Congenital peritoneopericardial diaphragmatic hernia in a family of Persian cats

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A 16-month-old primiparous Persian queen was presented 7 weeks after breeding for pregnancy confirmation and radiographic fetal count. Four fetal skeletons were identified. Incidentally, an enlarged cardiac silhouette with superimposed gas filled opacities was discovered, suggestive of a peritoneopericardial diaphragmatic hernia (PPDH). Therefore, the patient was referred for a cesarean section and concurrent PPDH repair. One male kitten had an omphalocele and was humanely euthanized. The three remaining male kittens appeared normal on physical examination. However, two kittens were having difficulty nursing, were dyspneic and failed to thrive during the first week of life. One of the dyspneic kittens died at 10 days of age, upon which radiographs were obtained from the second dyspneic kitten and images were highly suggestive of PPDH. Humane euthanasia was elected due to poor prognosis, and necropsy findings confirmed the presence of PPDH in both kittens. The tom of this litter was also bred to the queen's sister producing one normal female kitten and one stillborn male with an omphalocele. Survey radiographs were obtained from both the tom and the second queen, and no abnormal anatomic structures were seen. A review of the 3-generation pedigree revealed common ancestry; the tom's sire was a littermate to both queens (minimum coefficient of inbreeding 12.5%). Omphalocele and PPDH have both been described as congenital midline defects in cats and dogs. Unfortunately, neither of the kittens with omphalocele were available for necropsy. However, a published report of 58 cases of PPDH revealed that about half of affected dogs and about a quarter of affected cats also had umbilical hernias, abdominal wall hernias, or sternal defects, suggesting that omphalocele is associated with PPDH. Other reports described Weimaraner dogs and longhaired cat breeds as being overrepresented suggesting an inherited trait and over 63% of affected cats were males. In our study, the majority of cats affectced with midline defects (PPDH or omphalocele) were males, and they were directly related, also supporting a genetic basis. This is the first report of familial PPDH in cats.

Keywords: Cats, congenital, peritoneopericardial diaphragmatic hernia, inbreeding, pregnancy