

**Table S1.** Lesions by major categories for dogs submitted to 4 Canadian diagnostic laboratories due to a perianesthetic death. COD conf.: cause of death confirmed. COD unc.: cause of death uncertain is a lesion was identified but the pathologist was uncertain whether it was significant enough to be associated with death of the animal.

| <b>System</b>      | <b>Lesion details</b>   | <b>COD conf.<br/>(% lesion category)</b> | <b>COD unc.<br/>(% lesion category)</b> | <b>Total<br/>(% all lesions)</b> |
|--------------------|---|--|---|----------------------------------|
| <b>Respiratory</b> |   |  |   |                                  |
|                    | Tracheal lesions<br>(tracheal collapse, trachea tear, tracheitis)   | 2  | 8                                       | 10                               |
|                    | Pneumonia (aspiration, bronchopneumonia, pneumonia)   | 7  | 2                                       | 9                                |
|                    | Brachycephalic obstructive airway syndrome (epiglottal entrapment, multiple lesions)                              | 3  | 3                                       | 6                                |
|                    | Diaphragm lesions (myonecrosis, hernia)   | 1  | 1                                       | 2                                |
|                    | Laryngeal lesions (narrowing, laryngitis)   | 0  | 2                                       | 2                                |
|                    | Diffuse alveolar damage and necrotizing bronchiolitis   | 1  | 0                                       | 1                                |
|                    | Idiopathic pulmonary fibrosis   | 0  | 1                                       | 1                                |
|                    | Acute lung injury   | 1  | 0                                       | 1                                |
|                    | Atelectasis   | 0  | 1                                       | 1                                |
|                    | Pulmonary mineralization  | 0  | 1                                       | 1                                |
|                    | Suspect hypersensitivity reaction   | 0  | 1                                       | 1                                |
|                    | <b>TOTAL Respiratory</b>  | 15<br>(42.8%)                            | 20<br>(57.2%)                           | <b>35<br/>(27.8%)</b>            |
| <b>Digestive</b>   |   |  |   |                                  |
|                    | Perforation (diverticulum, esophageal, gastric, duodenal, jejunal)  | 6  | 0                                       | 6                                |
|                    | Liver lesion (biliary mucocele, hepatic insufficiency, hepatic lobe displacement, hepatitis, portosystemic shunt) | 3  | 3                                       | 6                                |
|                    | Acute hemorrhagic diarrhea syndrome   | 4  | 0                                       | 4                                |
|                    | Pancreatic lesions (necrotizing pancreatitis, hemorrhage, neoplasia)  | 1  | 2                                       | 3                                |
|                    | Gastric dilatative-volvulus   | 2  | 0                                       | 2                                |
|                    | Mesenteric torsion  | 2  | 0                                       | 2                                |
|                    | Gastric foreign body  | 0  | 1                                       | 1                                |
|                    | Gastrointestinal hemorrhage   | 1  | 0                                       | 1                                |
|                    | Intestinal surgery complication   | 0  | 1                                       | 1                                |
|                    | Portal vein thrombosis  | 0  | 1                                       | 1                                |
|                    | Stomach expanded with food  | 0  | 1                                       | 1                                |
|                    | Esophagitis   | 1  | 0                                       | 1                                |

|  |               |               |                             |
|--|---------------|---------------|-----------------------------|
| Suspect viral enteritis  | 1             | 0             | 1                           |
| <b>TOTAL Digestive</b>   | 21<br>(70.0%) | 9<br>(30.0%)  | <b>30</b><br><b>(23.8%)</b> |
| <b>Cardiovascular</b>  |               |               |                             |
| Valvular lesion (endocardiosis, dysplasia, tricuspid insufficiency)      | 3             | 3             | 6                           |
| Dilated cardiomyopathy   | 0             | 4             | 4                           |
| Cardiac lipomatosis  | 0             | 1             | 1                           |
| Pericardial peritoneal diaphragmatic hernia                              | 1             | 0             | 1                           |
| Ventricular hypertrophy and heart failure                                | 1             | 0             | 1                           |
| Hemopericardium and myocardial laceration                                | 1             | 0             | 1                           |
| Myocardial degeneration  | 0             | 1             | 1                           |
| Myocardial necrosis  | 1             | 0             | 1                           |
| Right ventricular hypertrophy  | 0             | 1             | 1                           |
| Valvular endocardiosis and dilated cardiomyopathy                        | 0             | 1             | 1                           |
| <b>TOTAL Cardiovascular</b>  | 7<br>(38.9%)  | 11<br>(61.1%) | <b>18</b><br><b>(14.3%)</b> |
| <b>Other</b>   |               |               |                             |
| Hemoabdomen (surgical site, splenic mass rupture, unknown source)        | 11            | 3             | 14                          |
| Urinary system (renal failure, ureter tied off, urethral obstruction)    | 3             | 2             | 5                           |
| Neoplasia (glial tumor, insulinoma, lymphoma)                            | 3             | 0             | 3                           |
| Central nervous system (encephalitis, hydrocephalus, myelitis)           | 1             | 2             | 3                           |
| Disseminated intravascular coagulopathy                                  | 2             | 0             | 2                           |
| Ethylene glycol toxicosis  | 2             | 0             | 2                           |
| Multifocal hemorrhage of unknown origin                                  | 0             | 2             | 2                           |
| Multiple lesions   | 0             | 2             | 2                           |
| Malignant hyperthermia   | 2             | 0             | 2                           |
| Trauma (hemoabdomen and hemothorax, subcutaneous tearing and hemorrhage) | 2             | 0             | 2                           |
| Blastomycosis pneumonia and meningoencephalitis                          | 1             | 0             | 1                           |
| Adrenal cortical necrosis  | 1             | 0             | 1                           |
| Hypoadrenocorticism  | 0             | 1             | 1                           |
| Pyometra   | 1             | 0             | 1                           |
| Surgical site infection  | 0             | 1             | 1                           |
| <b>TOTAL Other</b>   | 29<br>(69.0%) | 13<br>(31.0%) | <b>42</b><br><b>(33.3%)</b> |
| <b>No significant lesions</b>  |               |               |                             |
| History of broken endotracheal tube                                      | 1             | 0             | 1                           |
| <b>TOTAL No significant lesions</b>                                      | 1<br>(100%)   | 0<br>(0%)     | <b>1</b><br><b>(0.8%)</b>   |
| <b>All categories</b>  |               |               |                             |

|                                   |                       |                       |            |
|-----------------------------------|-----------------------|-----------------------|------------|
| <b>GRAND TOTAL All categories</b> | <b>73<br/>(58.0%)</b> | <b>53<br/>(42.0%)</b> | <b>126</b> |
|-----------------------------------|-----------------------|-----------------------|------------|

**Table S2.** Lesions by major categories for cats submitted to 4 Canadian diagnostic laboratories due to a perianesthetic death. COD conf.: cause of death confirmed. COD unc.: cause of death uncertain is a lesion was identified but the pathologist was uncertain if it was significant enough to be associated with death of the animal. FIP: feline infectious peritonitis.

| System                | Lesion details   | COD conf.     | COD unc.      | Total (%)                   |
|-----------------------|--|---------------|---------------|-----------------------------|
| <b>Respiratory</b>    |  |               |               |                             |
|                       | Pneumonia (aspiration, bronchopneumonia, interstitial, pleuropneumonia, pneumonia) | 8             | 2             | 10                          |
|                       | Suspect hypersensitivity   | 0             | 4             | 4                           |
|                       | Trachea tear   | 3             | 0             | 3                           |
|                       | Atelectasis (obstructed anesthetic machine)  | 1             | 2             | 3                           |
|                       | Pneumothorax (barotrauma, suspect tear)  | 1             | 2             | 3                           |
|                       | Pleural effusion (chylothorax, FIP)  | 2             | 0             | 2                           |
|                       | Asthma   | 0             | 1             | 1                           |
|                       | Diaphragmatic hernia   | 1             | 0             | 1                           |
|                       | Eosinophilic pneumonitis   | 0             | 1             | 1                           |
|                       | Laryngitis   | 0             | 1             | 1                           |
|                       | Pulmonary atelectasis and mast cell infiltration                                   | 0             | 1             | 1                           |
|                       | Subcutaneous edema and effusion  | 0             | 1             | 1                           |
|                       | <b>TOTAL Respiratory</b>   | 16<br>(51.6%) | 15<br>(48.4%) | <b>31</b><br><b>(31.9%)</b> |
| <b>Cardiovascular</b> |  |               |               |                             |
|                       | Cardiomyopathy (hypertrophic, unclassified)  | 4             | 7             | 11                          |
|                       | Cardiac lipomatosis  | 0             | 2             | 2                           |
|                       | Congenital (aortic stenosis, patent ductus arteriosus)                             | 0             | 2             | 2                           |
|                       | Pulmonary edema with heart failure cells   | 0             | 2             | 2                           |
|                       | Myocardial degeneration  | 0             | 1             | 1                           |
|                       | Myocardial fibrosis  | 1             | 0             | 1                           |
|                       | Subendocardial mineralization  | 0             | 1             | 1                           |
|                       | Valvular endocardiosis   | 0             | 1             | 1                           |
|                       | <b>TOTAL Cardiovascular</b>  | 5<br>(23.8%)  | 16<br>(76.1%) | <b>21</b><br><b>(21.6%)</b> |
| <b>Digestive</b>      |  |               |               |                             |
|                       | Panleukopenia  | 2             | 3             | 5                           |
|                       | Intestinal surgical complication   | 1             | 1             | 2                           |
|                       | Necrotizing pancreatitis   | 2             | 0             | 2                           |
|                       | Enteritis  | 0             | 1             | 1                           |
|                       | Cholangitis  | 0             | 1             | 1                           |
|                       | <b>TOTAL Digestive</b>   | 5<br>(45.4%)  | 6<br>(54.5%)  | <b>11</b><br><b>(11.3%)</b> |

| <b>Other</b>   |                       |                       |                 |
|--|-----------------------|-----------------------|-----------------|
| Urinary system (urethral obstruction, renal failure)   | 4                     | 4                     | 8               |
| Surgical complication (surgical site infection, fibrinous peritonitis and septicemia, self trauma) | 7                     | 0                     | 7               |
| Nervous system (meningoencephalitis, neuronal necrosis, poliiencephalomalacia)                     | 2                     | 1                     | 3               |
| Feline infectious peritonitis  | 1                     | 1                     | 2               |
| Hemoabdomen from surgical site   | 1                     | 1                     | 2               |
| Multiple lesions   | 0                     | 2                     | 2               |
| Neoplasia (lymphoma, thymic lymphoma)  | 1                     | 1                     | 2               |
| Trauma (urinary trauma, pulmonary hemorrhage and wounds)   | 1                     | 1                     | 2               |
| Septicemia   | 1                     | 0                     | 1               |
| Subcutaneous edema and effusion  | 0                     | 1                     | 1               |
| Metritis   | 1                     | 0                     | 1               |
| <b>TOTAL Other</b>   | 19<br>(61.3%)         | 12<br>(38.7%)         | <b>31 (32%)</b> |
| <b>No significant lesions</b>  |                       |                       |                 |
| Diagnosed based on history (closed pop-off valve, laryngospasm, no oxygen supply)                  | 3                     | 0                     | 3               |
| <b>TOTAL No significant lesions</b>  | 3<br>(100%)           | 0<br>(0%)             | <b>3 (3.1%)</b> |
| <b>All categories</b>  |                       |                       |                 |
| <b>GRAND TOTAL All categories</b>  | <b>48<br/>(49.5%)</b> | <b>49<br/>(50.5%)</b> | <b>97</b>       |