Idiopathic Granulomatosis –Dungeness Crab

I. Causative Agent and Disease

Idiopathic (cause unknown) granulomatosis is a condition in Dungeness crabs where multiple granulomas are present histologically within the connective tissues of the midgut wall and rarely other tissues including the heart and bladder. Extensive histological examination using special stains have shown no evidence of an etiologic agent. It is possible that the cause may be environmental rather than a foreign body response to a biological entity. The granulomas appear to have no affect on crab health.

II. Host Species

Granulomatosis has been described in 34% of Dungeness crabs from Puget Sound, Washington and affecting 100% of Dungeness crabs inhabiting bark sediments at some logging transfer sites in southeast Alaska. Similar idiopathic granulomas have been described in penaeid shrimp and probably occur in other crustacean species in various oceans of the world.

III. Clinical Signs

There are no obvious clinical signs of idiopathic granulomatosis in Dungeness crabs which can only be detected by routine histological examination.

IV. Transmission

There is no current evidence to indicate that Dungeness crab granulomatosis is caused by a transmissible infectious agent. The high prevalence of granulomatosis accompanied by shell disease, loss of limbs, lower fecundity and mortality in Dungeness crabs associated with benthic deposits of decomposing bark and sulfide at logging transfer sites (see shell disease section) in southeast Alaska suggest a potential toxic etiology. Other environmental causes may be associated with granulomatosis described in Dungeness crabs from different locations.

V. Diagnosis

Diagnosis is by routine histological examination of Dungeness crab tissues showing multiple granulomas in the connective tissues of the midgut wall. These lesions are typically of two types. Type one is smaller, more frequent, consists of a melanized center with few surrounding hemocytes and is located throughout the midgut wall. The second type is larger, less common and is located deeper within the connective tissues of the midgut wall and has a central melanized core surrounded by a large collar of hemocytes. The differences in the size, morphology and location of the two types of granulomas have caused speculation that they are reactions to two different stimuli. These granulomas can be found in other tissues including the heart and bladder.

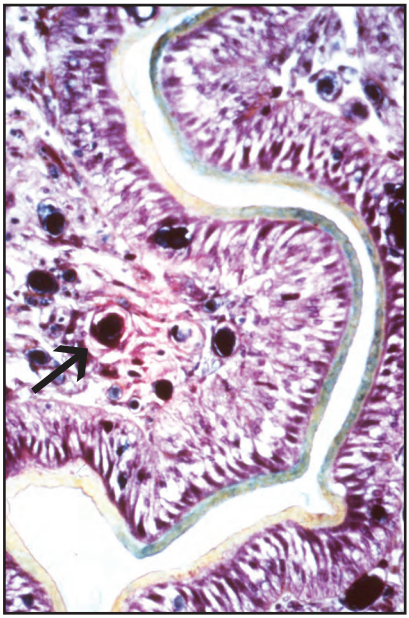
VI. Prognosis for Host

There has been no obvious host morbidity or debilitation associated with idiopathic granulomatosis in Dungeness crabs.

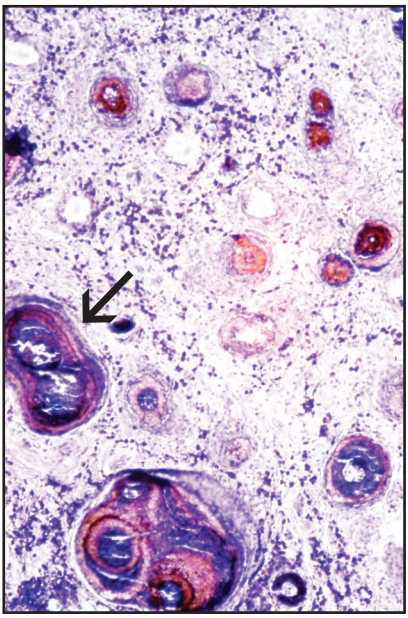
VII. Human Health Significance

There is no zoonotic human health concern associated with this condition in Dungeness crabs.

Typical Dungeness crab



Histological section of smaller type 1 granulomas (arrow) in the midgut connective tissues of Dungeness crab



Histological section of larger type 2 granulomas (arrow) in the midgut connective tissues of Dungeness crab