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**MEDICINE IS A SCIENCE OF
UNCERTAINTY AND AN ART OF
PROBABILITY**

- WILLIAM OSLER



Bonjour!

dreamstime.



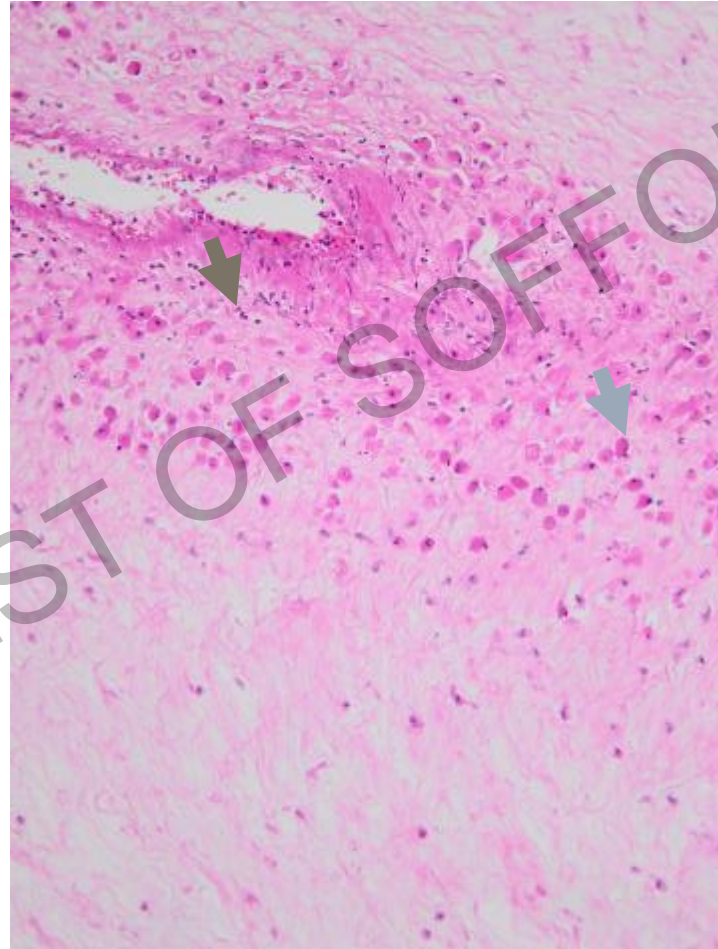
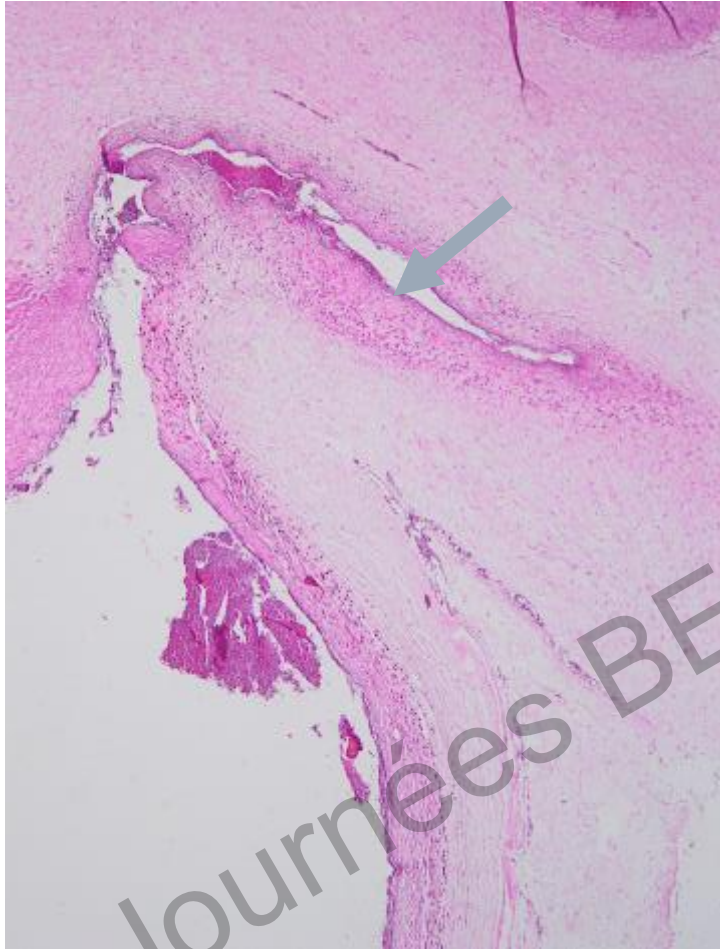
CLINICAL HISTORY

- ❑ A 22-year-old woman who presented with an intra-uterine foetal death at 40 weeks gestation with no known causes.
- ❑ She was a booked patient with normal booking bloods and no chronic diseases.
- ❑ She attended and followed up at the antenatal clinic with good compliance.
- ❑ She presented at the obstetrics emergency with a history of no foetal movements. Clinical and ultrasound assessment confirmed an intrauterine foetal death.

MACROSCOPICALLY

- ❑ Placental weight was 317g (n:442g)
- ❑ Umbilical cord insertion was marginal
- ❑ There was hypocoiling of the cord

HISTOLOGY

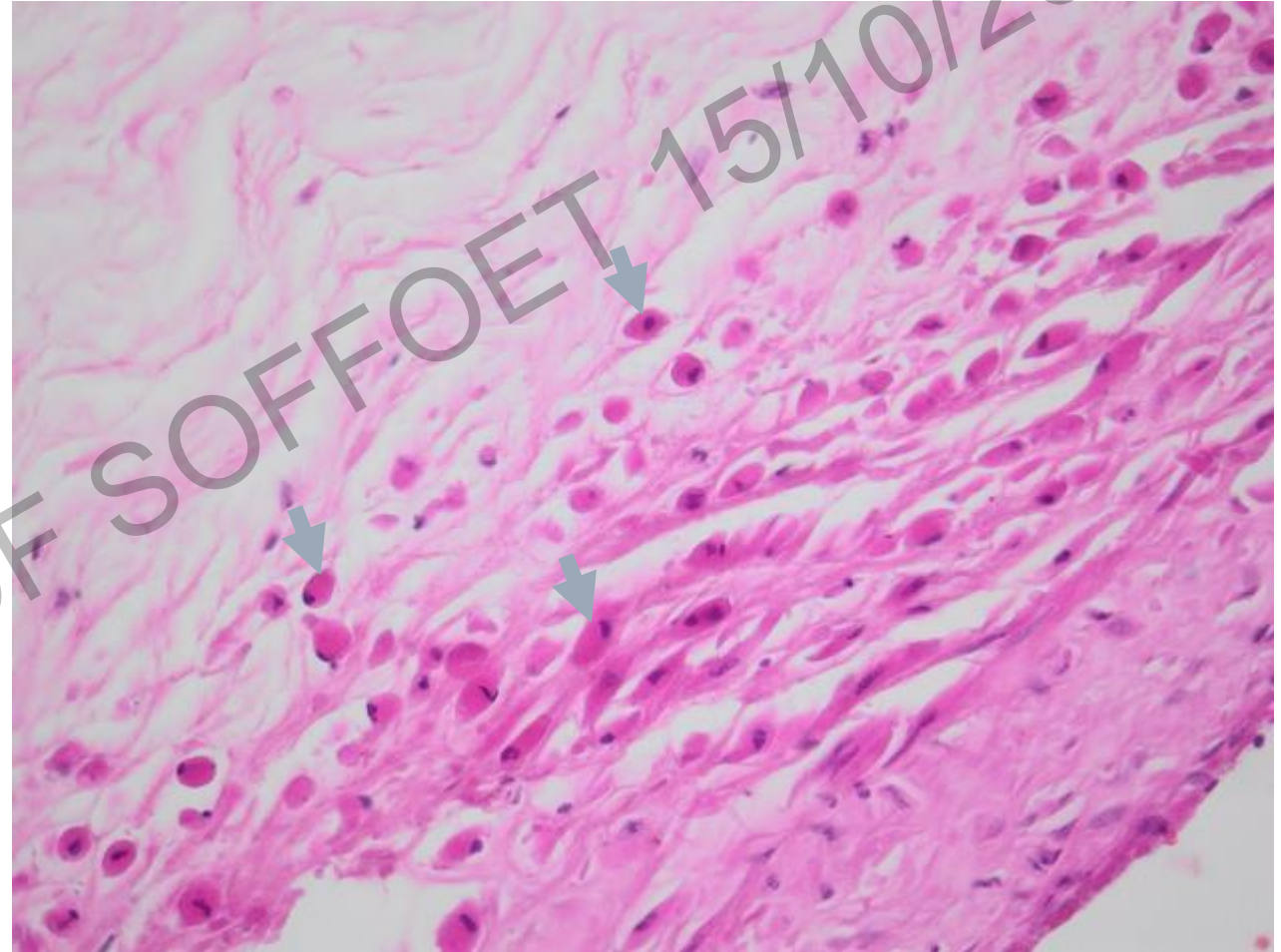


FUNISITIS

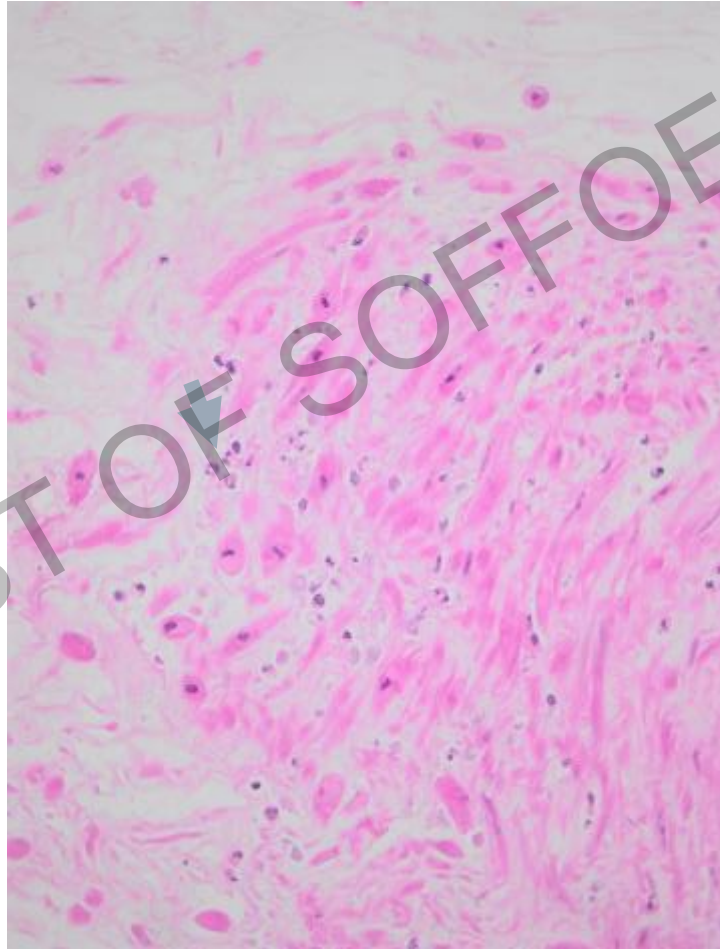
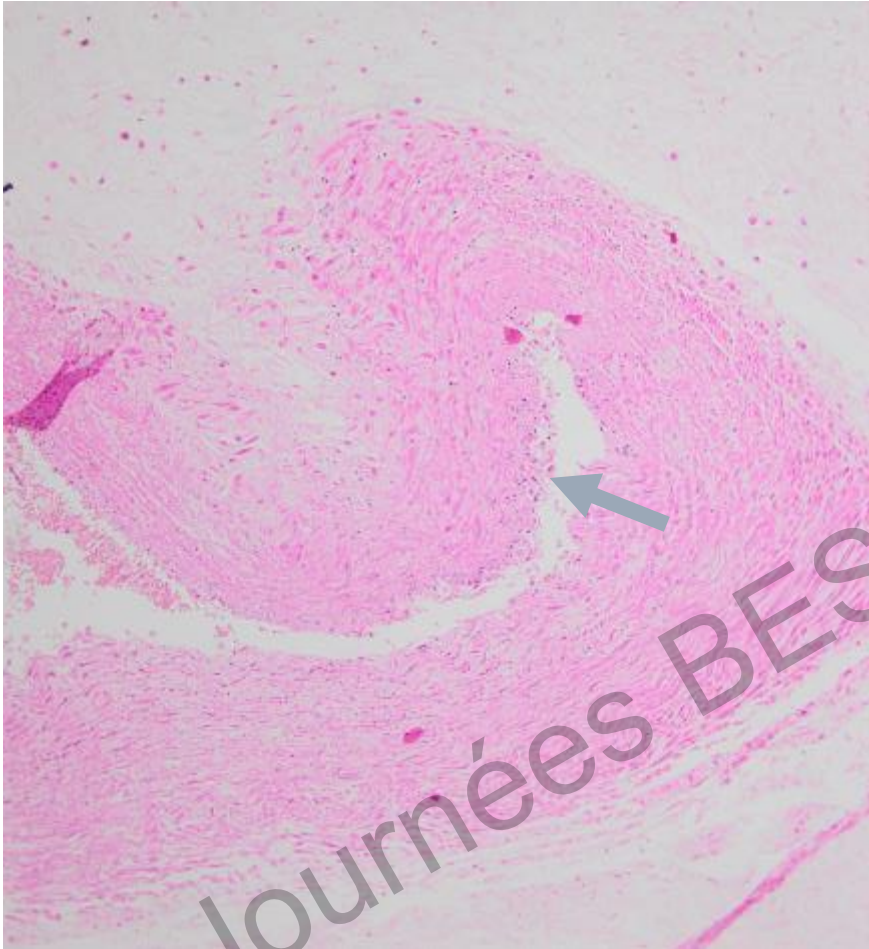
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HISTOLOGY

- ❑ muscle cells appear rounded up & show eosinophilic cytoplasmic degeneration (ECD)
- ❑ There is nuclear pyknosis, discohesion +/- even disappearance.



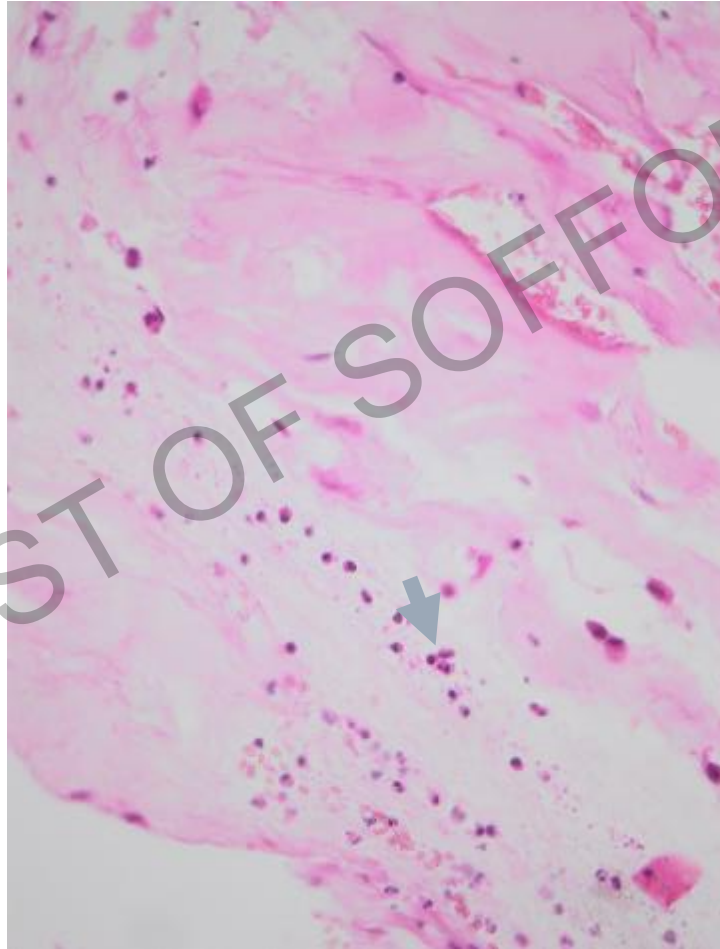
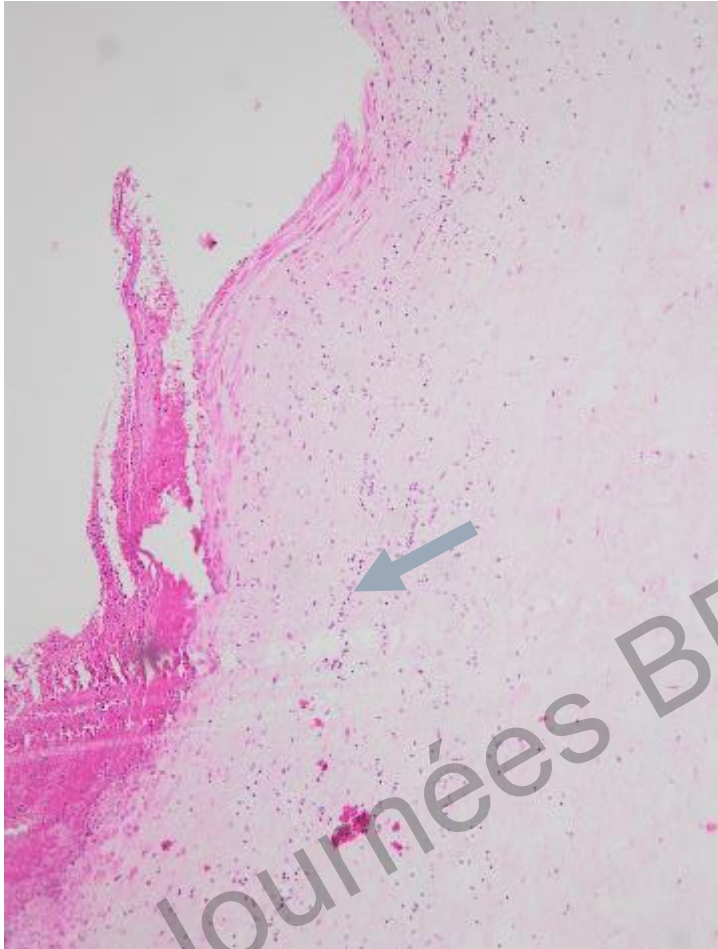
HISTOLOGY



VASCULITIS

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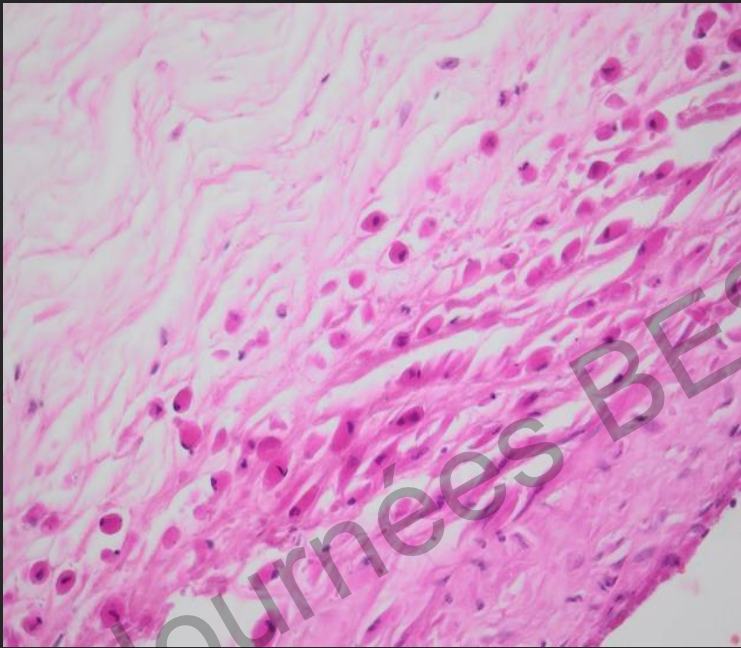
HISTOLOGY



ACA (ACUTE
CHORIOAMNI
ONITIS)
MATERNAL
RESPONSE

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**MECONIUM-
ASSOCIATED
UMBILICAL
VASCULAR
MYONECROSIS**



DISCUSSION

- Intrauterine passage of meconium is common, occurring in approximately 10–15% of term births.
- Long-standing meconium exposure may result in meconium in the umbilical cord as well and has been reported to result in myonecrosis of umbilical vascular smooth muscle,
- Chronic meconium exposure is reflected by brown discoloration of the membranes on gross exam, ballooning degeneration of the amniotic epithelium, and meconium-laden macrophages located deeply in the subamniotic connective tissue and Wharton's jelly of the umbilical cord
- Meconium is a vasoconstrictor and in the fetal cord arteries it may alter placental perfusion.

DISCUSSION

- MAVN is associated with adverse perinatal outcome as it represent preceding vasocontraction and fetal hypoperfusion.
- Cases of cerebral palsy/neurological impairment reported
- Cases of foetal distress, IUGR, IUFD, chorioamnionitis, isolated funitis have been reported
- The causal association for meconium production is uncertain however, some investigators have found an association between **elevated motilin** and other intestinal hormones and fetal distress

DISCUSSION

- Meconium pigment diffuses into the connective tissue of the chorionic plate, through the Wharton's jelly and in between the myocytes of the vascular smooth muscle of the umbilical cord.
- Vasoconstriction, toxins, and cytokines have been implicated in vascular media injury

HISTOLOGY

- On microscopic examination, meconium pigment can be identified in macrophages.
- The muscle cells round up and show eosinophilic cytoplasmic degeneration (ECD), nuclear pyknosis, discohesion or may even disappear.
- There is rounding up of peripheral vascular smooth muscle cells in large chorionic and umbilical fetal vessels.

CONCLUSION

- MAVN is an important lesion with detrimental fetal outcomes, therefore a clinical history of meconium should trigger a meticulous search for meconium and specifically MAVN.

REFERENCES

- Cimic, A. and Baergen, R. N. (2016) 'Meconium-Associated umbilical vascular myonecrosis: Correlations with adverse outcome and placental pathology', *Pediatric and Developmental Pathology*, 19(4), pp. 315–319. doi: 10.2350/15-06-1660-OA.1.
- King, E. L. *et al.* (2004) 'Myocytes of Chorionic Vessels from Placentas with Meconium-Associated Vascular Necrosis Exhibit Apoptotic Markers', *Human Pathology*, 35(4), pp. 412–417. doi: 10.1016/j.humpath.2003.12.002.
- Sato, Y. and Benirschke, K. (2006) 'Umbilical Arterial Thrombosis with Vascular Wall Necrosis: Clinicopathologic Findings of 11 Cases', *Placenta*, 27(6–7), pp. 715–718. doi: 10.1016/j.placenta.2005.05.008.

THE END



**"It always seems impossible
until it's done."**

- Nelson Mandela

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