Insights into Dromedary Camel Pregnancy:

Practical Applications of Dromedary Placenta Anatomy in Abortion Prevention Strategies

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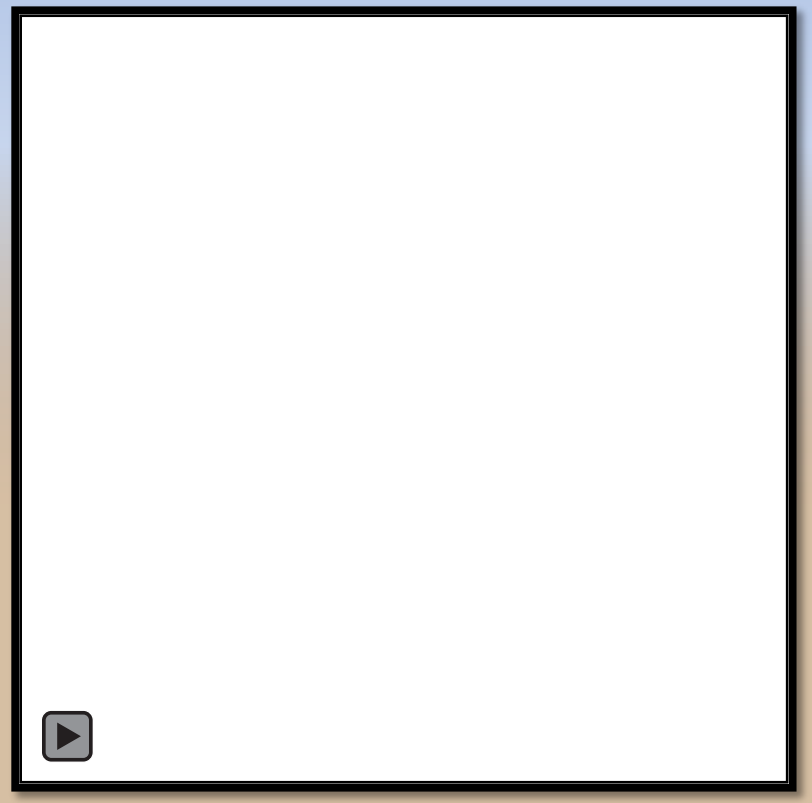

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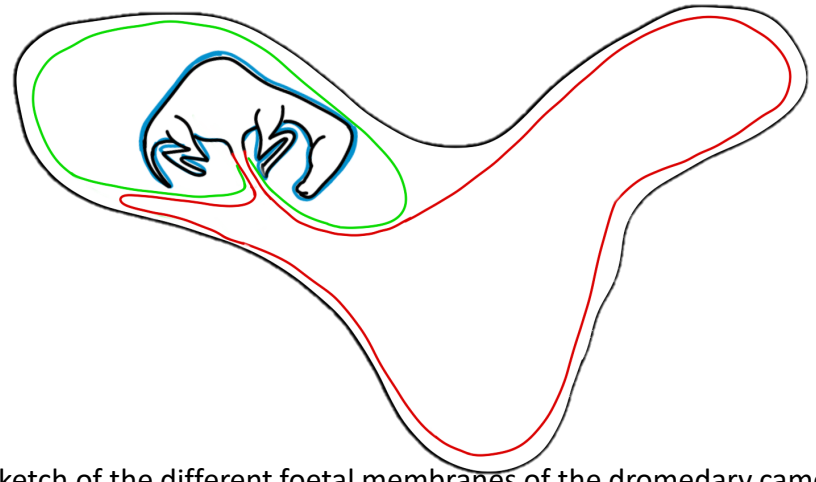
Camel placenta 1/2

- The placenta of dromedary camels is classified as diffused, epitheliochorial and nondeciduate.
- Foetal membranes:
  - Chorion (black): in direct contact with uterine lining, foetal maternal exchange.
  - Allantois (red): encapsulates allantoic fluid, progenitor tissue of the umbilical cord.
  - Amnion (green): encapsulates amniotic fluid and foetus.
  - Epithelial membrane (blue): thin membrane on the foetus skin.



Sketch of the different foetal membranes of the dromedary camel.

Camel placenta 2/2

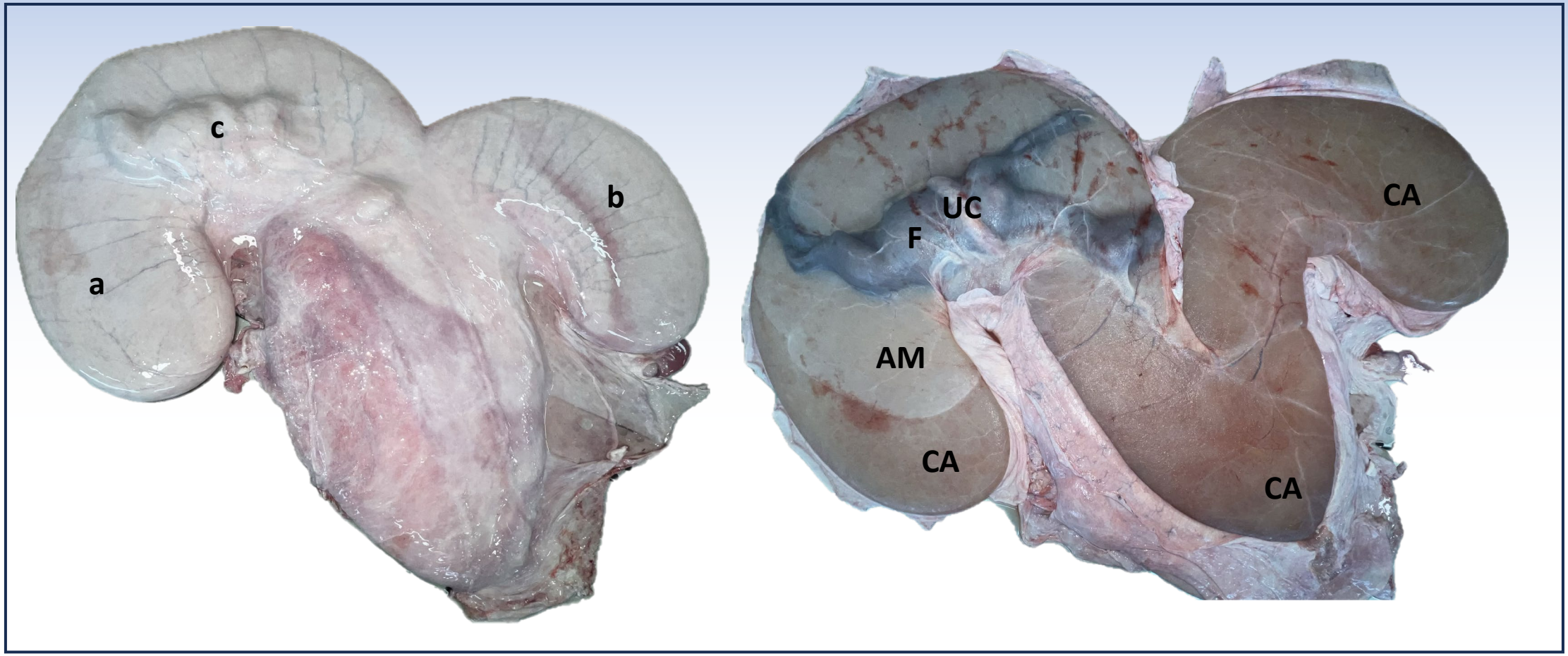


Fig 1: Side by side photograph of the pregnant uterus. Right side, uterus was opened to reveal placenta structures. a: left horn, b: right horn, c: outline of foetus, CA: chorio-allantois, AM: amnion seen through transparent chorio-allantois, F: foetus seen through transparent CA and AM, UC: umbilical cord seen though transparent CA and AM

Abortive disorders in camels

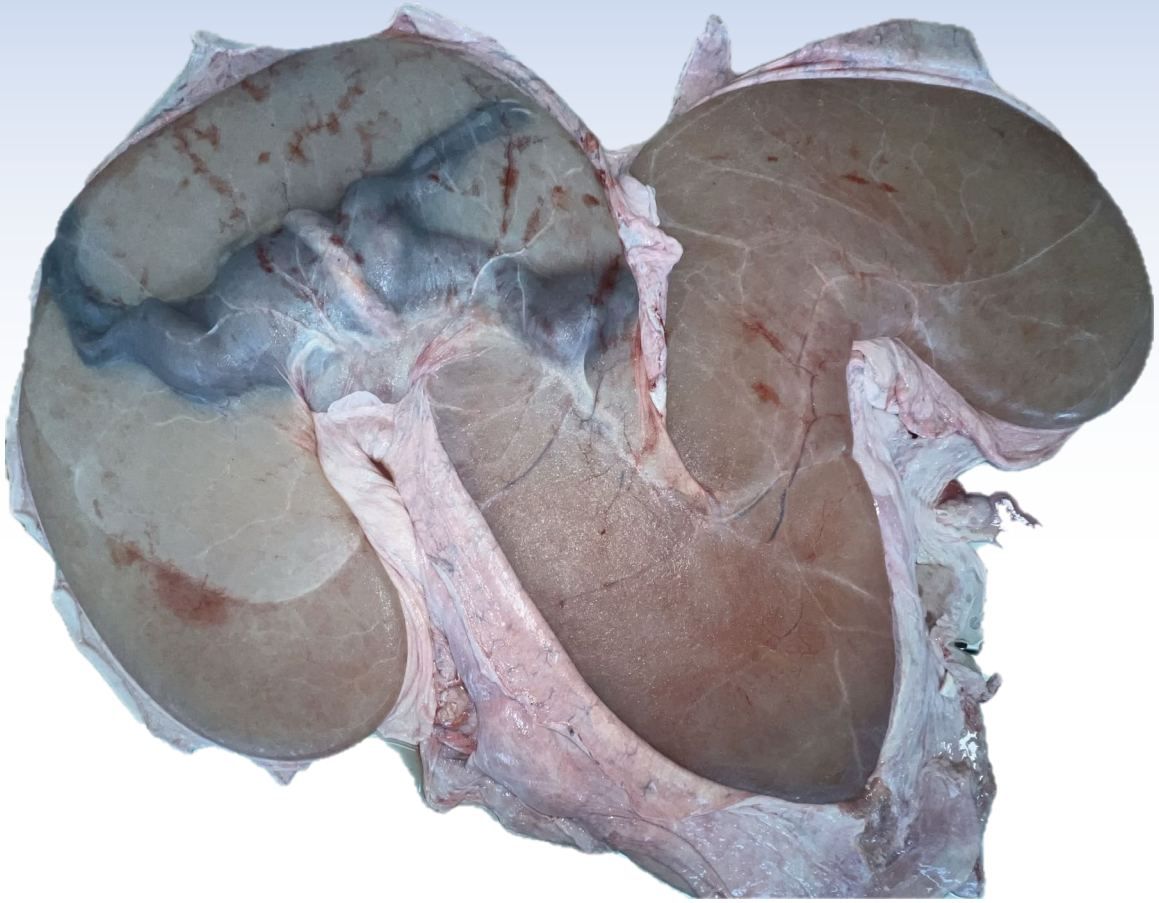
- Pathogens:
  - Rift Valley Fever (RVF),
  - Anthrax,
  - **Brucellosis**,
  - Haemorrhagic septicaemia
  - Salmonellosis

- Husbandry:
  - Malnutrition
  - Stress
  - Wrongful housing

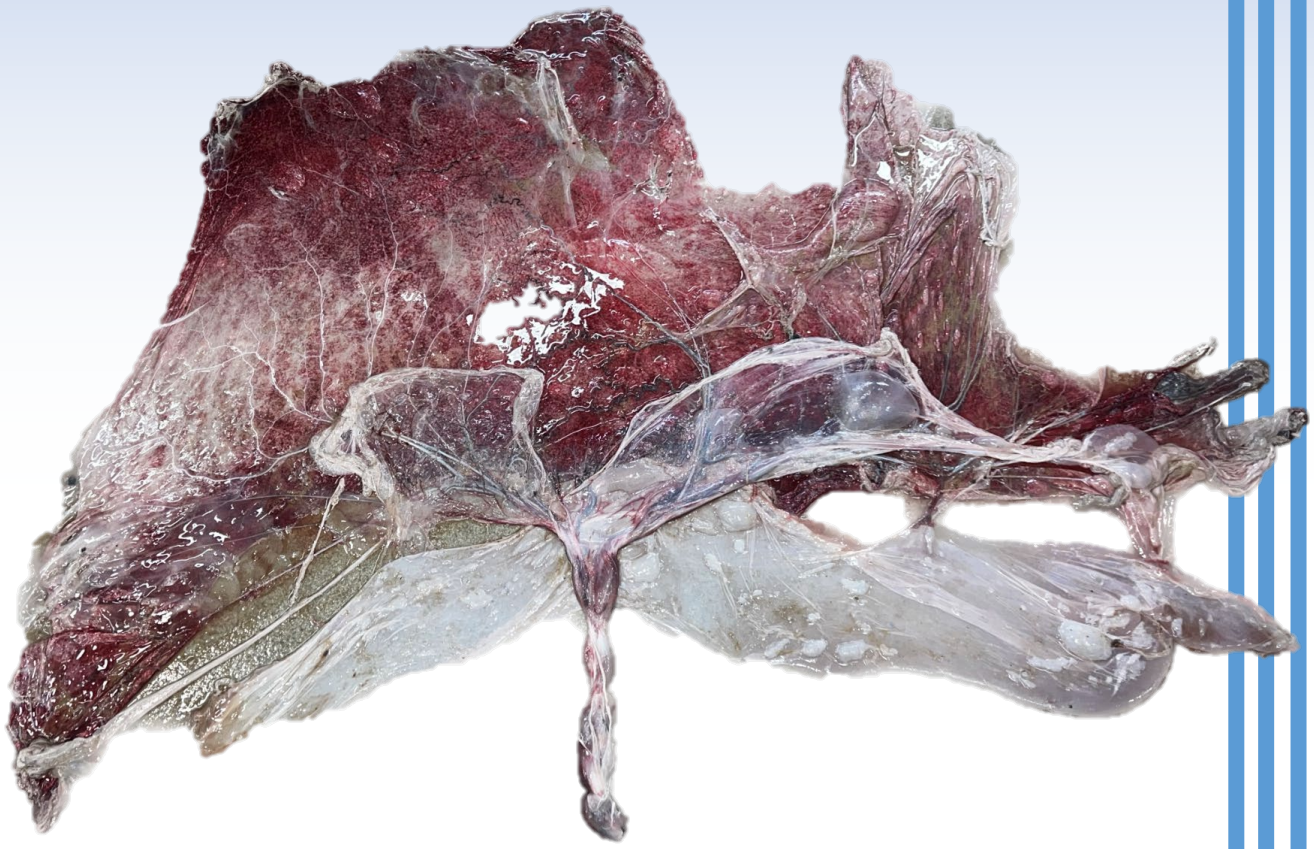
Post Mortem evaluation of aborted foetuses and placenta:

- 36 foetuses evaluated alongside placentae.
- Twisted umbilical cords
- Calcified placentae
- Anatomical and histological signs of hypoxia

Physiologic vs. aborted



Photograph of the open dromedary camel pregnant uterus.



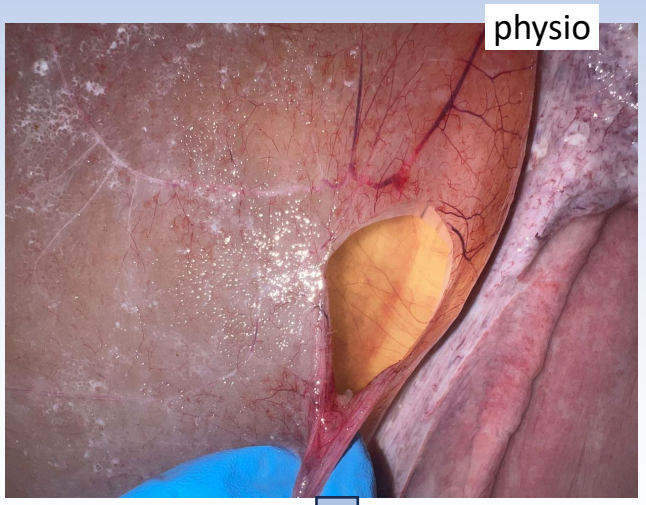
Aborted placenta of dromedary camel.

Histopathological comparison of healthy and aborted placentae

Pictures a and a’ show the morphological (x40) and histological picture of the dromedary camel chorion.

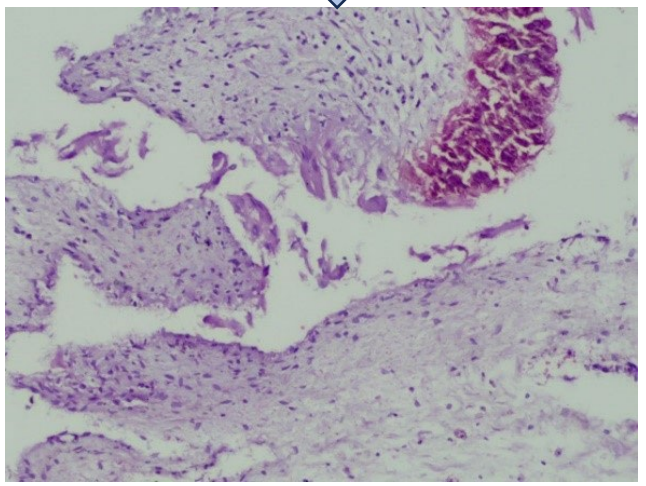
Pictures b and b’ show the morphological and histological (x40) picture of the aborted dromedary camel chorion.

Note the difference in gross appearance, and the extensive calcification seen in image b’.

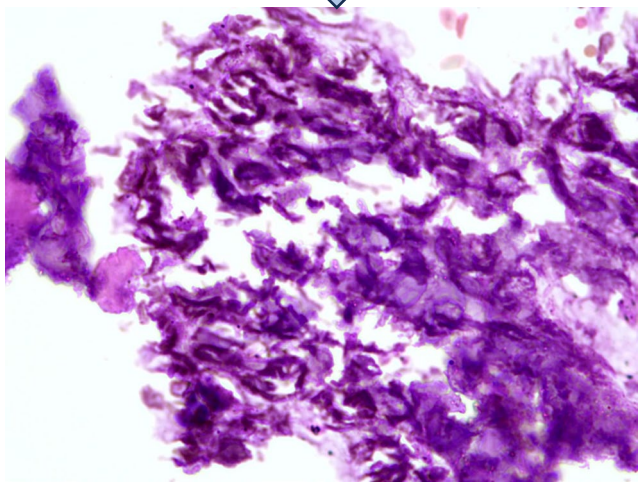


a

b



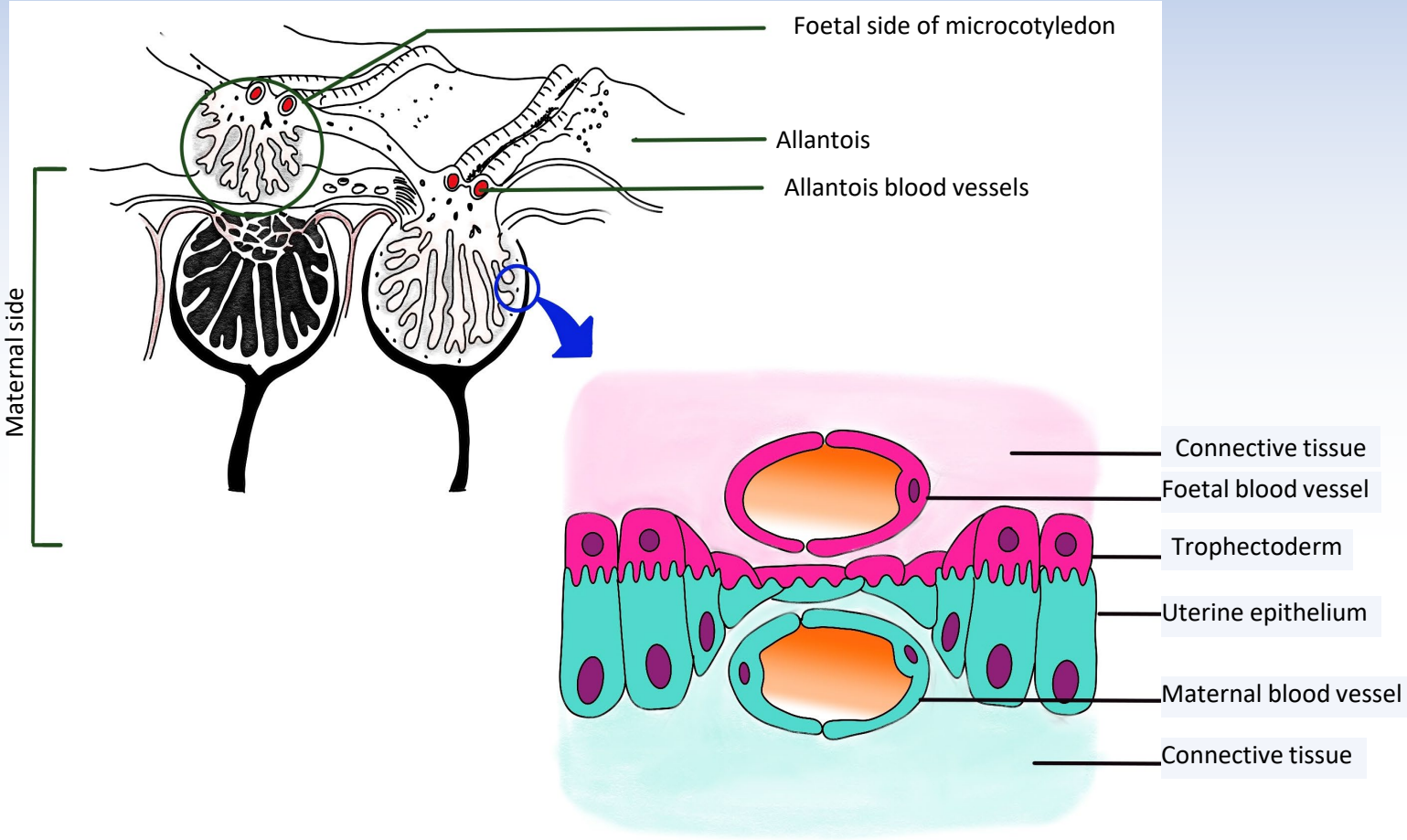
a’



b’

Exchange of nutrients and oxygen between mother and foetus

- Maternal vessels come in close contact with foetal vessels at the chorionic surface.
- Resources are passed and transported to the foetus through the umbilical cord.
- Twists in the umbilical cord leads to kinks in the umbilical vessels, constricting the blood flow.

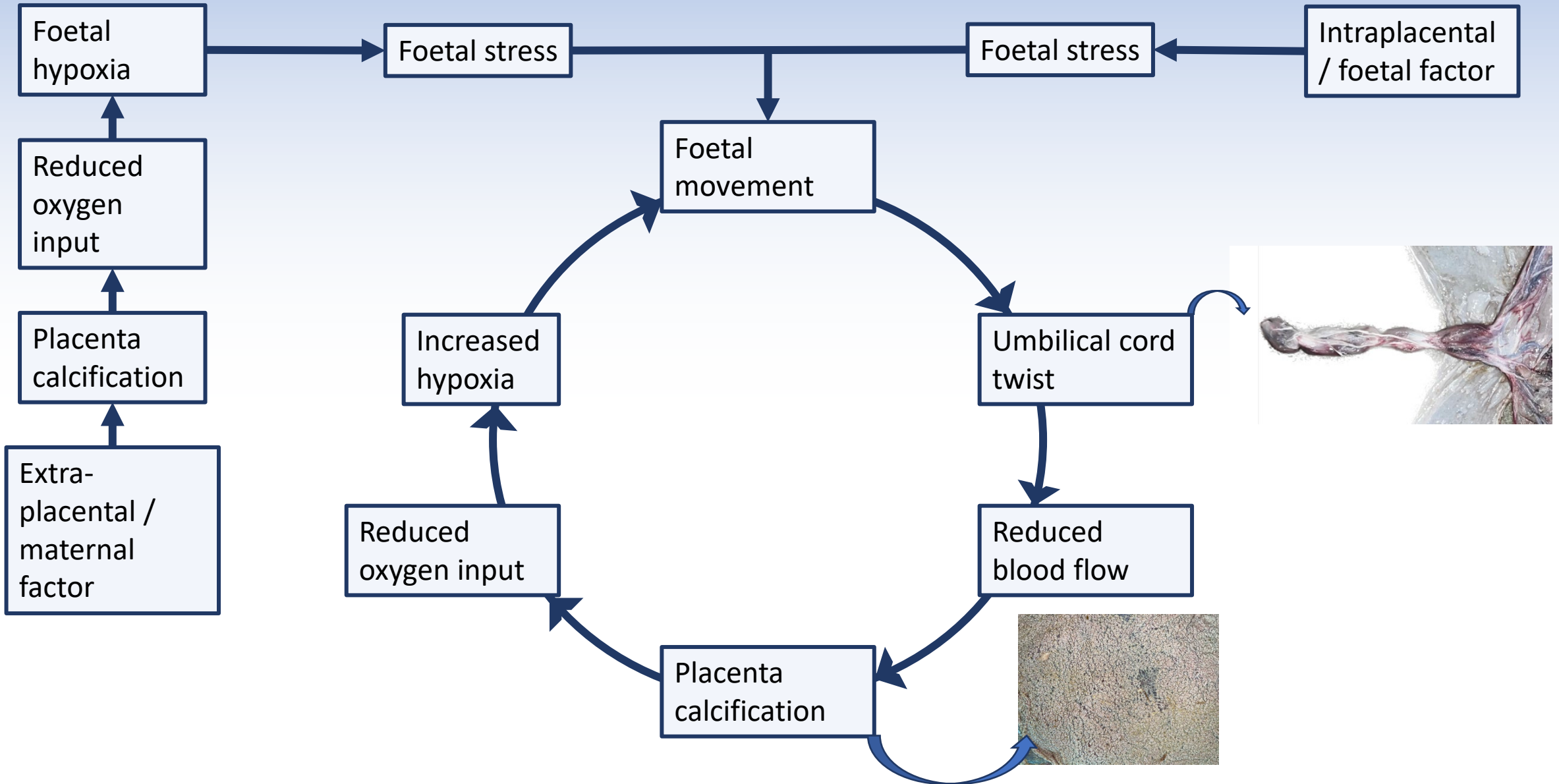


Simplified sketch of the interface between mother and foetus.

Extrapolated from:

- Robles, Morgane. (2014). Study of placental function in an equine model of maternal nutritional disturbance. 10.13140/RG.2.2.29929.54880.
- Montiel, Juan & Kaune, Heidy & Maliqueo, Manuel. (2013). Maternal-fetal unit interactions and eutherian neocortical development and evolution. Frontiers in neuroanatomy. 7. 22. 10.3389/fnana.2013.00022.

Placenta and umbilical cord conditions leading to abortion



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