



NAAHTWG Slide of the Quarter (January – March 2005) - Haemocytic enteritis and chronic septic hepatopancreatitis

4-44351/34: Banana prawn; *Penaeus merguensis*; longitudinal section of gnathothorax.

Case History

The prawns had been in this pond for 85 days (days of culture) when the first signs of disease (lethargic prawns at pond edge and reduced pond feed consumption) were seen. The pond had had a history of unstable phytoplankton blooms and benthic mats of phytoplankton and cyanobacteria had begun developing on the pond bottom.

Nine days prior to the onset of clinical symptoms, there had been rain, cloudy weather and showers which resulted in a drop of salinity from 26ppt to 17ppt and water temperature fluctuations of 26 to 32°C. By 122 days of culture, mortalities had begun and continued at a low level until, at the time of sampling (153 days of culture) it was estimated that 100 to 200 prawns were dying each day in this pond. A total of five out of 48 ponds were showing chronic mortalities on the farm at the time of sampling.

Diseased prawns (estimated to comprise 10 - 15 per cent of the pond population) had a reddened body colour with a light ectocommusal fouling. The smaller prawns had missing antennae, were anorexic and thin, were lethargic, and had thin brittle, rough shells.

Histopathology

Morphological diagnosis

A haemocytic enteritis and chronic septic hepatopancreatitis.

Aetiological diagnosis

Presumptive; ingestion of bacterial endotoxins and secondary *Vibrio* spp. infection.

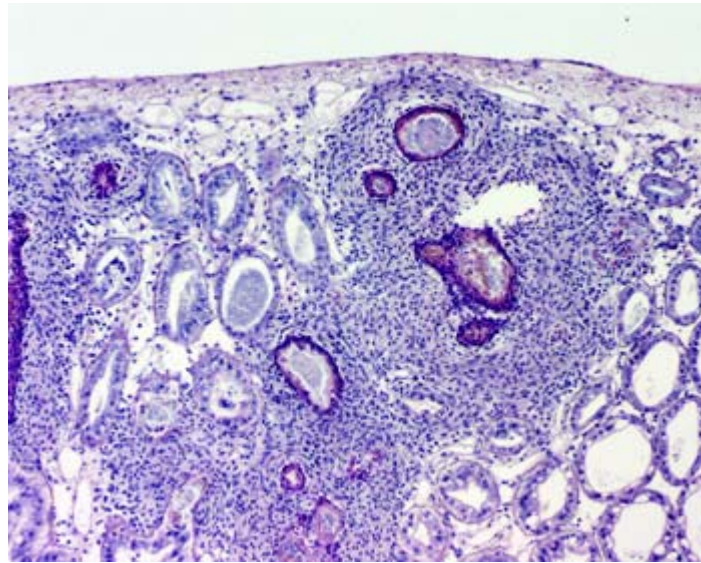


Figure 1 - Prawn hepatopancrea

The obvious lesions are present in the midgut and hepatopancreas (digestive organ). The proximal midgut had lost the mucosal epithelium which has been replaced by a multilayered mass of haemocytes. In most sections, this haemocytic enteritis is also apparent at the base of the anterior midgut caecum. There are multiple granulomas in the hepatopancreas. Some of the hepatopancreas tubules are encapsulated by haemocytes with melanisation of the inner layers.

The affected tubules contain necrotic debris and bacteria. Elsewhere there are a few tubules with necrotic and sloughing cells (hepatopancreatocytes). Overall the hepatopancreatocytes are much reduced in size with a consequent enlargement of tubule lumens.

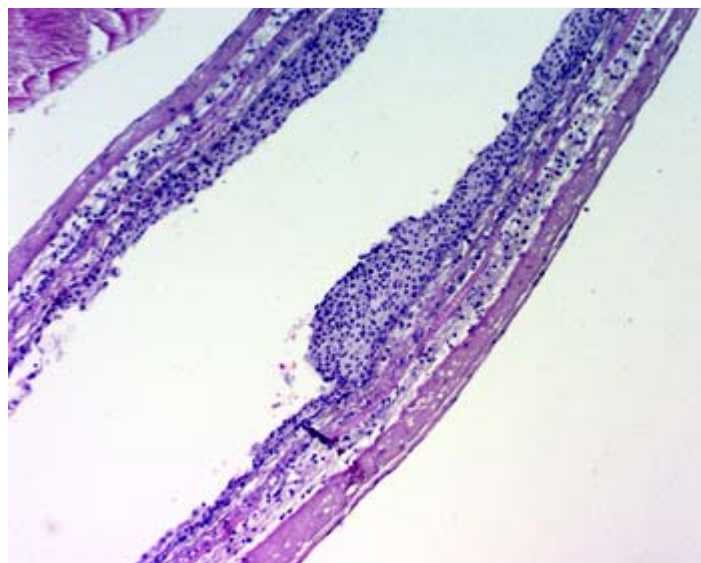


Figure 2 - Prawn haemocytic enteritis



The absorptive F and R cells have lost all storage vacuolation, while some B-cells with single intracytoplasmic vacuoles remain. The level of hepatopancreatocyte vacuolation helps differentiate between chronic and acute disease in prawns.

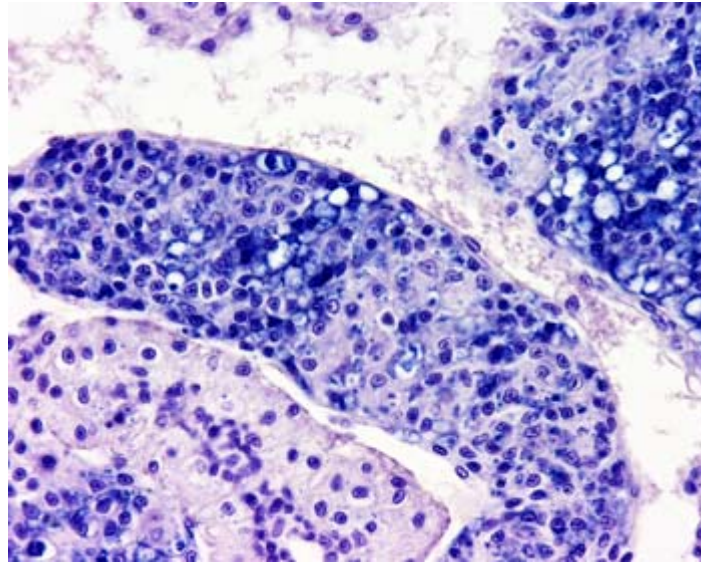


Figure 3 - Prawn lymphoid organ

The lymphoid organ contains many spheroid-like degenerate cell aggregations. There are some spheroids with the pale, abundant cytoplasm typical of gill-associated virus ('GAV') infections in *Penaeus mondon*, but most are basophilic, comprised of cells with minimal cytoplasm and some karyorrhectic nuclear debris. These basophilic cell aggregations have spread systemically, note in the ventral appendage subcuticular loose connective tissue. The pathogenesis of these cell aggregations in *P. merguensis* is unknown.

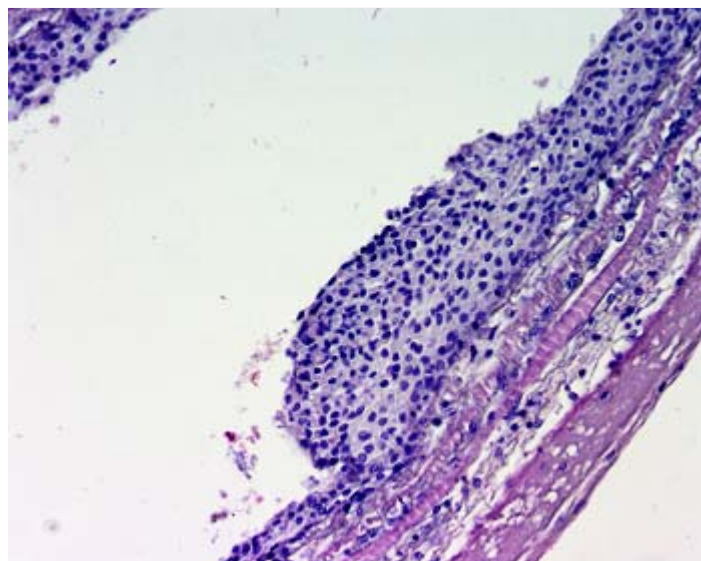


Figure 4 - Prawn haemacytic enteritis HPx20



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There are other, less significant lesions present, but please note the antennal gland, ventral cuticular fouling and thin cuticle; and the other organs in the section, the heart, testes, vas deferens, haematopoietic tissue and foregut.

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