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# Patterns of placental stromal-vascular lesions in preeclampsia and fetal growth restriction

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## Objective

The aim of this study was to describe placental histopathological findings in a large cohort of pregnancies complicated by fetal growth restriction (FGR) and/or preeclampsia (PE), as compared to uncomplicated pregnancies.

## Methods

A prospective cohort study of 406 pregnancies complicated by normotensive FGR defined by birth weight < 10th centile (n=184), PE with normally growth fetuses (n=102), PE+FGR (n=120), and 202 uncomplicated pregnancies. Placental lesions were histologically classified as vascular (maternal/ fetal side), inflammatory or other lesions according to the 2014 Amsterdam Placental Workshop Group Consensus Statement.

## Results

Vascular lesions in the maternal side were significantly more frequent in PE as compared to controls and normotensive FGR (PE+FGR 73%, PE 46%, FGR 38%, 31% controls, p=0. 01). Distinctively, developmental and malperfusion lesions were significantly higher in PE+FGR (PE+FGR 13%, PE 5%, FGR 3%, controls 2%, p<0. 001 -the developmental lesions-), whereas only malperfusion lesions were higher in PE with normally grown fetuses (PE&FGR 70%, PE 39%, FGR 32%, controls 25%, p=0. 001). In the fetal side, vascular developmental lesions were significantly higher in normotensive FGR as compared to controls and PE (PE+FGR 0%, PE 3%, FGR 8%, controls 2%, p=0. 001). No differences were present regarding fetal side malperfusion lesions (PE+FGR 11%, PE 4%, FGR 10%, controls 10%, p=0. 23).

## Conclusion

PE and FGR exhibit distinctive patterns of placental histopathological lesions that are concordant with the phenotypic manifestation of the placental disorder (maternal vs fetal).