Autopsy imaging (Ai), postmortem imaging before necropsy, is used in human forensic medicine. Ai was performed using computed tomography (CT) for a 1-month-old Thoroughbred foal cadaver found in a pasture. CT revealed pericardial effusion, collapse of the aorta, bleeding in the lung lobe, gas in the ventricles and liver parenchyma, and distension of the digestive tract. Rupture in the left auricle was confirmed by necropsy; however, it was not depicted on CT. Therefore, Ai and conventional necropsy are considered to complement each other. The cause of death was determined to be traumatic cardiac tamponade. In conclusion, Ai is an additional option for determining cause of death.

Key words: autopsy imaging (Ai), cardiac tamponade, computed tomography, Thoroughbred
Fracture on gross pathological examination is difficult, CT would be helpful for detecting a skeletal abnormality. The collapse of vessels and the gas in the vessels and intestine were postmortem changes. The presence of gas in vessels and the extent of gas accumulation in the intestine might be helpful for estimating the time of death [4]. Necropsy was performed following the CT examination. The gross pathological examination revealed subcutaneous bleeding in left chest wall (Fig. 4), bleeding in the left lung lobe (Fig. 5), and pericardial effusion (Fig. 6). The site of the rupture was determined to be in the left auricle (Fig. 7, arrow), which was not depicted on CT. From the combined findings of Ai and the gross pathological examination including excoriation and subcutaneous bleeding, the cause of death was determined to be traumatic cardiac tamponade. The detection of gas in the vessels and ventricles was difficult through necropsy, but it could be detected through CT. However, CT did not reveal the subcutaneous bleeding and left auricle rupture. Therefore, Ai and conventional necropsy are considered to complement each other. Furthermore, Ai
provides potentially useful additional information for a subsequent necropsy.

There have been several reports about cardiac tamponade, secondary to patent ductus arteriosus [1], pericarditis [3, 9], or aortic aneurysm [10], in horses, but these cases involved primary cardiovascular disorders, and there were no reports in foals. We report here a case of traumatic cardiac tamponade in a foal, indicating that traumatic cardiac tamponade should be included in the differential diagnosis for sudden death of foals in the pasture.

Facilities for equine CT are not widely available, and delivery fees may apply. If CT is available, there are additional limitations with respect to gantry size. The diameter of the CT gantry used in this study was 72 cm, which was the limit for scanning the entire body of this foal. Therefore, the development of a wide-gantry CT capable of evaluating
the entire body of a fully grown equine is expected in the near future.

In conclusion, Ai is an additional option with CT for determining cause of death.

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