

## FOREIGN BODY PERFORATION OF THE ESOPHAGUS INITIATING TRAUMATIC PERICARDITIS IN AN AUSTRALIAN FUR SEAL

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**Abstract:** Postmortem examination of a juvenile Australian fur seal, *Arctocephalus pusillus doriferus*, washed ashore on Phillip Island, Victoria, revealed traumatic fibrinous pericarditis and hemothorax. A foreign body lodged in the right ventricle was identified as the barbed spine of the ray *Urolophus paucimaculatus*. A small puncture wound through the esophagus indicated the initial perforation site.

### INTRODUCTION

A wide variety of both wild and captive marine mammals (Pinnipedia) are reported to ingest foreign bodies.<sup>4</sup> Rocks have been found in the stomachs of free-living California sea lions (*Zalophus californianus*)<sup>5</sup> and in captive elephant seals (*Mirounga leonina*).<sup>3</sup> Foreign bodies found in captive pinnipeds ranged from coins, bottle lids and cans to plastic bags and sticks.<sup>3</sup> Foreign bodies have resulted in gastric perforations in elephant seals<sup>4,3</sup> and esophageal perforation with pleuritis in a walrus (*Odobenus rosmarus*).<sup>3</sup>

In this communication a case of esophageal perforation with subsequent traumatic pericarditis is described in an Australian fur seal (*Arctocephalus pusillus doriferus*). The foreign body associated with the lesions was recovered and identified.

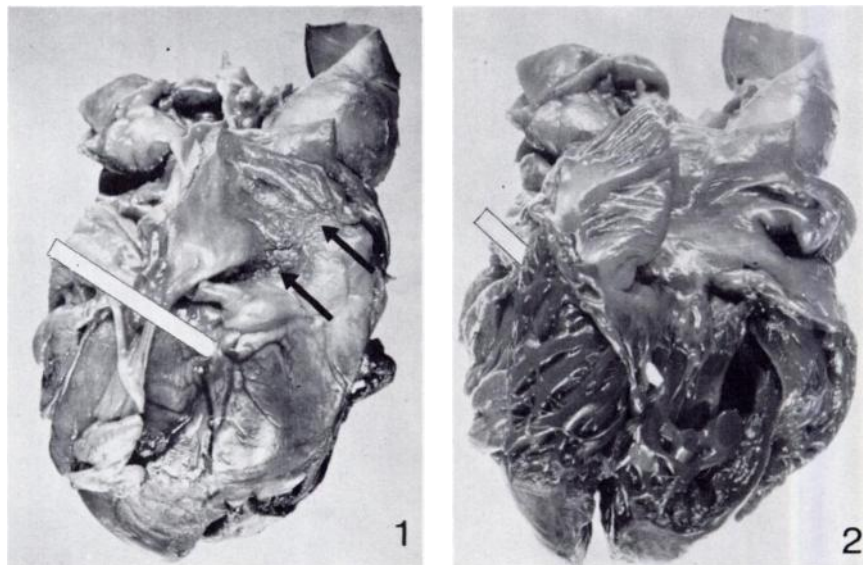
### MATERIALS AND METHODS

In August, 1975 a male Australian fur seal, approximately 9 months of age, was found washed ashore on Summerland Beach, Phillip Island, Victoria, by an officer of the Victorian Fisheries and Wildlife Division, Ministry for Conservation. The carcass was frozen and sent to the Veterinary Clinical Centre, Werribee for examination.

At necropsy, pericardial fluid and hepatic tissue were submitted for bacteriologic culture and identification. Samples of several organs were fixed in 10% formol saline, paraffin embedded, sectioned at 5  $\mu$ m, and stained with hematoxylin and eosin for histologic examination.

### RESULTS

The seal was in good condition, weighed 20 kg, and no external signs of trauma were evident. The abdominal viscera was normal except for pale foci 10-12 mm in diameter diffusely distributed throughout the hepatic parenchyma. Approximately 3 l of blood-stained fluid was recovered from the thoracic cavity. A 1 cm laceration was noted in the pericardium overlying the right atrium. Blood-stained fluid was found in the pericardial sac. Fibrinopurulent exudate, with numerous adhesions, was present between the epicardium and pericardial sac. A sharp bone, 2.7 cm long, was found lodged under the tricuspid valve. A piercing wound through the wall of the right ventricle beneath the laceration in the pericardial sac also was noted (Figs. 1 and 2). A small puncture wound in the esophagus adjacent to the heart, together with an associated transmural hematoma, was evident.



FIGURES 1 and 2. Traumatic pericarditis in an Australian fur seal. A white marker is positioned along the course taken by the barbed spine. FIG. 1. Fibrinous deposits (arrows) on the reflected pericardial sac. FIG. 2. Marker appearing on the endocardial surface of the right ventricle at the base of the tricuspid valves.

A heavy infestation of the mite, *Orthohalarachne attenuata* was found in the nasal cavity, turbinates and nasopharynx; *O. diminuata* was located in the larynx, trachea, bronchi and larger bronchioles. A small number of *Corynosoma australe* was recovered from the small intestine.

Histopathologic examination of the heart confirmed the gross findings of fibrinopurulent pericarditis, with focal myocarditis and endocarditis evident along the track of the foreign body. Chronic rhinitis, with hyperplasia of the epithelium characterised the nasal turbinates in association with the mite infestation.

Beta-hemolytic *Streptococcus* and hemolytic *Escherichia coli* were isolated and identified from both the pericardial fluid and liver. This suggested that a secondary bacteremia resulted from the traumatic injury to the heart.

The bone was slightly curved and had a series of fine serrated barbs along its edge (insert to Fig. 3). It was identified as the barbed spine of a juvenile ray (*Urolophus paucimaculatus*),<sup>2</sup> estimated at 20 cm in length (Fig. 3).

#### DISCUSSION

Many pinnipeds normally take in and regurgitate sand, gravel and stones. Pups and yearlings of the South African fur seal (*A. p. pusillus*) ingest wood chips and stones with their food.<sup>4</sup> Therefore, possibly the spine was ingested by the Australian fur seal as part of this natural process. The absence of the usual thick skin covering over the spine<sup>2</sup> in this specimen suggested that it may have been taken in as a single foreign body rather than as part of its meal. The site of esophageal perforation occurred in the region where there is a restriction due to

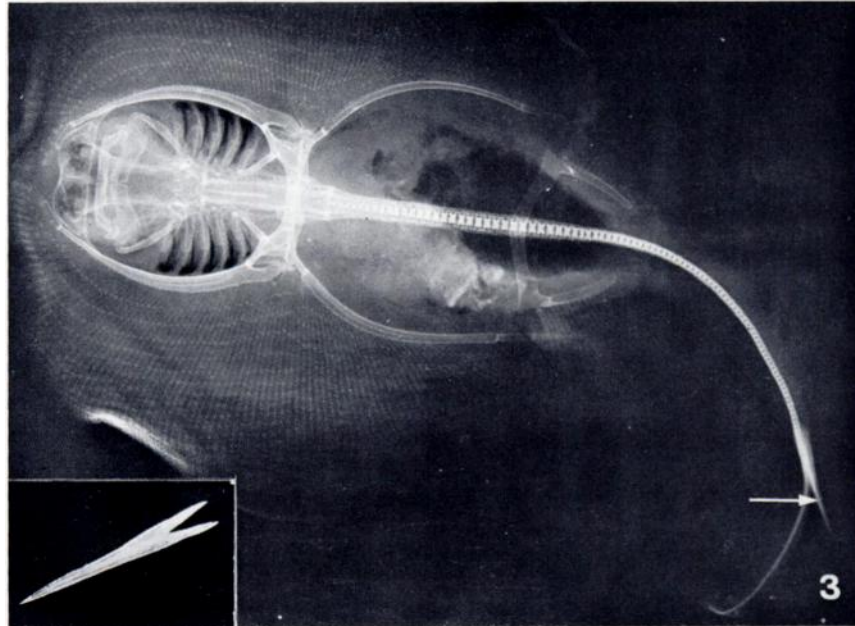


FIGURE 3. X-ray of the ray (*Urolophus paucimaculatus*) showing the position of the barbed spine (arrow). Insert depicts the barbed spine recovered from the heart of an Australian fur seal.

the close proximity of the heart. The sharp spine penetrated through the pericardial sac and lodged in the right ventricle. This resulted in blood loss into the pericardial sac and thoracic cavity. The spine probably was contaminated with bacteria, resulting in bacterial pericarditis and secondary septicemia.

Leopard seals (*Hydrurga leptonyx*) appear to be quite prone to stingray spine lacerations. Beached individuals have been found with one or more skin lacerations and associated foreign body abscesses tracking deeply into underlying tissues. Stingray spines of various sizes have been located in these abscesses. In most reports, the wounds

have been located around the head and neck region (E.P. Finnie Pers. Comm.). Fatigued, sick leopard seals seem to seek the safety of the southern Australian coastline when severely injured in this way. Stingray spines are occasionally found within oral abscesses of northern elephant seal yearlings (*Mirounga angustirostris*) (J. Sweeney Pers. Comm.). Stingray spines also have been taken from the gums and palates of white pointer sharks (*Carcharodon carcharias*) caught in Victorian waters (R. Warneke Pers. Comm.). These wounds seem to be initiated as a defensive strike reaction of stingrays to sudden arousal or attack by seals or sharks.

#### Acknowledgements

We wish to thank Miss J. Dixon, Curator of Vertebrates, National Museum of Victoria, Melbourne, who identified the foreign body; Dr. R. Domrow, Queensland

Institute of Medical Research, Brisbane, who identified the nasal mites; Dr. R. Warneke, Rylah Institute, Fisheries and Wildlife Division, Heidelberg, Victoria, 3084, who provided the seal for postmortem examination; Dr. E. P. Finnie, Taronga Zoo, Mosman, New South Wales, 2088, Australia; and Dr. J. C. Sweeney, Marine Life Sciences Laboratory of the Naval Undersea Center, San Diego, CA 92132, who kindly provided information on several cases of stingray spine lacerations and abscesses in leopard seals and elephant seals, respectively.

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*Received for publication 10 February 1978*

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