

**ZOOLOGICAL PATHOLOGY PROGRAM  
STRANDED CETACEAN NECROPSY REPORT**

**Field ID:** See below  
**Additional Identifier:**  
**ZPP Accession Number:** 11-051Tt  
**Species:** *Tursiops truncatus*  
**Strand Date:** multiple  
**Strand Location:** Multiple  
**Sex:**  
**Age Class:** Fetal  
**Necropsy Date:** various  
**Condition code:**  
**Total Length:**  
**Weight:**  
**Blubber Depth:**  
**Body Condition:**

**Gross Necropsy:** Gross report not available at time of histologic evaluation.

**Slides/Tissues Received:** A single slide of lung from 14 fetal dolphins.

**Microscopic Findings:** Each sample is uniquely identified below. Summary comment follows. Autolysis is variable, sometimes impeding interpretation; also widespread colonization by variable, generally large, numbers of postmortem bacteria.

58IMMS031211

Lung: Tissue is markedly autolyzed. Diffusely alveoli are atelectatic. Bronchioles contain numerous amniotic squames and lesser numbers are noted in alveoli. There are few granular to globular accumulations of red-brown material (possible meconium) throughout. Alveoli are filled with round to polygonal cells and few similar cells are in bronchioles. Few cells have recognizable segmented nuclei (neutrophils).

62IMMS031511

Lung: Tissue is markedly autolyzed. Diffusely alveoli are atelectatic. Bronchioles and alveoli contain low to moderate numbers of amniotic squames. There are few granular to globular accumulations of red-brown material (possible meconium) throughout. Alveoli are filled with round to polygonal cells and few similar cells are in bronchioles.

70IMMS032111

Lung: Tissue is markedly autolyzed. Bronchi and bronchioles are open/gas-filled and many alveoli are partially expanded. Alveoli contain frequent debris and cells, including very few amniotic squames. Only few cells are round (suggestive of inflammatory cells); many are cuboidal or columnar (presumed sloughed respiratory epithelial cells). There are bacteria throughout including typical postmortem bacilli but also cocci and apparent smaller bacilli.

71IMMS032211

Lung: Conducting airways are open/gas-filled. Few alveoli are similar though most are atelectatic. There are moderate numbers of squames throughout. There are mild to moderate, multifocal accumulations of round cells in the alveolar parenchyma, few are recognizable as neutrophils.

72IMMS032211

Lung: Tissue is extensively autolyzed. Alveoli are atelectatic. Bronchioles and alveoli contain low to moderate numbers of amniotic squames. Diffusely bronchioles and alveoli contain small to moderate accumulations of granular to globular to linear/angular debris, some recognizable as squames. Few areas contain visibly minimally to mildly increased numbers of cells.

74IMMS032311

Lung: Diffusely alveoli are atelectatic. Multifocally alveoli and bronchioles contain many squames and occasionally, aggregates of meconium. There are moderate to large quantities of debris and low numbers of round cells (presumptive leukocytes).

77IMMS032811

Lung: Diffusely alveoli are atelectatic. Bronchioles and alveoli contain large numbers of cells; some are apparent squames, some are apparent round/inflammatory cells but further identification is not possible.

95IMMS052211

Lung: Diffusely alveoli are atelectatic. Alveoli and bronchioles contain abundant debris and few recognizable squames, round cells/leukocytes and rarely, meconium.

ECWR031711-06

Lung: Diffusely alveoli are at least partially expanded. Multifocally, bronchi, bronchioles and occasionally few to moderate numbers of surrounding alveoli contain large numbers of degenerate neutrophils and admixed aggregates of cocci. In affected alveoli, occasionally there are small aggregates of fibrin and some alveolar walls are necrotic (coagulative and liquifactive necrosis). Rarely there are small aggregates of globular dense basophilic material (chromatin or possible foreign material). Outermost affected alveoli contain predominantly macrophages with few neutrophils and Throughout the remainder of the lung, conducting airways and alveoli contain lacy proteinic material, low numbers of squames, rare meconium, frequent sloughed respiratory epithelial cells, and rare to few neutrophils and or macrophages.

ECWR032011-07

Lung: Diffusely alveoli are atelectatic. Throughout are numerous squames and many angular and round cells; few round cells are recognizable as neutrophils.

ECWR040111-09

Lung: Diffusely alveoli are atelectatic. Many alveoli and conducting airways contain numerous squames and scant to frequently abundant meconium. Additionally there are at least moderate numbers of round cells/leukocytes, and few angular cells and moderate amounts of debris.

ECWR040311-10

Lung: Diffusely alveoli are atelectatic. Alveoli and bronchioles contain large numbers of squames and low to moderate numbers of round cells including some identifiable and macrophages and neutrophils. There are many aggregates of dense basophilic glassy material (postmortem chromatin condensation, presumptive).

ECWR032911-08

Lung: Diffusely alveoli are atelectatic. Throughout alveoli and bronchioles contain many squames and moderate quantities of debris, angular cells and round cells/leukocytes.

JSH-20110721-LA001

Lung: The lungs are inflated. In approximately 90% of the lung, bronchi, bronchioles and alveoli lumenally contain one or more of the following: few to usually large numbers of neutrophils and lesser macrophages; eosinophilic fibrillar to globular material (fibrin); globules of dense eosinophilic (foreign) material; discrete round aggregates of colorless material, either extracellular or intracellular in macrophages (lipid); mineral; and at least 4 morphologically distinct types of bacilli. Additionally there are few, widely scattered squames. Multifocal alveolar septa contain few to many similar inflammatory cells. One medium-caliber bronchus has diffuse mural necrosis.

68IMMS032111-1

Lung: Diffusely alveoli are atelectatic. Bronchioles and alveoli contain low to occasionally moderate quantities of eosinophilic granular to globular debris, few recognizable angular/respiratory epithelial cells, and rare round cells/leukocytes and squames.

**Final Diagnoses:**

1. Fetal atelectasis; 58IMMS031211, 62IMMS031511, 68IMMS032111, 70IMMS032111, 71IMMS032211, 72IMMS032211, 74IMMS032311, 77IMMS032811, 95IMMS052211, ECWR032011-07, ECWR040111-09, ECWR040311-10, and ECWR032911-08
2. Fetal distress; 58IMMS031211, 62IMMS031511, 71IMMS032211, 72IMMS032211, 74IMMS032311, 77IMMS032811, 95IMMS052211, ECWR031711-06, ECWR032011-07, ECWR040111-09, ECWR040311-10, and ECWR032911-08
3. In-utero pneumonia, rule out bacterial; 58IMMS031211, 62IMMS031511, 71IMMS032211, 74IMMS032311, 77IMMS032811, 95IMMS052211, ECWR032011-07, ECWR040111-09, ECWR040311-10, and ECWR032911-08
4. In-utero pneumonia with intralesional cocci; ECWR031711-06
5. Aspiration pneumonia; JSH-20110721-LA001

**Comments:**

58IMMS031211, 62IMMS031511, 71IMMS032211, 74IMMS032311, 77IMMS032811, ECWR032011-07, ECWR040111-09, ECWR040311-10, and ECWR032911-08 were similar

enough for comments to be unified. In all instances there was fetal atelectasis meaning the animals never breathed. Moderate to high numbers of squames inferred fetal distress either in-utero or possibly during parturition. 74IMMS032311 and ECWR040111-09 also had intrapulmonary meconium, further evidence of fetal distress. Additionally there was evidence of pneumonia, and in-utero infection, particularly bacterial, was an important rule out and *Brucella spp.* infection a differential. In 74IMMS032311, inflammation, while mild, was still great enough to be considered in this grouping.

For 70IMMS032111 and 68IMMS032111 there was atelectasis, again indicative that these animals never breathed. Only rare to few squames and apparent inflammatory cells were noted: In-utero distress seemed improbable. Inflammation was not significant but this does not exclude in-utero infection. Inability to respond and or acute infection and subsequent abortion prior to eliciting a significant response are also possible and should remain differentials. At least one prior bacterial infection (*Brucella spp.* via PCR) occurred in the absence of significant pneumonia.

For 95IMMS052211, atelectasis was present, and while recognizable squames were few, meconium was observed and served to support in-utero fetal distress. Inflammation was difficult to meaningfully substantiate but at least some cells were present. This animal probably falls into the first category above though designation was hampered by postmortem condition more so than some others.

For 72IMMS032211 atelectasis was also present and there were moderate numbers of squames indicative of never breathing and fetal distress respectively. There was, however, no evidence of inflammation. Comments for 70IMMS032111 and 68IMMS032111 in regards to scant/no inflammation apply.

In ECWR031711-06 and JSH-20110721-LA001 lungs were partially to fully expanded respectively, meaning for ECWR031711-06 at least at few post-partum attempts at breathing occurred and that JSH-20110721-LA001 was a live birth and given 151 cm total length was older than a neonate.

ECWR031711-06 had few squames and rare meconium, consistent with some level of fetal distress. Pneumonia was severe, and associated with cocci. Bacterial infection must have been in-utero given gross findings of fetal folds, open umbilicus, etc. that were noted grossly.

For JSH-20110721-LA001, intralesional foreign material including lipid and protein were indicative of aspiration (milk, likely).

Reported By:

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