Objective
The aim of this study was to characterize the vascular architecture in the placental bed in pregnancies complicated by preeclampsia (PE) and in normal pregnancies.

Methods
Vessel numbers, cross-section area density and area distribution in 11 placental beds of PE patients were compared with 10 normal placental beds using computer-assisted image analysis of whole-slide CD31 immunolabeled sections.

Results
The total area occupied by vessels in PE placental beds was significantly reduced compared to controls (0.06% +/- 2 versus 0.096% +/- 2, P = 0.0378). The number of vessels per section didn’t differ significantly (64.90 vessels/mm2 versus 80.13 vessels/mm2, P = 0.8053) but the analyse of the average surface of vessels shows smaller vessels in the PE group (0.0009 mm2 versus 0.0014 mm2, P = 0.0620).

Conclusion
Size and number of the vascular architecture in the placental bed of preeclamptic patients differed from normal and might reflect the insufficient trophoblastic invasion and the incomplete vascular remodelling in case of preeclampsia.