Eosinophils are occasionally seen in equine uterine cytology. Their presence is usually attributed to pneumometra, urometra, or fungal endometritis. However, the significance of these cells is still poorly understood. It was hypothesized that presence of eosinophils could be associated with a reduction in pregnancy rate. Therefore, a retrospective study was conducted to determine the prevalence of eosinophils on uterine cytologies, their association with endometritis, and their implication on reproductive performance. Records of uterine cytologies performed at Rood and Riddle Equine Hospital during 2013 and 2014 were analyzed (n=6,783), and mares with complete data sets were included in the analysis (n=231). Uterine cytology was considered positive for eosinophils if at least one eosinophil was seen in 10 high power fields. The reproductive history, cytological interpretation, uterine culture results, and pregnancy rate at 14 days after ovulation were evaluated. Thoroughbred mares presenting eosinophils on cytology and complete data sets were included in the analysis (n=79). The mares were divided into five groups according to findings on culture and cytology: 1) growth, inflammatory cytology (>2 neutrophils/field) and eosinophils; 2) growth, inflammatory cytology and no eosinophils; 3) no growth, non-inflammatory cytology and eosinophils; 4) growth, non-inflammatory cytology and no eosinophils; and 5) no growth, non-inflammatory cytology and no eosinophils. Frequency distribution of the data was analyzed using Chi-Square tests. Eosinophils were present in 1.69% of all cytologies (115/6783). Of the 111 mares that presented eosinophils, eight presented either urometra, repaired or un repaired cervical defects (7.2%). Eosinophils were seen in cytologies of 78.4% (40/51) barren mares, 20.7% (36/174) foaling mares and 25% (1/4) maiden mares (P<0.0001). Eosinophils were present in 85.7% (30/35) of the mares with severe inflammatory cytology (>5 neutrophils/field), 53% (17/32) of the mares with moderate inflammation (2-5 neutrophils/field) and 19.5% (32/164) of the mares with non-inflammatory cytology (P<0.0001). The growth of a mixed population of organisms was seen more frequently in mares that presented eosinophils (12.8%) than in mares without eosinophils (1.3%). The culture results for mares presenting eosinophils included growth of a mixed population of organisms (12.8%), gram positive bacteria (19.2%), gram negative bacteria (9%), fungi (2.6%) and no growth (56.4%) (P<0.001). Only two mares grew fungi on culture, both of which had eosinophils on cytology. Pregnancy rates differed with mare classification, and were 42.2% (19/45) in group 1, 57.9% (11/19) in group 2, 65.7% (23/35) in group 3, 75% (18/24) in group 4, and 70.4% (76/108) in group 5 (P<0.02). Although there was a low prevalence of eosinophils in equine uterine cytologies, their presence was associated with reduced pregnancy rates. As expected, the pregnancy rate was reduced in mares that presented neutrophilic endometritis, but it was even lower in mares with concurrent neutrophilic and eosinophilic endometritis. Therefore, the presence of both cell types seems to indicate a more severe stimulus or inflammatory response, and a worse prognosis for fertility.

**Keywords:** Eosinophils, cytology, equine endometritis, fertility