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Short Communication / *Kısa Bilimsel Çalışma*

Incidental pulmonary trophoblastic embolism in a chinchilla

Nihat YUMUSAK[1], Tuncer KUTLU[2], Osman KUTSAL[2]

[1]Harran University, Faculty of Veterinary Medicine, Department of Pathology, Şanlıurfa; [2]Ankara University, Faculty of Veterinary Medicine, Department of Pathology, Ankara, Turkey.

Summary: This case study presents the pathomorphological description of a pulmonary trophoblastic embolism in a female chinchilla, which died due to respiratory distress. Routine necropsy examination revealed the presence of multiple small and grey coloured foci, which presented with a hyperaemic and multifocal appearance on the surface of the lungs. Samples taken from the lung tissue were subjected to routine tissue processing and stained with haematoxylin-eosin (HE) and periodic acid-Schiff (PAS) reagents. Histopathological examination demonstrated one or more giant cells with rather large nuclei and a broad cytoplasm in the alveolar capillaries, which appeared as multifocal areas. These cellular structures were positive for PAS staining. And also, lymphocytic and histiocytic inflammatory cells infiltration were observed around the alveoli and bronchi-bronchioles.

Key words: Chinchilla, lung, trophoblastic embolism.

Bir çinçilada tesadüfen karşılaşılan akciğer trofoblast embolisi

Özet: Bu olguda, dişi bir çinçilanın akciğerlerinde trofoblastik emboli olgusu patomorfolojik olarak tanımlandı. Klinik olarak iştahsızlık ve solunum güçlüğü görüldüğü ve tedaviye yanıt vermeyerek öldüğü bildirildi. Yapılan rutin nekropsi yöntemi sonucu akciğerlerin solgun renkte yer yer hiperemik manzarada olduğu dikkati çekti. Yüzeyinde ise kimi alanlarda çok sayıda küçük ve kırmızı renkte odakların olduğu görüldü. Akciğerlerden alınan doku örnekleri rutin doku takibine alınarak Hematoksilen-eosin (HxE) ve Periodic acid-schiff (PAS) boyamaları yapıldı. Histopatolojik olarak, multifokal alanlar halinde alveoler kapillalarda tek veya birkaç büyük çekirdekli ve geniş sitoplazmalı trofoblast hücreleri gözlendi. Bu yapıların PAS boyamasında pozitif oldukları dikkati çekti. Ayrıca, alveoller ve bronş-bronşiollerin çevresinde lenfosit ve histiyositlerden oluşan yangısal hücre infiltrasyonları görüldü.

Anahtar sözcükler: Akciğer, Çinçila, trofoblastik emboli.

Trophoblasts are precursor cells, which emerge during the first stage of gestation, differentiate in the fertile ovary, show an array around the blastocysts, and are involved in the supply of the embryo and the development of the placenta (6, 7, 10). Reports indicate that in humans, hamsters and chinchillas, and primarily in those that are multiparous or have abnormal gestation, trophoblastic embolism causes fatal pneumonia, as a result of the abnormal proliferation of the trophoblastic epithelium (1, 2, 4, 5, 8). In this case study, trophoblastic embolism was described in a breeding chinchilla, which died due to respiratory distress and was referred for necropsy.

A female chinchilla, which was raised at a breeding farm and died as a result of respiratory distress, constituted the material of this case study. Routine necropsy examination demonstrated that the lungs, in general, had a hyperaemic appearance, and that the surface of the lungs was shiny and moist. Numerous small grey foci were observed on the surface of the lungs in the form of multifocal areas. No pathological lesions were observed in the other organs and tissues. Tissue samples taken from the lungs were fixed in 10% formaldehyde. After fixation, the lung tissue samples were dehydrated by passage through a graded series of alcohol and xylol, and blocked in paraffin. Five-micron-thick sections were stained with haematoxylin-eosin (HE) and periodic acid-Schiff (PAS) reagent. Histopathological examination revealed the presence of severe pulmonary congestion associated with small areas of oedematous fluid in the alveolar lumens and foci of interstitial pneumonia. Furthermore, one or more giant cells, with rather large multiple nuclei and a broad cytoplasm, were observed in the form of multifocal areas in the alveolar capillaries (Figure 1, 2). These cellular structures stained positively for PAS (Figure 3).

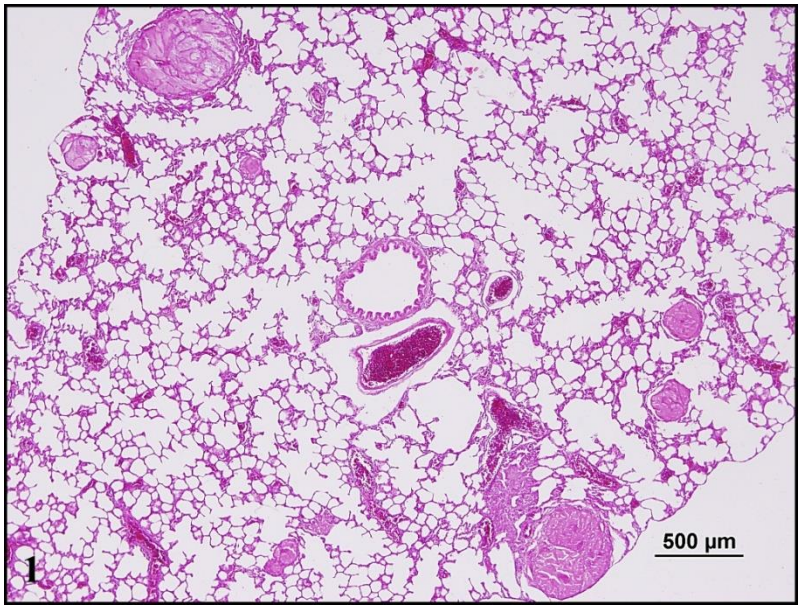

Figure 1. Different size and numerous trophoblastic embolism, HxE.
Şekil 1. Akciğerde değişik boyutlarda ve çok sayıda trofoblastik emboliler, HxE.

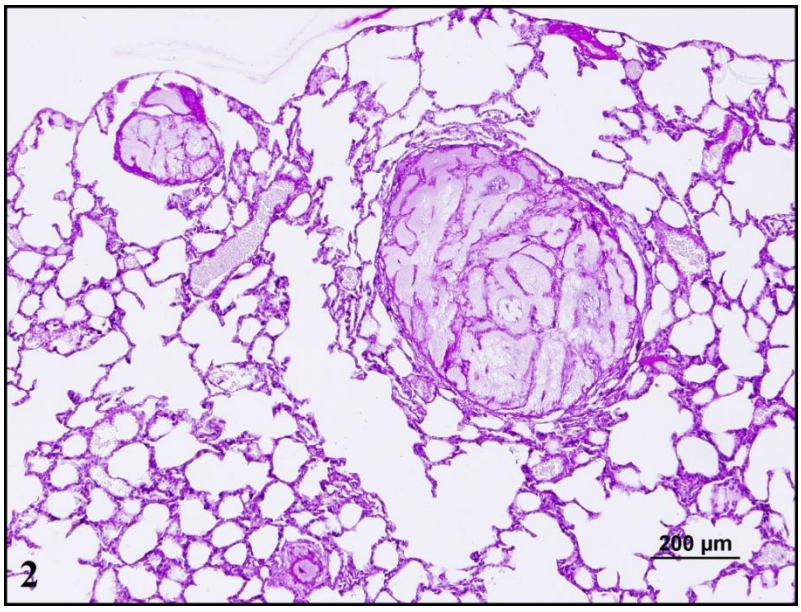

Figure 2. Multinuclear giant trophoblastic cells, HxE.
Şekil 2. Çok çekirdekli trofoblastik dev hücreleri, HxE.

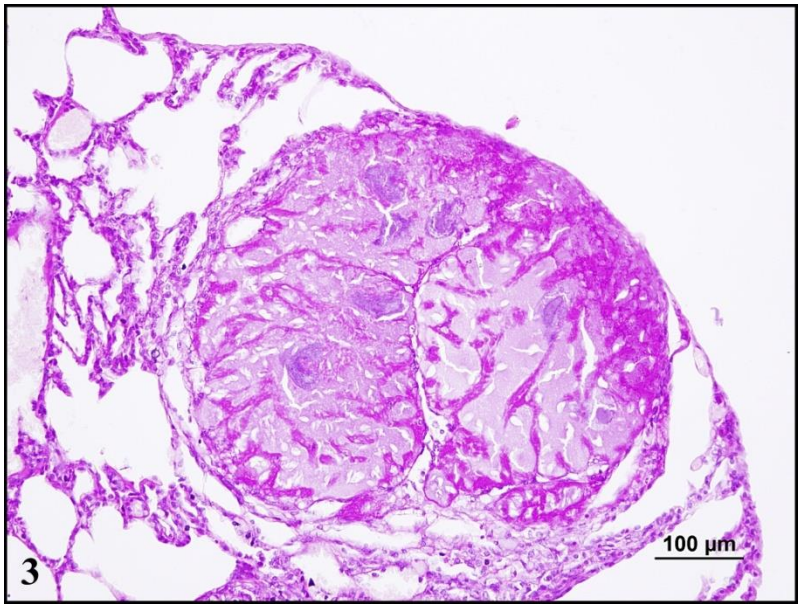

Figure 3. PAS positive trophoblasts, PAS.
Şekil 3. PAS pozitif trofoblastlar, PAS.

Cases of pneumonia resulting from trophoblastic embolism are generally associated with atypical symptoms, and findings are not pathognomonic. The diagnosis of such cases is difficult in humans, and in general, these cases are observed incidentally at autopsy (3, 4, 9). The respiratory distress and associated findings observed in this case study were not pathognomonic, and embolism was identified only incidentally during histological examination. Pulmonary trophoblastic embolism is associated with a non-inflammatory reaction (3-5). The findings observed in this case study were in parallel with those indicated in literature reports. It has been reported that in some cases of abnormal pregnancy in women, giant cells with multiple nuclei can be observed in blood examination (3, 9). No blood examination was performed for the dead animal examined in this case study, although it is advised to make a blood examination in similar cases. Pathological diagnosis is based on a positive reaction of these cells, being an immunohistochemical positive reaction for cytokeratin and a histomorphological positive reaction for PAS (1, 2, 5). In this case study, histomorphologically, the trophoblast cells were able to be clearly demonstrated by PAS staining. Embolism occurs secondarily in women, as a result of the abnormal trophoblastic proliferation of the placenta induced by stress and hypoxia, as well as a result of multiple abnormal pregnancies (3, 4, 10). The observation of multiple pregnancies in chinchillas and the cycle occurring 24-48 h after parturition suggests that the uterus of these animals is active, which could result in the abnormal proliferation of trophoblasts (1, 2, 5). There is no definitive information about this animal gave birth. Because of animal in this case was a breeding and probably it was to gave birth at every four-five months.

In conclusion, this case described for the first time in the chinchilla in Turkey, can be considered to contribute to future research and bring a new perspective to similar cases that may be encountered by veterinary practitioners.

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Address for correspondence:
Dr. Nihat Yumuşak
Harran University,
Faculty of Veterinary Medicine,
Department of Pathology,
63000, Şanlıurfa-TURKEY
e-mail: nihatyumusak@gmail.com.tr