

Placental characteristics and neonatal weights among women with malaria-preeclampsia comorbidity and healthy pregnancies

Everett Lwamulungi, Zahida Qureshi, Moses Obimbo, Omondi Ogutu*

*correspondence: lwerett@gmail.com



UNIVERSITY OF NAIROBI

INTRODUCTION

Malaria and preeclampsia are leading causes of maternal morbidity and mortality in sub-Saharan Africa.

They cause considerable placental morphological changes that impair function.

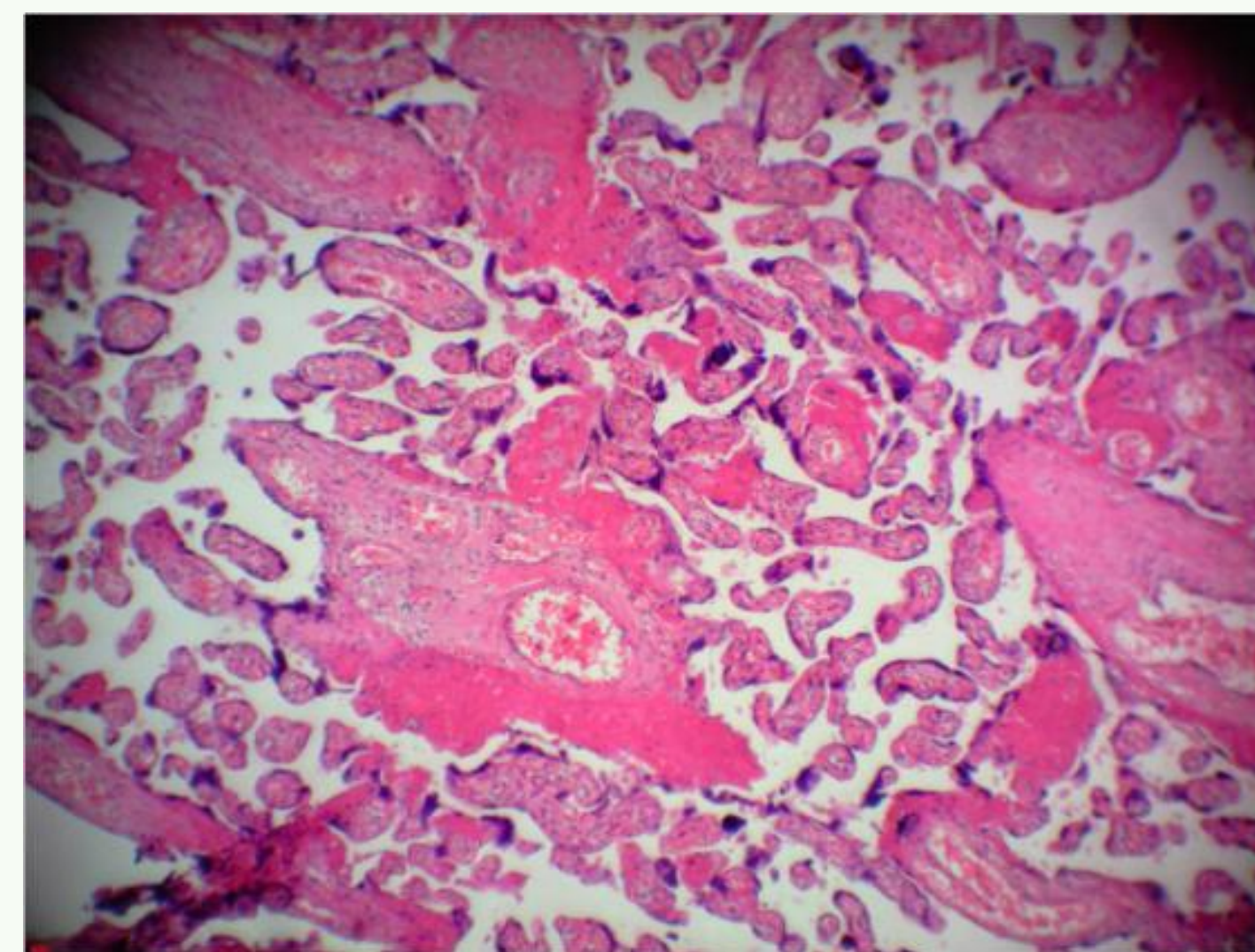
This contributes significantly to poor perinatal outcomes like low neonatal weight.

The structure of the placenta in malaria-preeclampsia comorbidity is largely understudied despite its high burden.

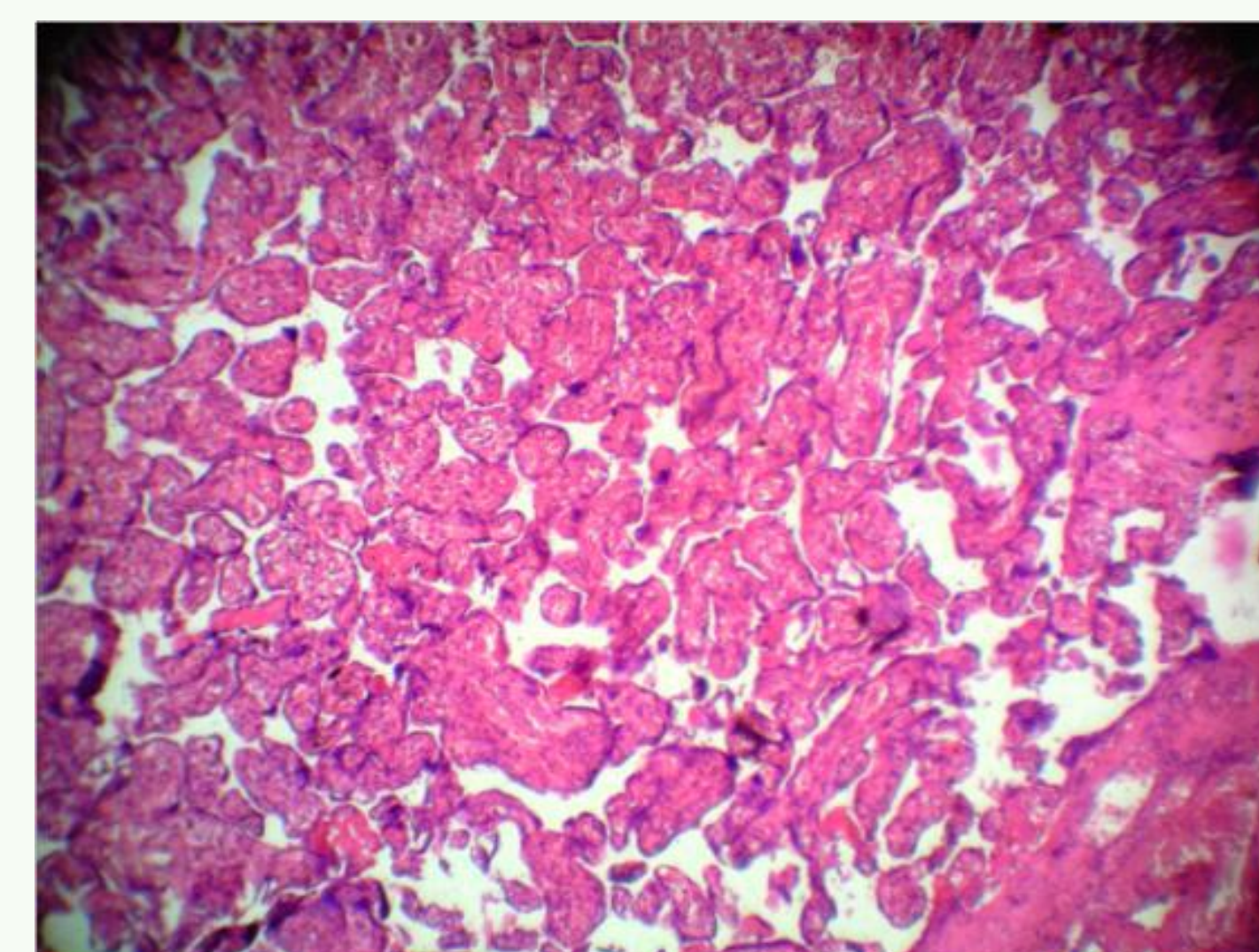
METHODOLOGY

A retrospective cohort study among 24 women with malaria-preeclampsia comorbidity and 24 women with healthy pregnancies in Western Kenya.

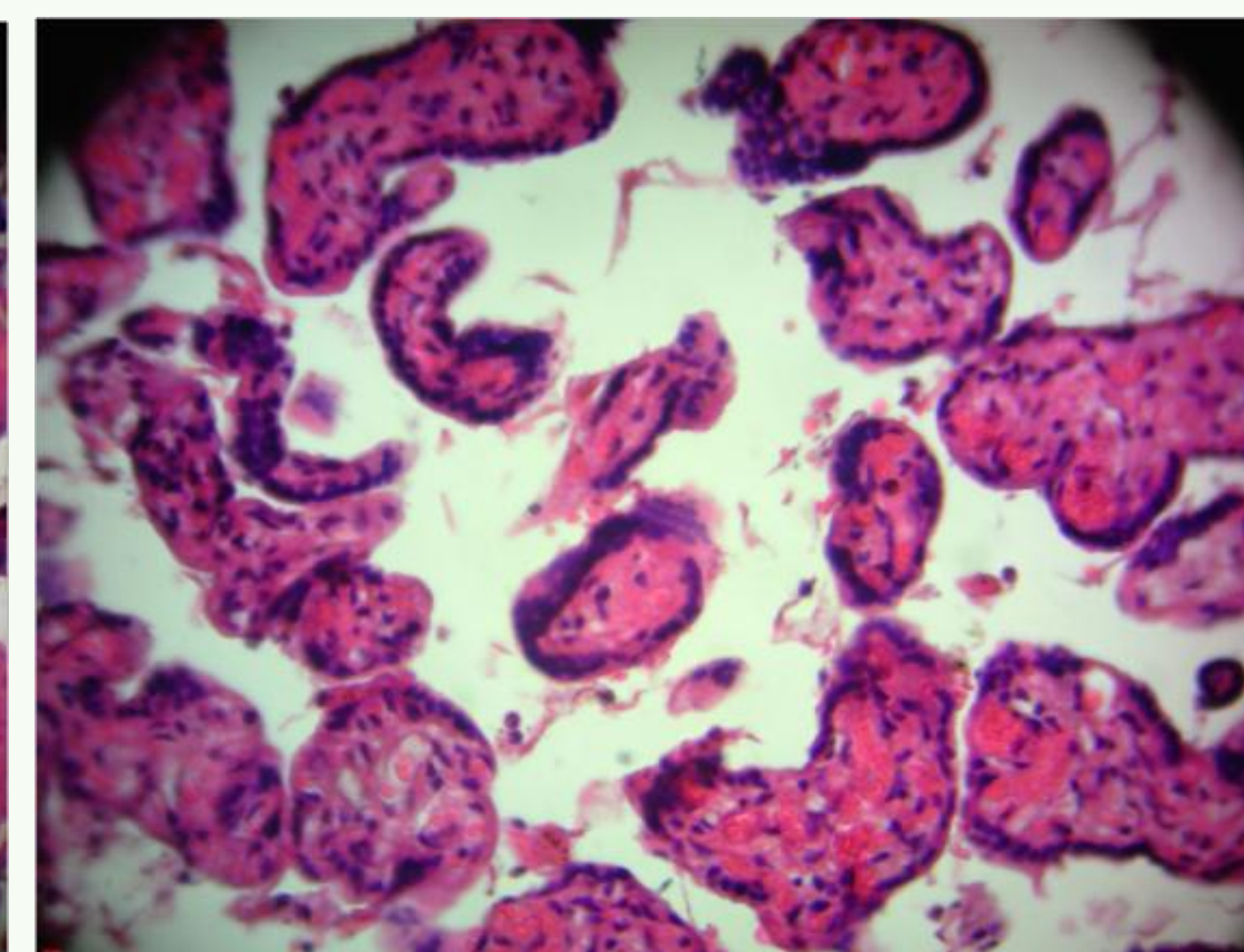
Neonatal weights, gross and histo-morphometric placental characteristics were compared among the two groups.



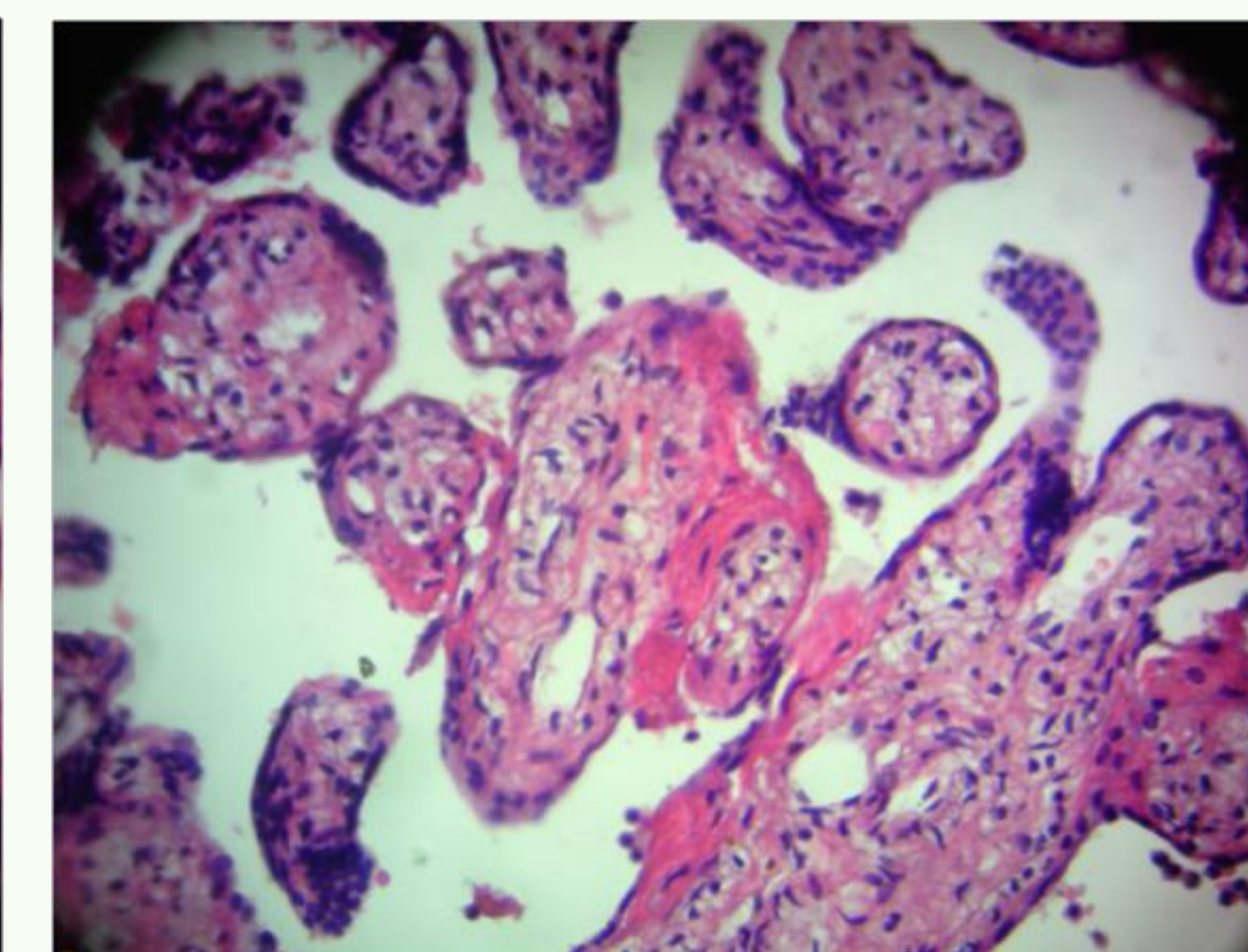
H&E stain at 100x:
Villous maturity and Syncytial Knotting consistent with a term gestation in a placenta of a woman with a healthy pregnancy



H&E stain at 100x:
Terminal Villi with differential maturity and reduced Syncytial knotting at term in a placenta of a woman with malaria-preeclampsia comorbidity



H&E stain at 400x:
Terminal villi with adequate maturation and size at term in a placenta of a woman with a healthy pregnancy



H&E stain at 400x:
Terminal villous immaturity with larger size villi at term in a placenta of a woman with malaria-preeclampsia comorbidity

CONCLUSION

Placental villous maturity and villous volume density are significantly reduced in patients with malaria-preeclampsia comorbidity with a compensatory increase in villous vascularity.

This leads to impaired placental function that contributes to lower neonatal weights.

RESULTS

Significant reduction in:
neonatal weights ($P < 0.001$),
placental weights ($P = 0.028$),
cord length ($P < 0.001$),
cord diameter ($P < 0.001$)
among women with malaria-preeclampsia comorbidity compared to those with healthy pregnancies.

Significant reduction in:
villous maturity ($P = 0.016$),
villous volume density ($P = 0.012$)
with
Increased villous vascularity ($P < 0.007$)
among women with malaria-preeclampsia comorbidity compared to those with healthy pregnancies.