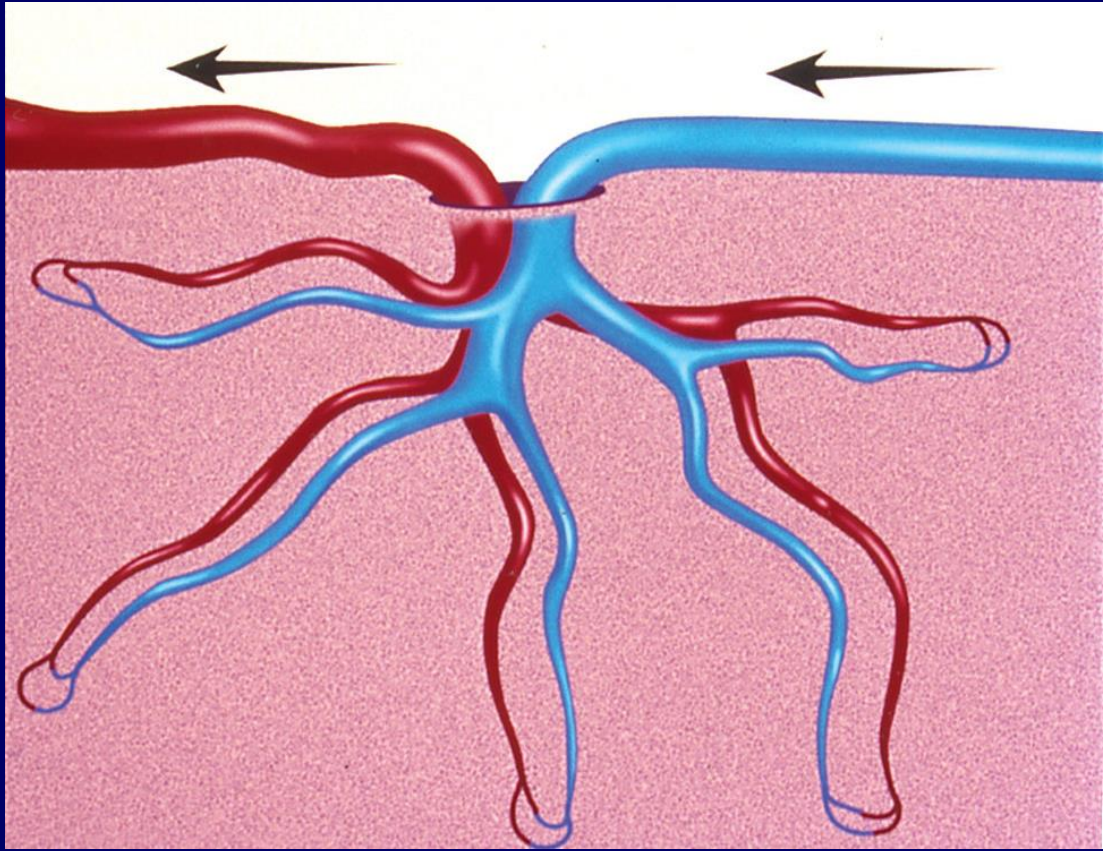


Image: M Taylor



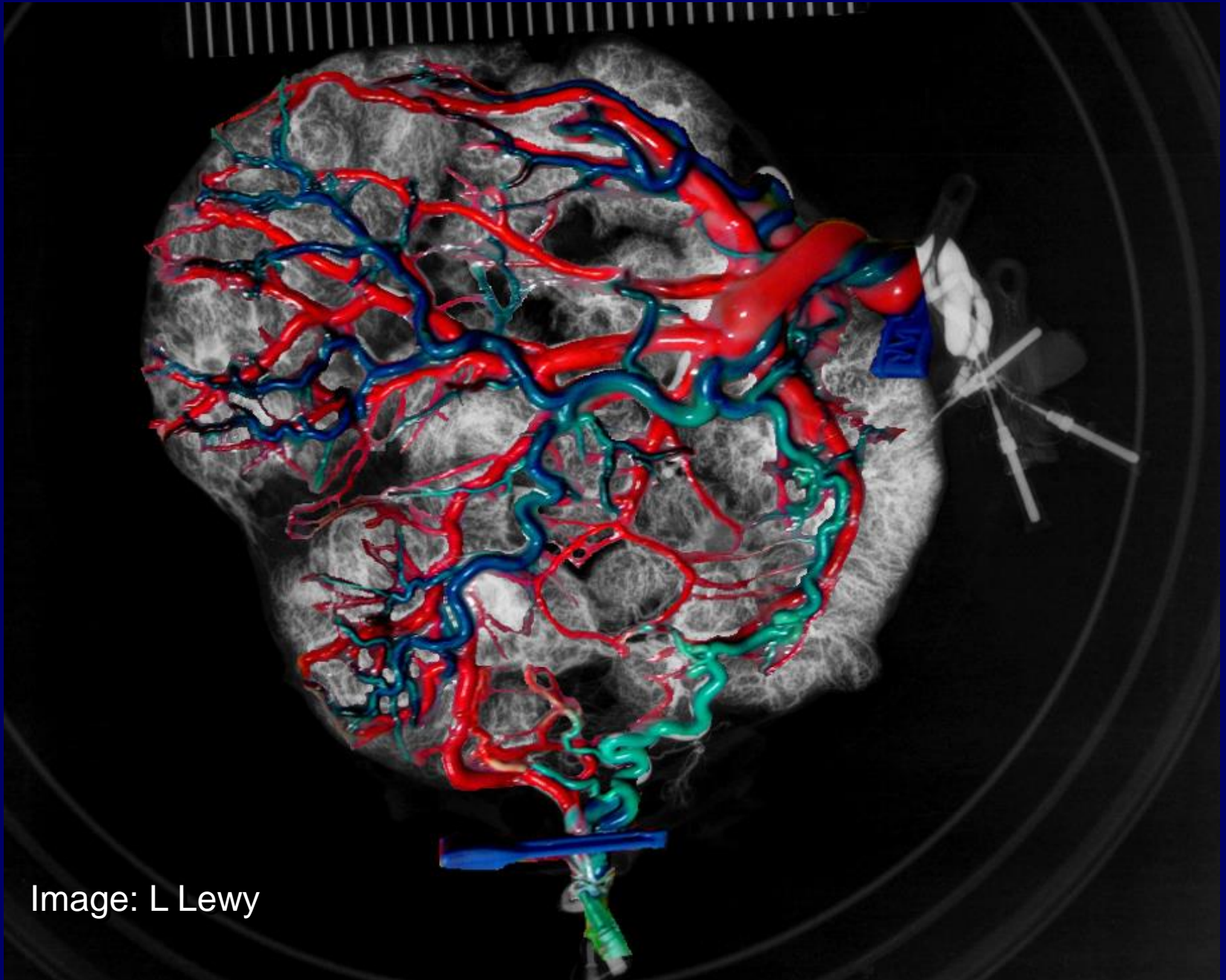
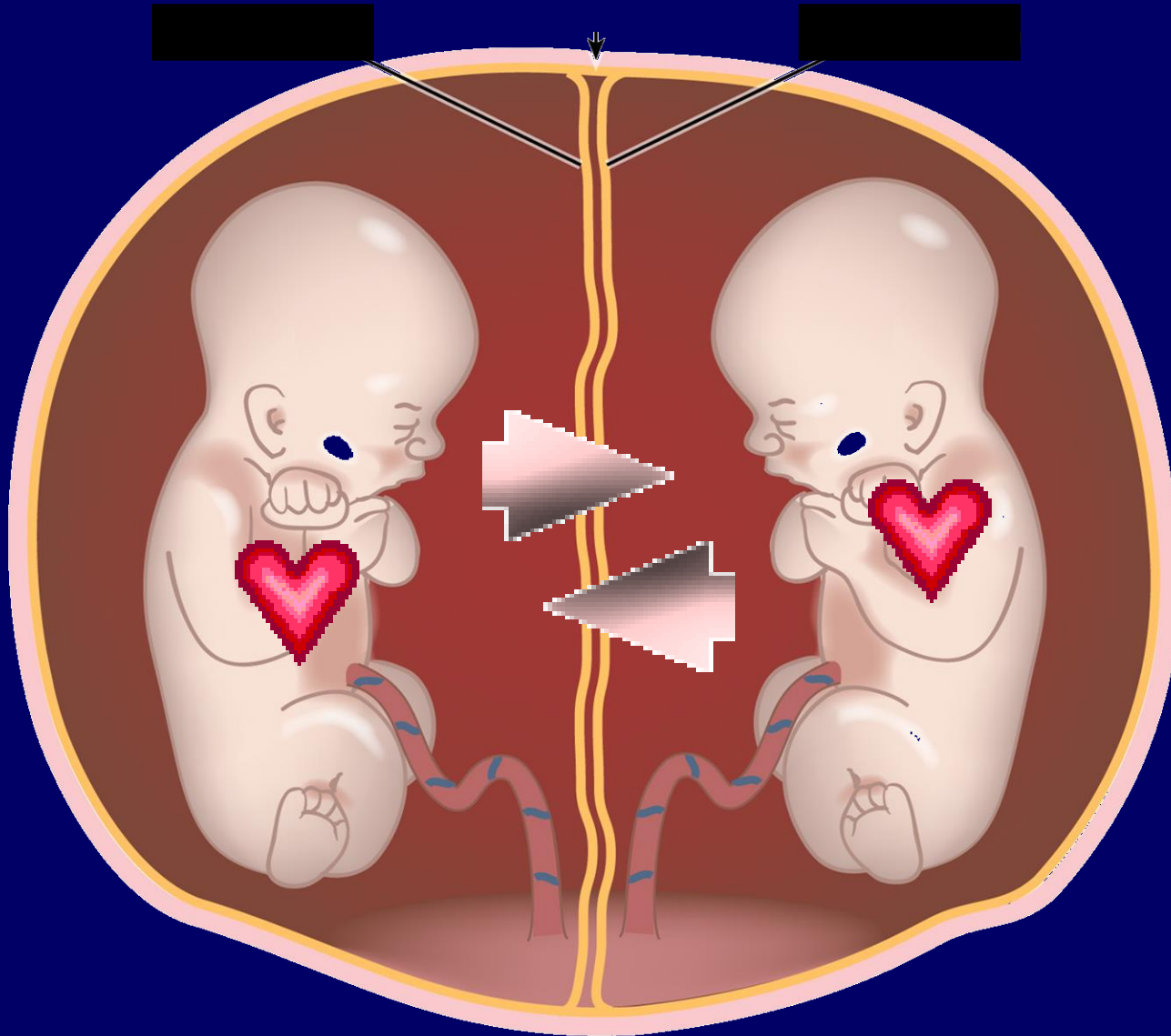
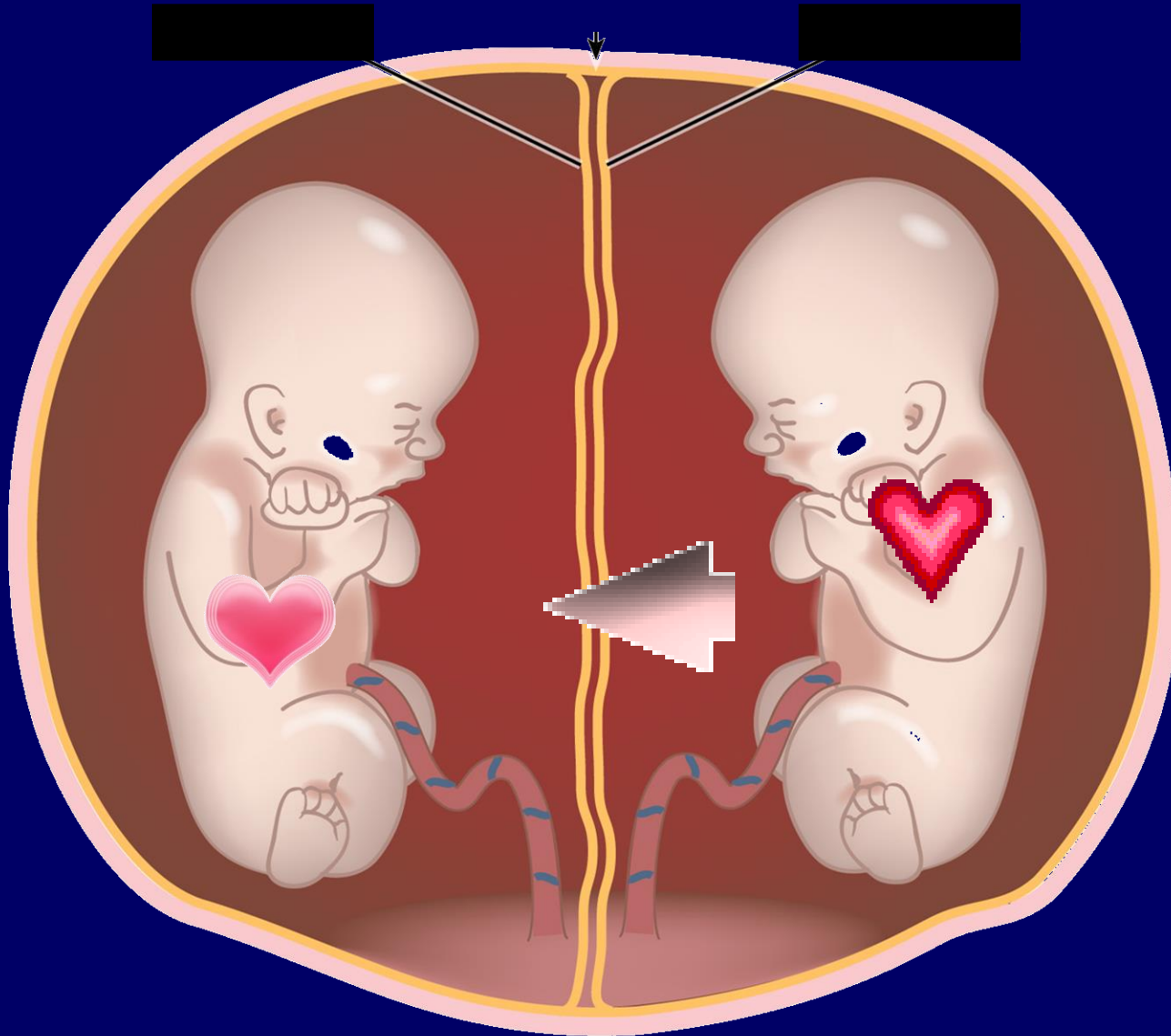
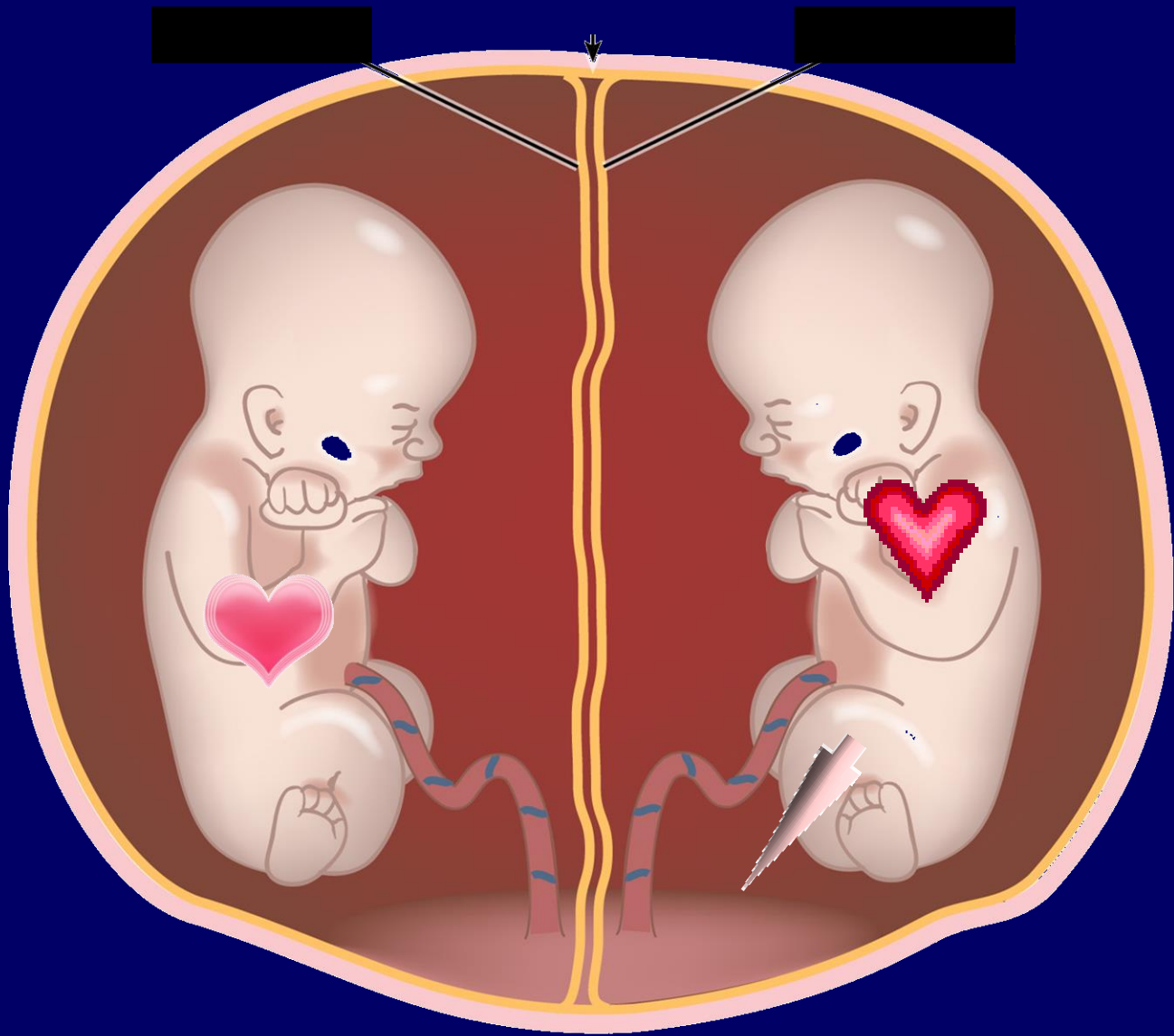


Image: L Lewy



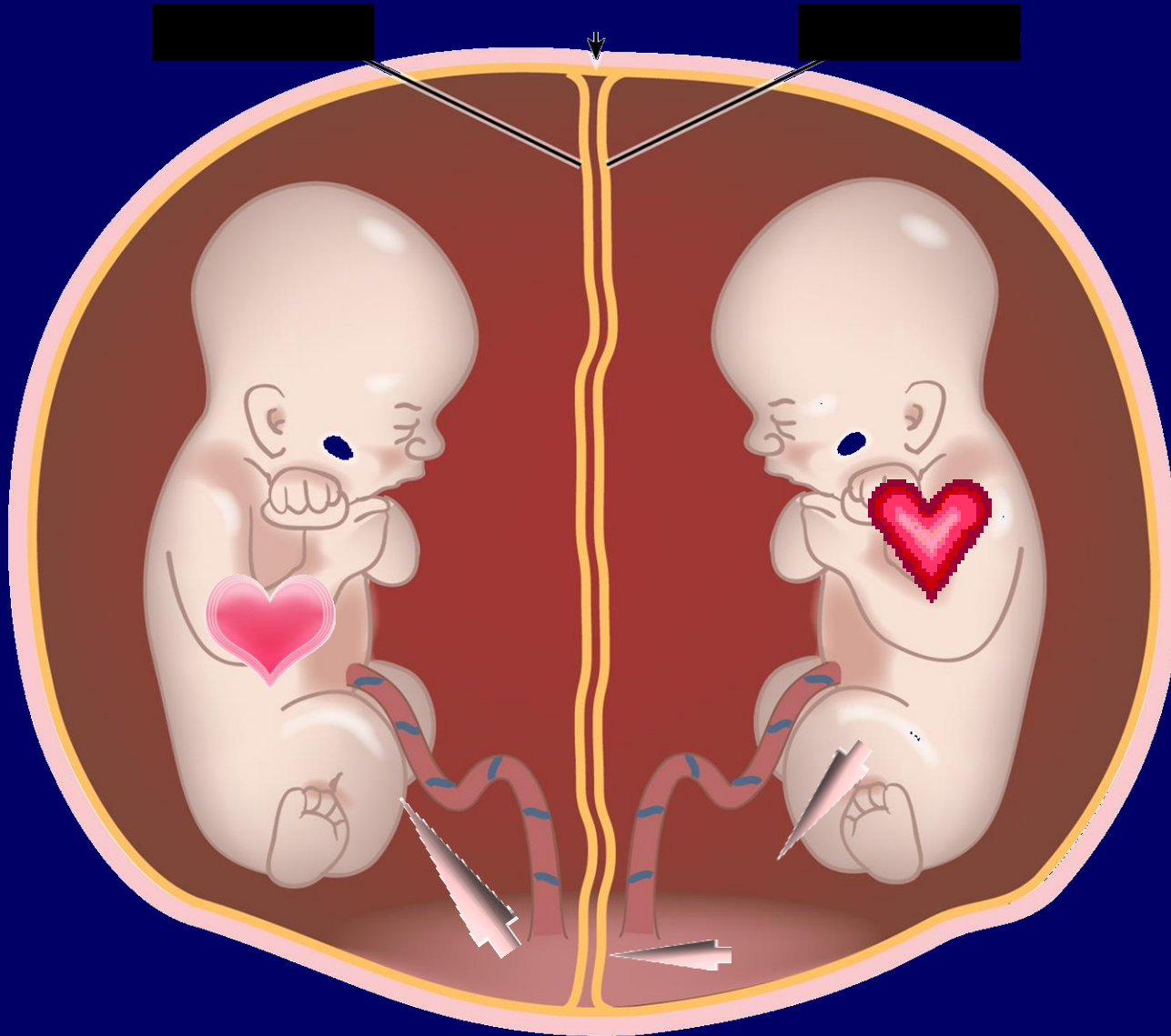




Phase 1: TTPTS

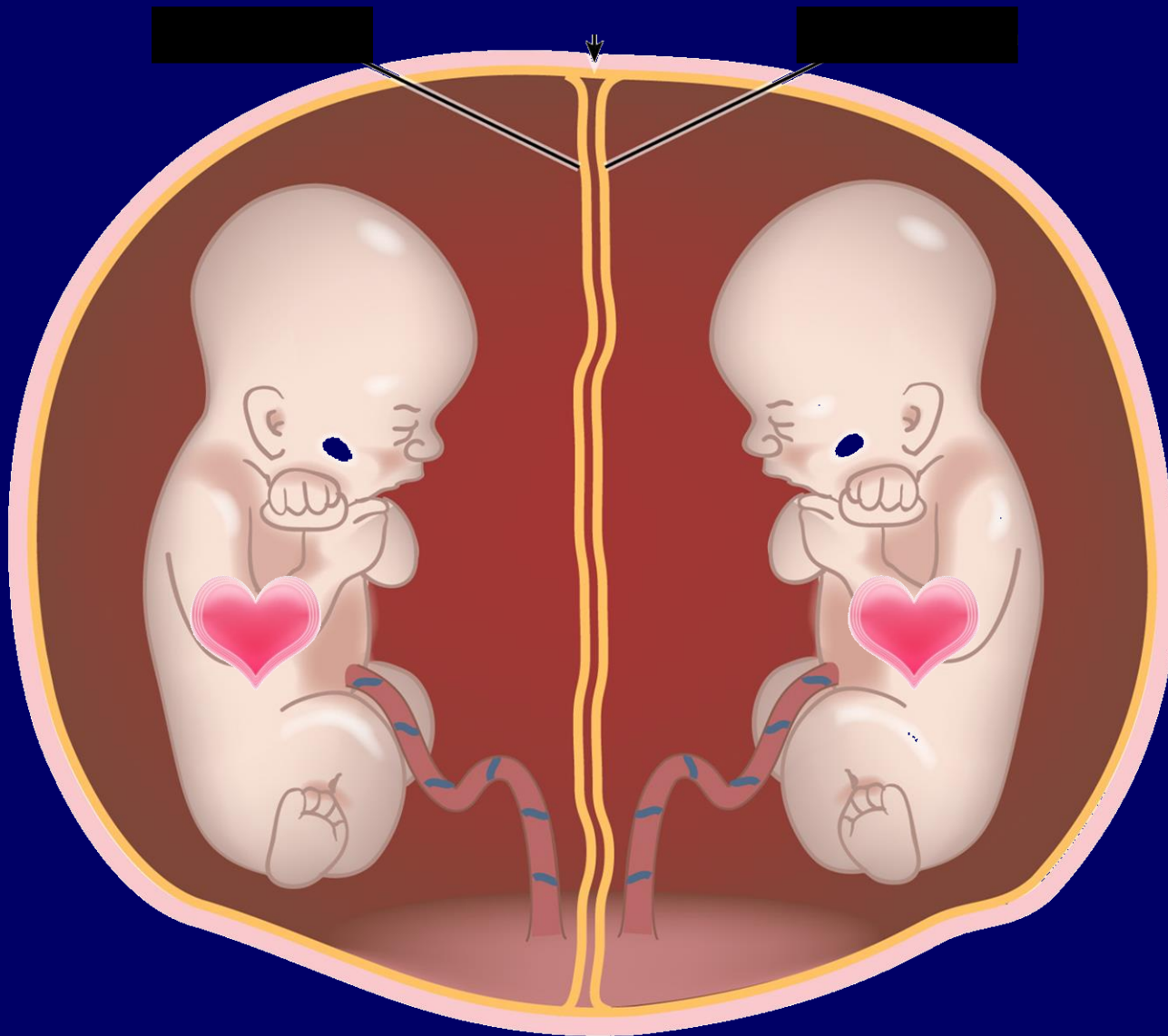
(Twin To Placenta Transfusion)

Importance of the large vessels
(Veins)



Phase 2: TTPPTS

(Twin To Placenta To Twin Transfusion)



Severe
TTPTS/TTPPTS:
Acute hypotension
→ Death of co-twin

Double death

Less severe
TTPTS/TTPTTS:

Moderate hypotension

→ ischemia

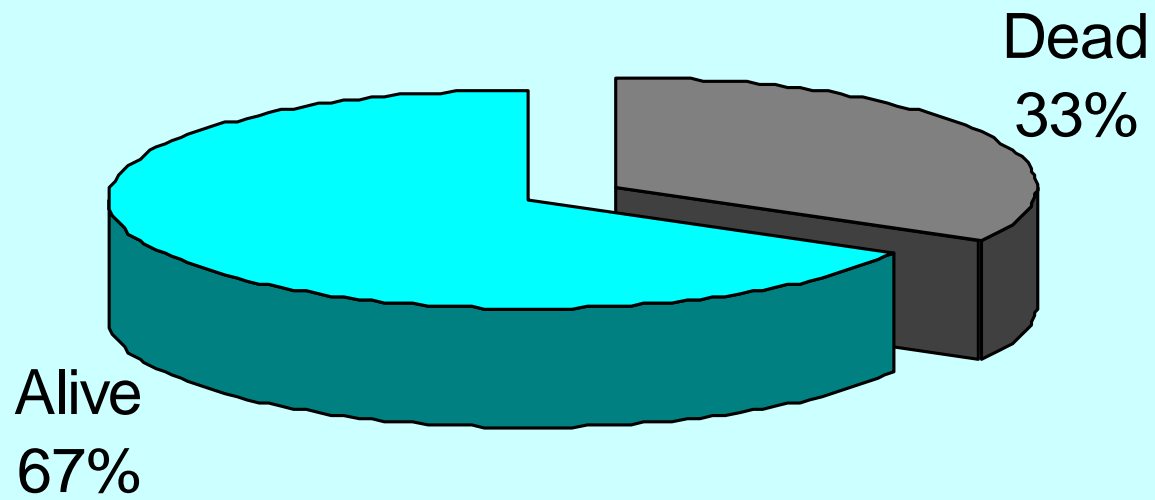
Fetal end-organ damage

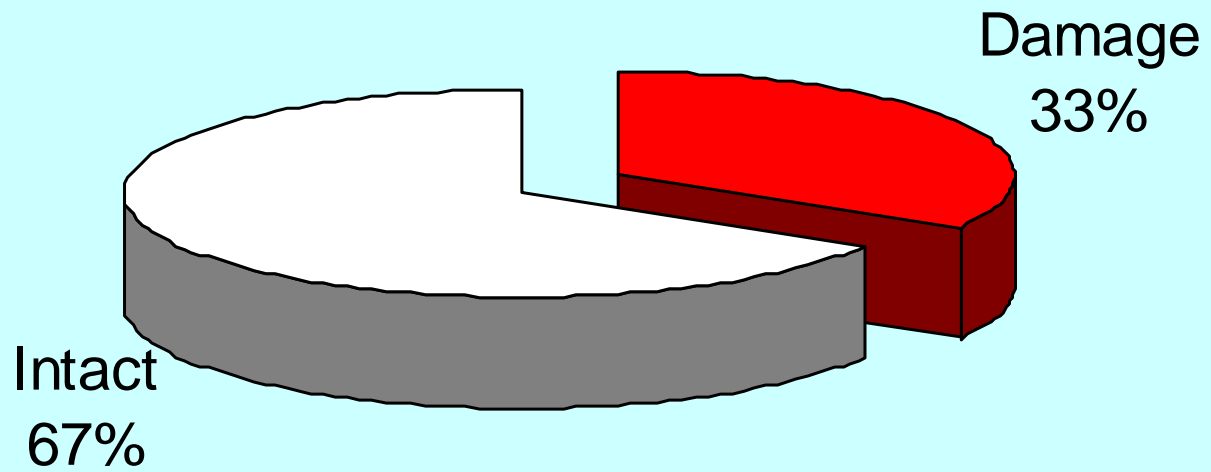
Mild TTPTS/TTPTTS:

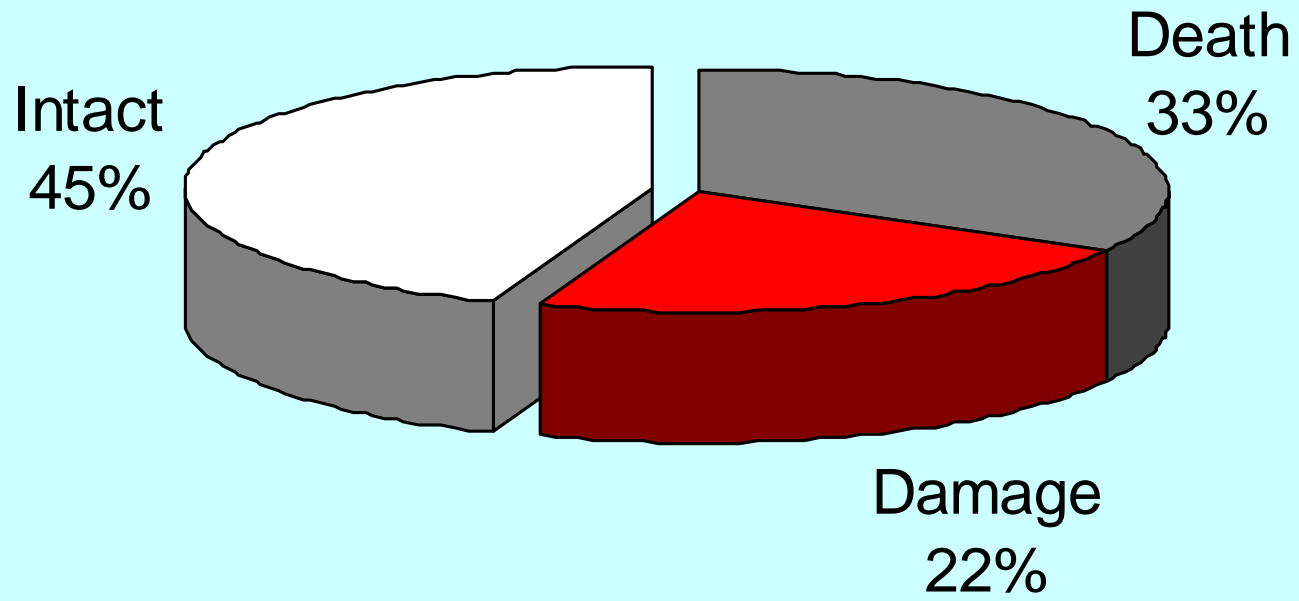
Mild hypotension

→ adaptation

Intact survival







Timing of single fetal death (1)

Twin 1	Twin 2
Early death	Intact

Vanishing twin syndrome + a normal singleton

Vanishing twin syndrome + a normal singleton



- In spontaneous pregnancies: 3-5.5% start as twins → 1.2% end-up as twins
- In ART: 10.5% of singletons had a twin from the beginning

Timing of single fetal death (2)

Twins 1	Twins 2
Early death	Damage

Vanishing twin syndrome + damaged co-twin

Timing of single fetal death (3)

Twin 1	Twin 2
Late death	Late death

Double death

Double death

Risk in MC twins X 11



Timing of single fetal death (4)

Twins 1	Twins 2
Late death	Damaged

Single fetal death + damaged co-twin

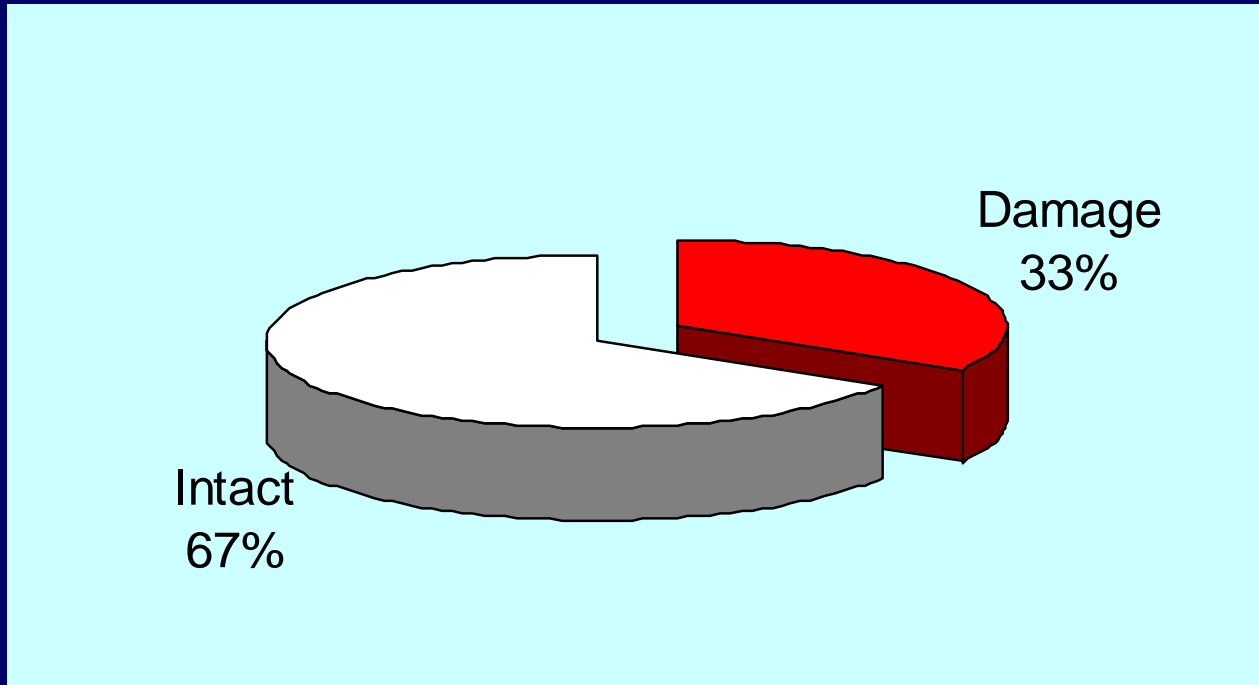
Timing of damage

- Immediate to very acute
 - Almost never observed in real-time
-

Timing of damage

At the time of diagnosis of single fetal death in MC twins, irreversible damage has most likely already occurred

Did damage occur ?



- US
- MRI



Management option (1):

Vanishing twin syndrome in “normal” MC twins

- actual risk unknown
- TOP debatable

→ **Conservative management**

Management option (1a):

Vanishing twin syndrome in “problematic”
MC twins

Indirect proof of functional anastomoses

- Discordant NTs
- Early signs of TTTS

→ TOP

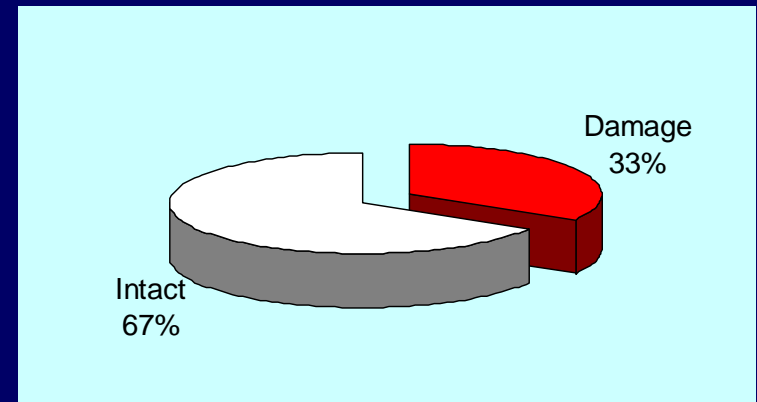
Management option (2):

Single demise remote from term, timing unknown

—risk of damage ~30%

—risk of prematurity ~100%

→ conservative management



Management option (3):

Single demise remote from term, real-time diagnosis

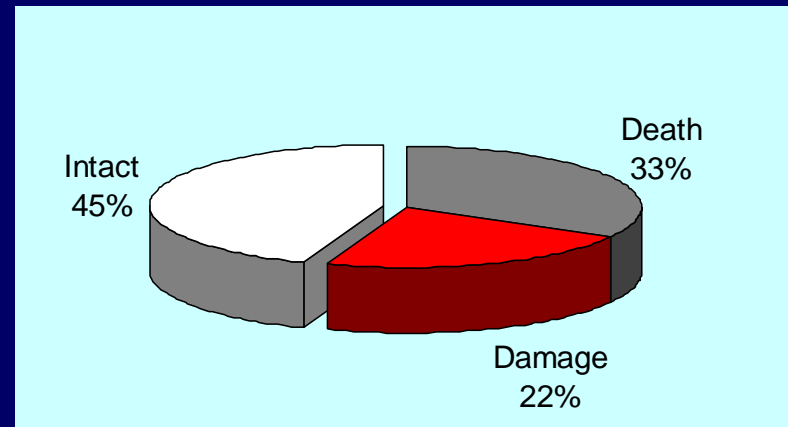
—risk of death ~30%

—risk of damage ~20%

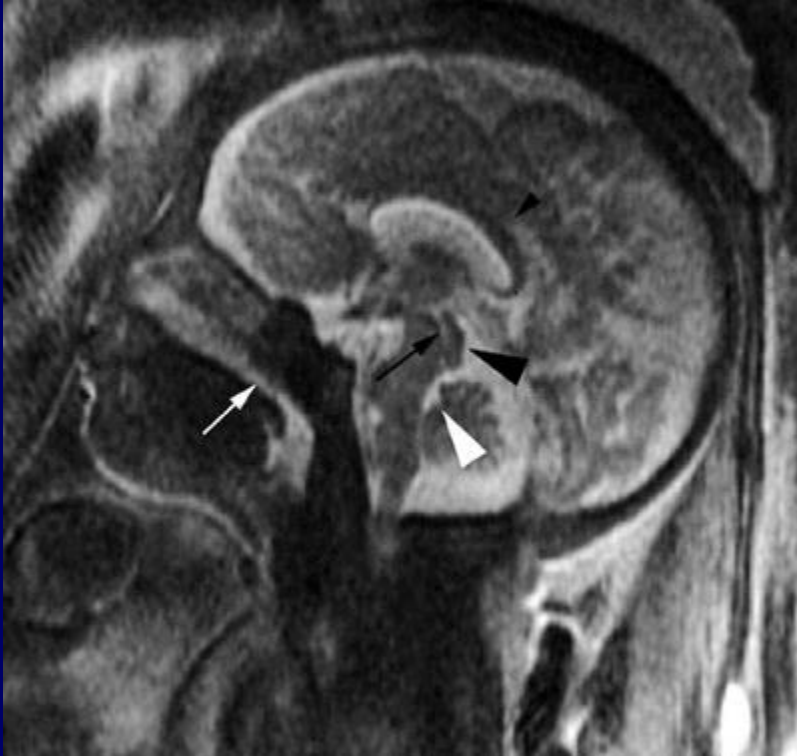
→ conservative management

→ intrauterine transfusion

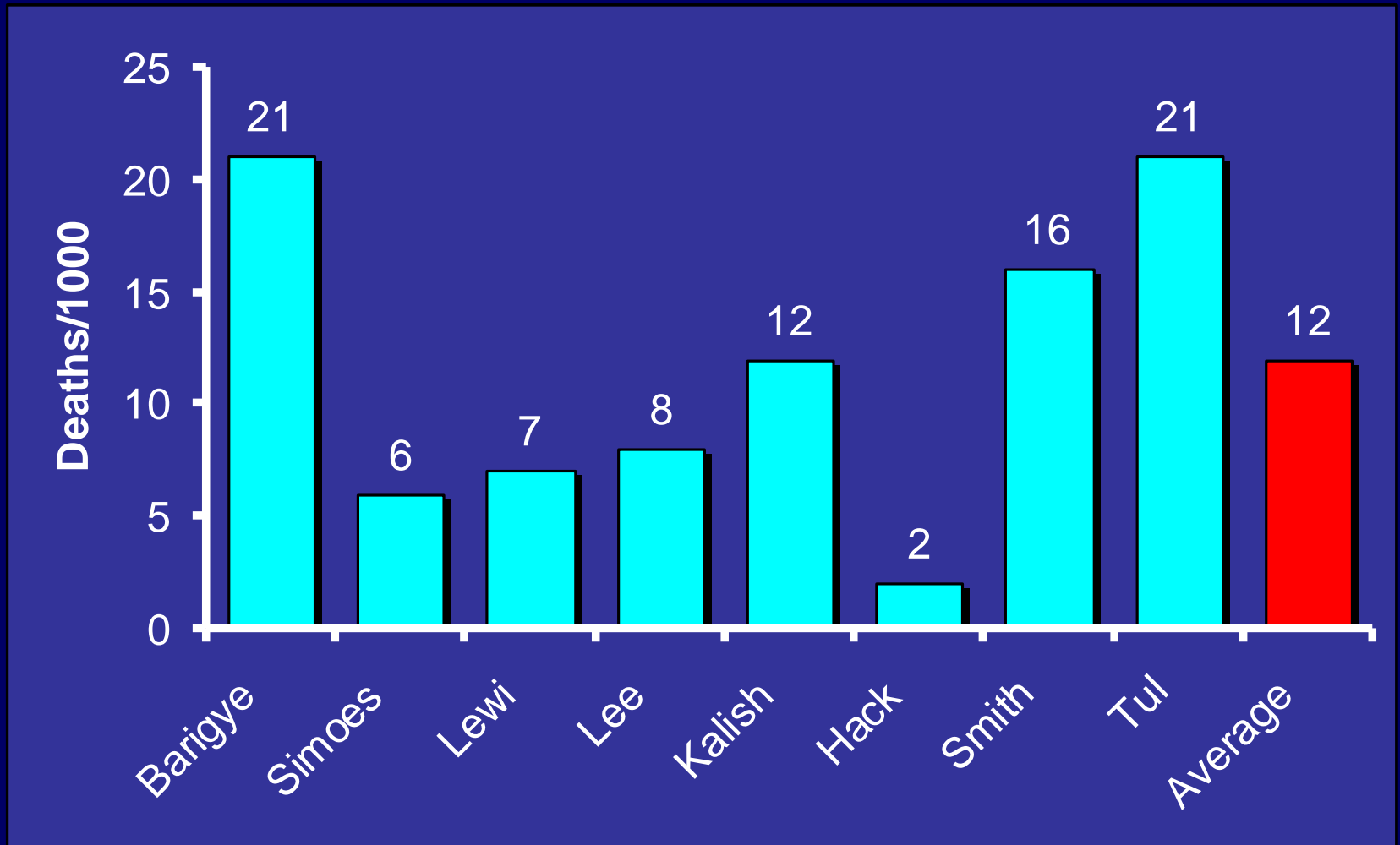
→ delivery (in viability)



Look for brain lesions



Prospective risk of unexpected IUFD at >33 wks



N= ~3000 >33 wks

Maternal Fetal Medicine and Perinatology Association



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Thank you