

The small placenta.
Sometimes size is the
only thing wrong

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Background

Feto-placental weight ratio (HPR) is considered an indicator of intrauterine fetal nutrition and is affected by maternal factors. High FPR has been associated with adverse outcomes such as intrauterine growth restriction (IUGR), perinatal stress and the development of chronic diseases in adulthood such as hypertension and impaired glucose tolerance. We compared FPR with perinatal outcomes to determine an association between FPR centiles and outcome and the pathology in placentas of pregnancies with high fetoplacental ratio

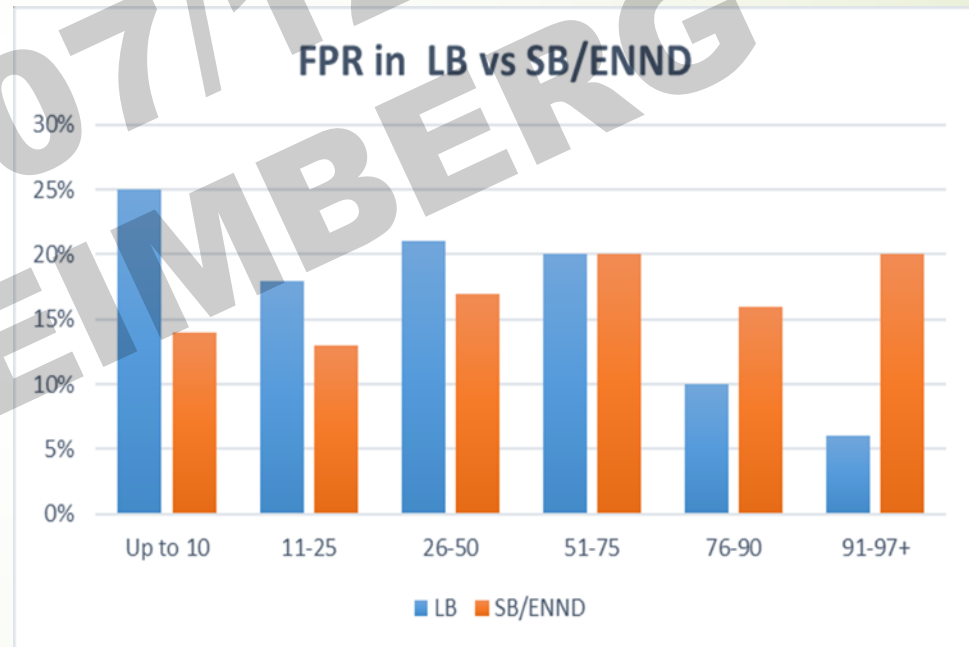


Methods

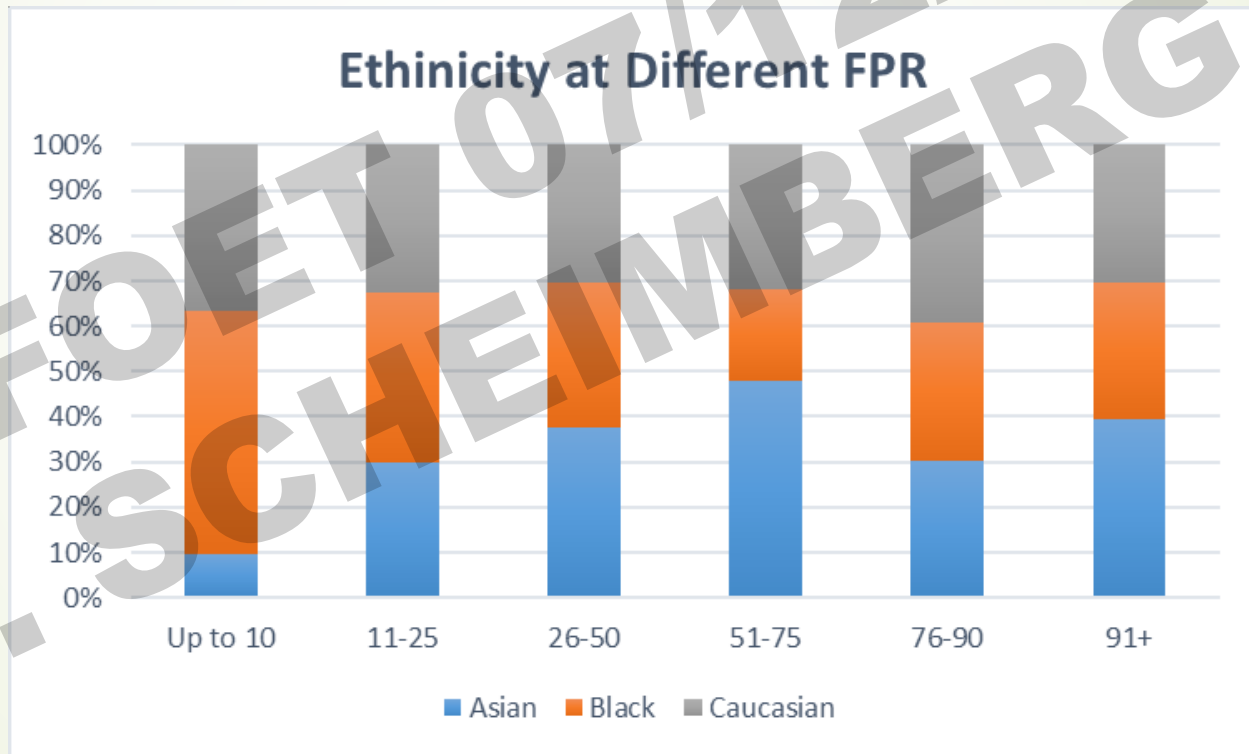
We performed a retrospective review of 519 consecutive stillbirth (SB) and early neonatal death (ENND) placentas over a three year period at a single centre and compared the results to 335 livebirth (LB) placentas. FPR was calculated using fetal weight at delivery and placental weight following 24 hour formalin fixation and categorised according to centile for gestational age. The characteristics recorded were: gestational age at delivery, appropriateness of fetal growth, and placental pathology. Placental pathology was classified as per Amsterdam Placental Workshop Group Consensus into: acute inflammation (AI), chronic villitis/ intervillitis (CV), delayed villous maturation (DM), fetal vascular malperfusion (FVM), maternal vascular malperfusion (MVM), no significant abnormality (NSA) and umbilical cord abnormalities (UC).

FPR in LB & SB/ENND

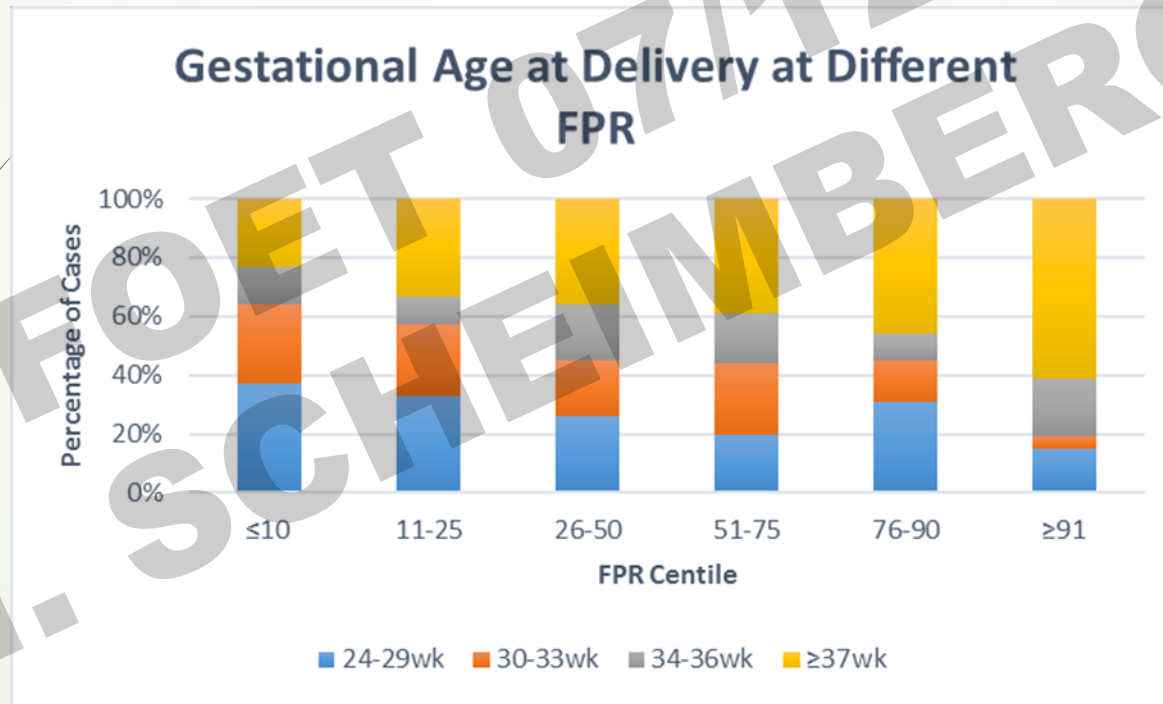
- 71% of FPR were between 10-90th centile.
- High FPR above 91st centile was more common in SB/ENND than in LB (14% vs 6%)
- FPR below 10th centile was more common in LB (25% vs 14%).
- High FPR were seen in all ethnic groups and at all maternal ages.



No ethnic difference in HPR



61% were delivered at term

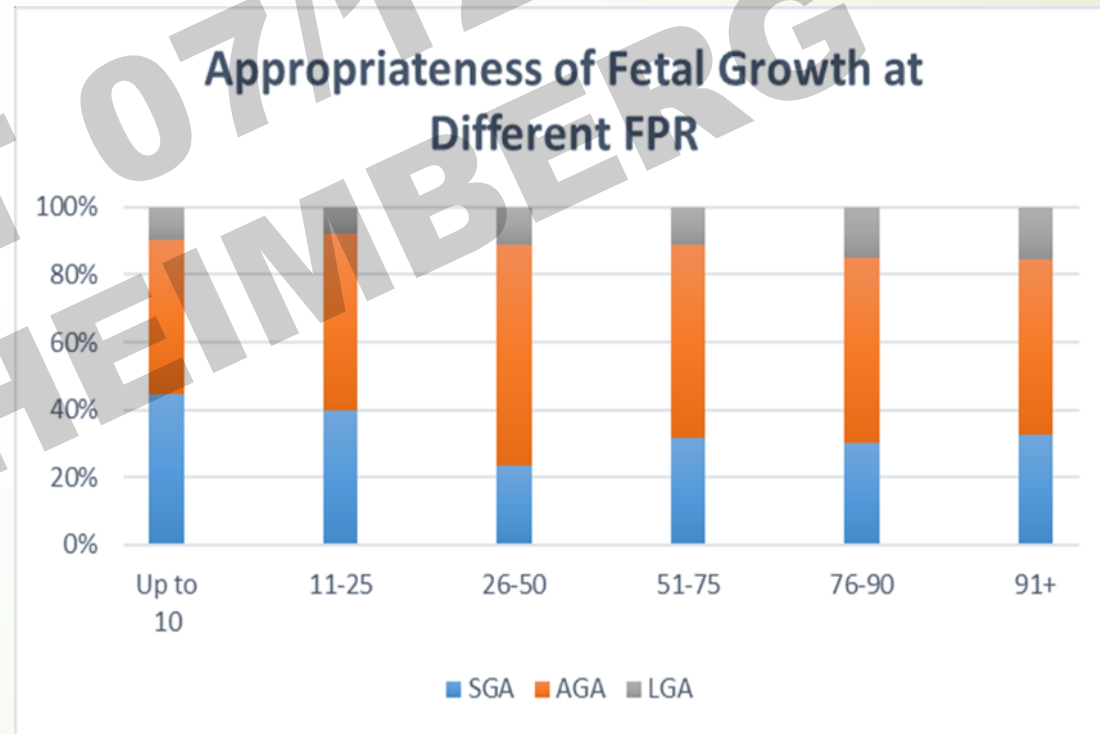


Gestation
al age

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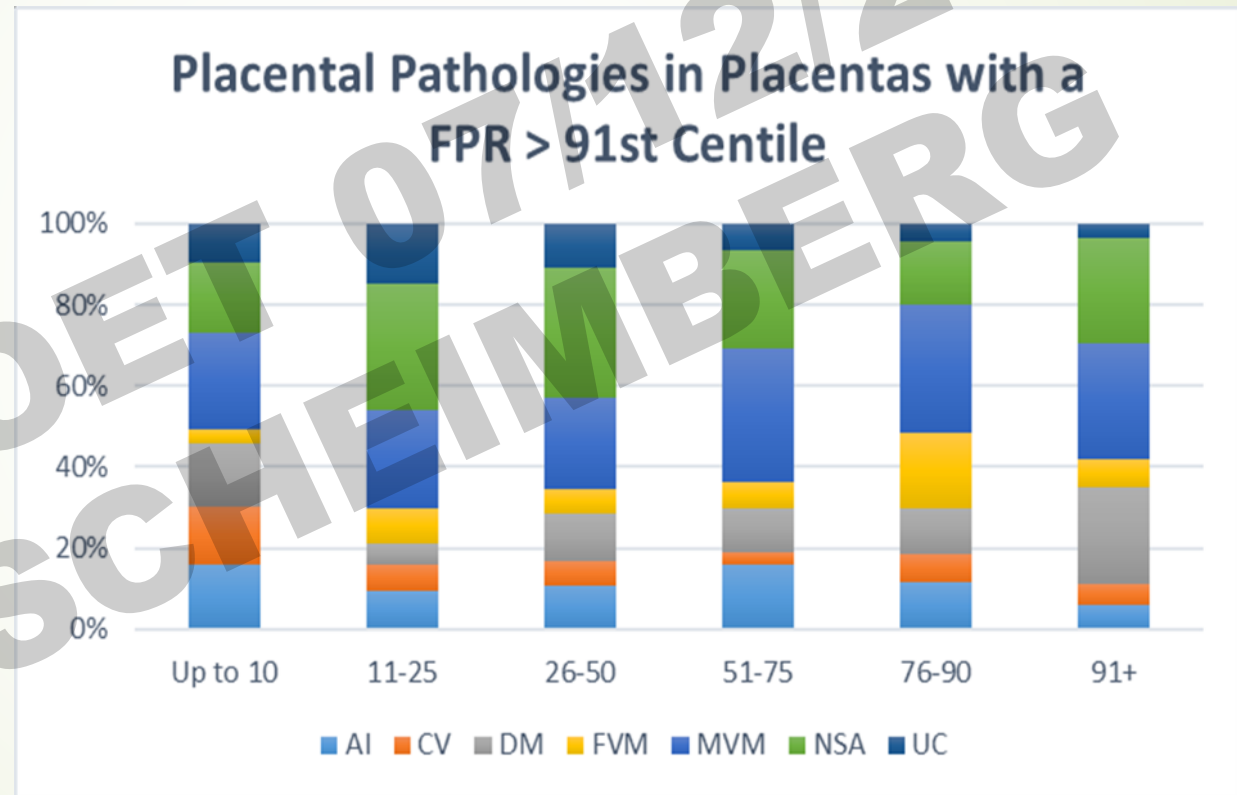
Growth at birth

- Fetuses with high fetoplacental ratio are as likely to be appropriate for gestational age as small and large combined.
- Fetal size does not indicate if the placenta is too small
- No relationship between FPR centile and birthweight



Placental pathologies at all FPR

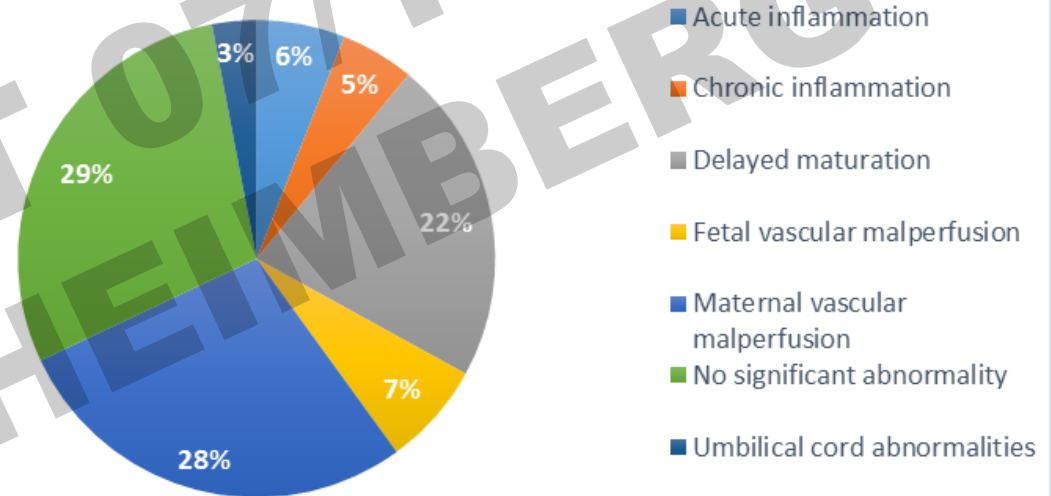
- Delayed maturation was slightly more common in high FPR but maternal vascular perfusion just as common



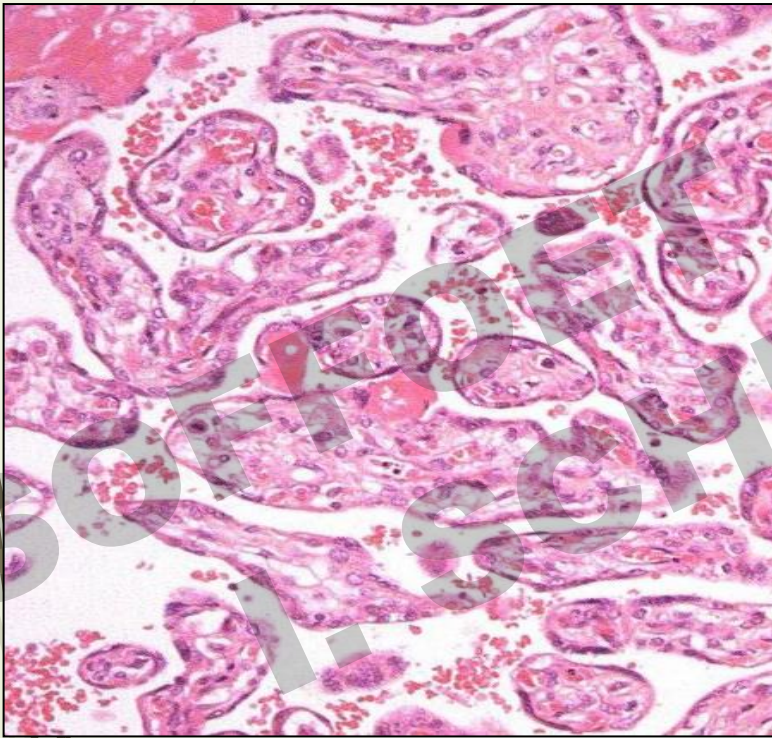
Placental pathology

- 29% of those with a high FPR had no significant pathology
- 28% had umbilical cord abnormalities
- Therefore 57% had no abnormalities in the placental tissue

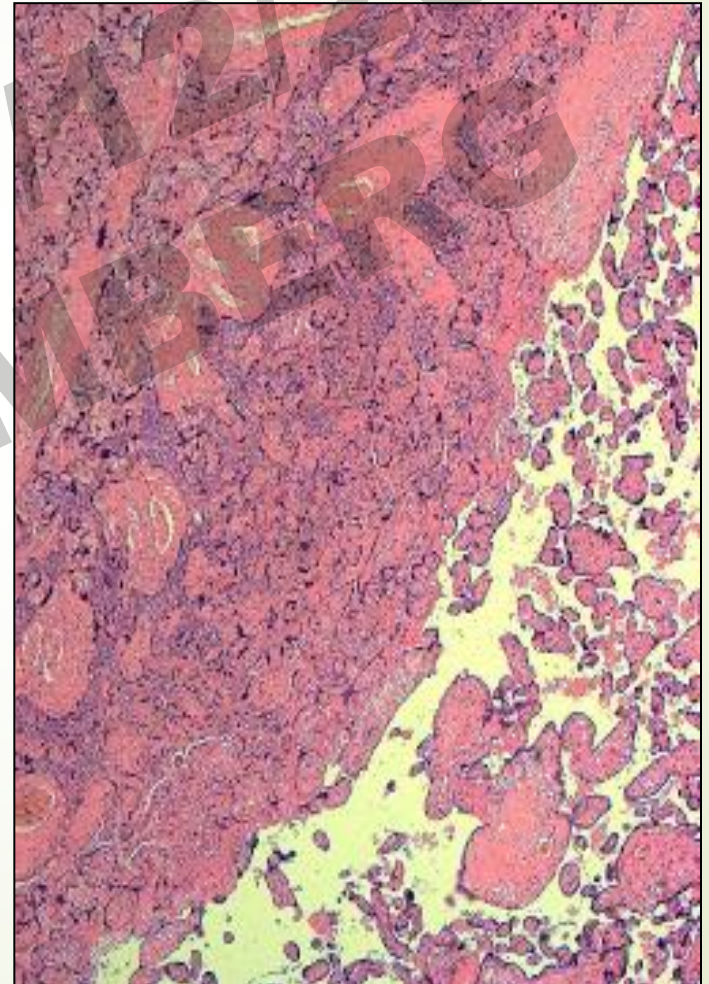
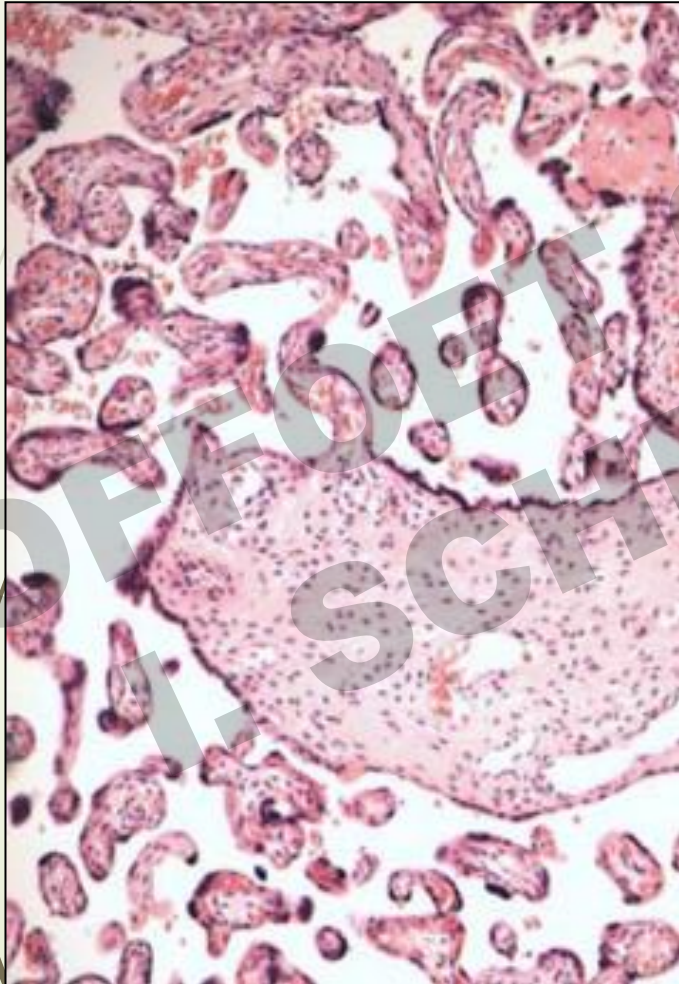
Placental Pathologies in Placentas with a FPR \geq 91st Centile



Delayed maturation



Maternal vascular disease



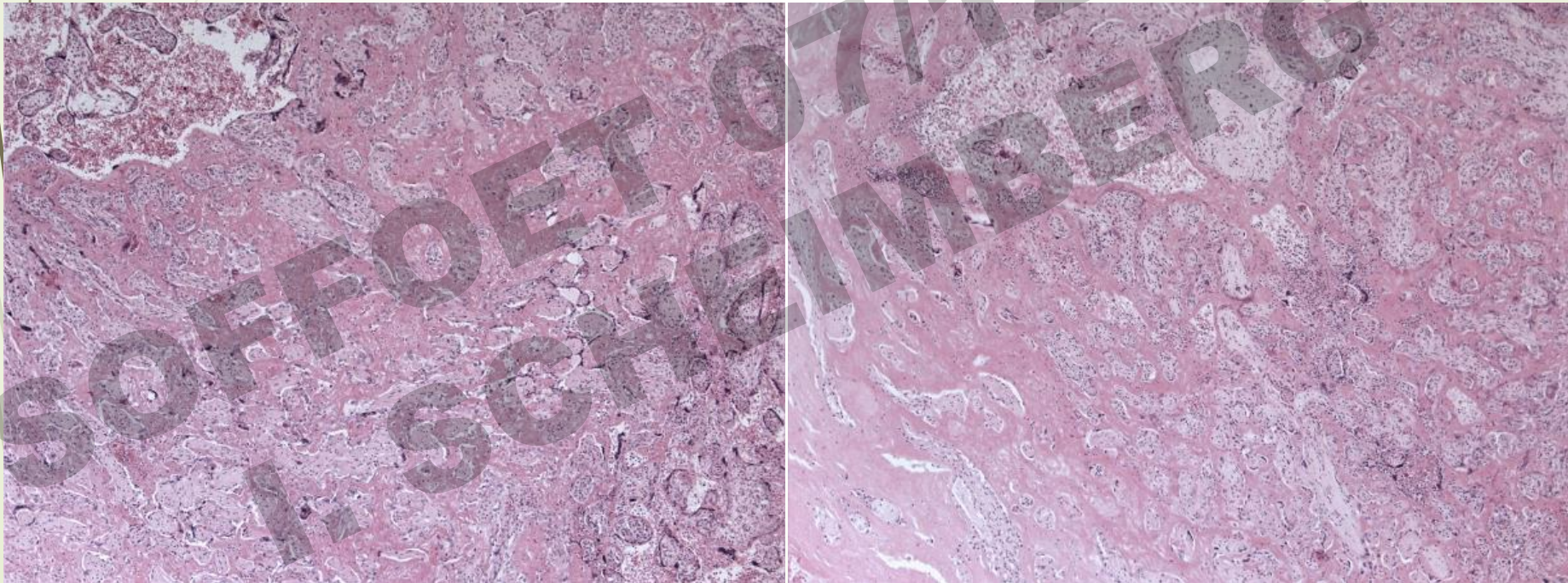
Macroscopy

- ▶ Thick & firm placenta
- ▶ Marbled appearance on cut surface
- ▶ Band of whitish material in maternal floor infarction



MVFD if $\geq 30\%$ of chorionic villi in the central region are encased in fibrin
Or $>40\%$ of the placenta is affected

Histology



Conclusions

- High FPR is more frequent in SB/ENND than in LB
- There is no ethnic preference
- Most babies are delivered at term and most are appropriate for gestational age
- Placentas with a high FPR had proportionally more cases of delayed maturation than other FPR but MVM and NSA were as common as in other groups
- A high FPR is an independent risk factor for stillbirth at or near term regardless of histology and baby's size
- USS assessment of the baby's estimated weight and placental weight at 34-36 weeks should be able to identify at risk babies.



Merci!