

Pathology Report

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To: [REDACTED]
Department of Conservation
Invercargill

Report Sent: 17/05/2022

Copy To:

Email: [REDACTED]

Species: Cetacean	Breed: Hector's Dolphin		
Age: Adult	Sex: Female		
Owner: Department of Conservation			Type: Post Mortem
ID: H304			Prev. Accn.:
Submitted:	At Risk:	Affected:	Dead:

History

Dolphin reported by member of public, offered to collect as tide coming in. DOC collected dolphin from Papatotara Coast Rd. Into workshop - on ice, surrounded by ice in tuna coffin in wet concrete washdown bay. Sampled tail fluke. Apparently a commercial fishing boat in close to shore. Unknown details.

No marks/injuries on dolphin.

Flown to Massey for necropsy.

Gross Findings

This dolphin arrived chilled and packed on ice. The body was in a good state of post mortem preservation, with minimal superficial skin slippage and no scavenging damage. There were several short shallow rake marks on the left flank, and a few short, shallow lacerations on the body, none of which were associated with haemorrhage or bruising. There were no lacerations or indentations suggestive of entanglement. The tip of the right tail fluke had been removed (genetics sampling on-site).

The body condition was assessed as moderate, with a flat epaxial muscle profile and a very slight neck. Blubber depth was reduced (dorsal = 15mm; lateral = 14mm; ventral = 12mm). The dolphin weighed 44.0kg and measured 140cm.

The teeth were in good condition. A discrete oval 50 x 20 mm pale mass bulged from the cut surface of the dorsal lumbar muscle, at the level of the pectoral flipper. A similar smaller (10mm diameter) mass was present distal to this.

The wall of the trachea contained a layer of haemorrhage under the tracheal cartilage, which extended 3/4 of the circumference. Intrathoracic and retropharyngeal lymph nodes were enlarged approximately 2-3 times normal.

The thoracic cavity contained an increased amount of clear fluid. The lungs contained multifocal firm white to greenish masses from 1-60mm in diameter. On cut surface these were well demarcated and variably dry or glistening, with several of the larger masses having caseous necrotic centres. Both lungs were affected. Airways contained numerous lungworm.

The cranial mediastinum contained a lobated soft pale tan mass with firmer dark red well demarcated masses multifocally throughout. The pale tissue exuded tan fluid on incision.

The stomach contained numerous nematodes, a single fish eye lens and a cephalopod beak. The gastric mucosa was dark red and congested. There was minimal thickening and no ulcerations. There were multifocal petechial haemorrhages in the mucosa of a focal area of the duodenum, covering an approximately 50mm length of intestine. The faeces were yellow/tan and fluid.

The spleen appeared slightly enlarged.

There were scattered white pinpoint foci throughout the cut surfaces of the kidney renules.

Histopathology

1. Severe chronic granulomatous pneumonia with intralesional fungi (fungal pneumonia)
2. Skeletal muscle: Chronic multifocal fungal granulomas; Sarcocysts
3. Chronic-active mediastinitis
4. Moderate chronic non-suppurative interstitial nephritis with tubular ectasia and glomerular sclerosis

Microbiology

Culture of lung mass:

- moderate growth of *Hafnia alvei*
- moderate growth of *Staphylococcus warneri*
- growth of *Aspergillus* sp.

Diagnosis

Severe fungal pneumonia (Aspergillosis)

Comments

This dolphin had an extremely severe lung infection (pneumonia) caused by the fungus *Aspergillus*, with the amount of damage in the lungs themselves likely to have been fatal. The fungal infection had also spread, probably in the bloodstream, to involve the skeletal muscle and the tissue inside the thoracic cavity (mediastinum). There was also evidence of kidney dysfunction, which could have contributed to the dolphin's illness.

Aspergillus is widespread throughout the environment, and most infections occur when an animal inhales the fungus. In severe cases such as this, the fungus can then invade blood vessels and spread throughout the body. *Aspergillus* infection has been diagnosed a number of times in Hector's dolphins over the years, however this particular case is extremely severe. In some animals fungal infections can be associated with immunosuppression, and overseas Aspergillosis has been seen in combination with Morbillivirus infections in cetaceans: the morbillivirus suppresses the immune system and makes it easier for other pathogens to invade.

Because of the severity of infection in this particular dolphin, combined with the fact that we have had a larger than average number of Hector's dolphin deaths reported recently, we will be conducting further testing to assess for the presence of morbillivirus. While we have tested for this virus in marine mammals in the past and to date have not had a positive case, there is a possibility that this disease has recently entered the population. Testing results will follow in due course.

Date: 16/05/2022	Pathologists: [REDACTED]
Students:	