Tooth, Odontoblast – Necrosis

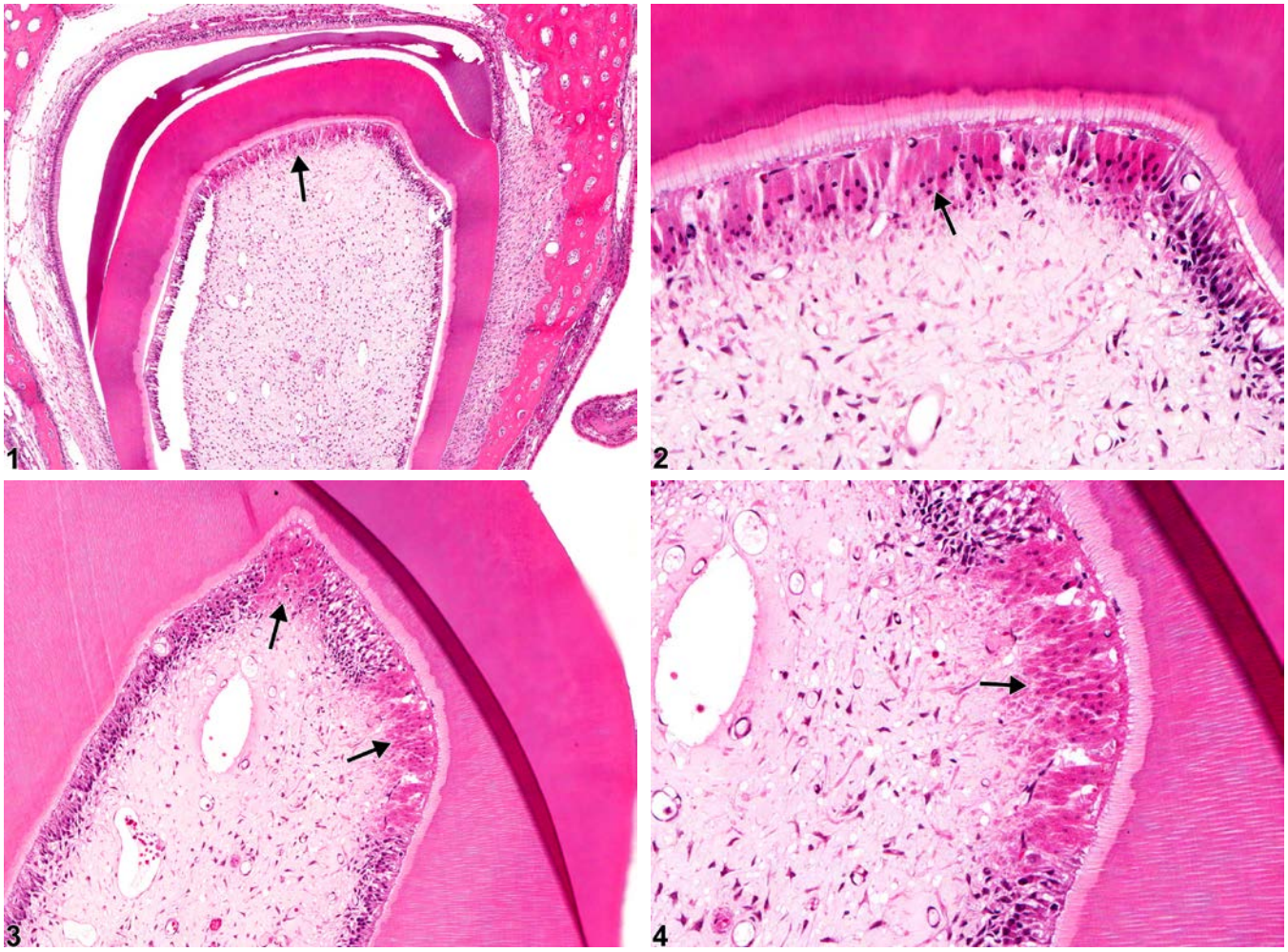
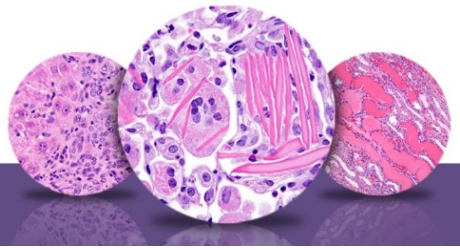


Figure Legend: Figure 1 Tooth, Odontoblast - Necrosis in a female F344/N rat from a subchronic study. The odontoblasts lining the dorsal tooth pulp are necrotic (arrow). **Figure 2** Tooth, Odontoblast - Necrosis in a female F344/N rat from a subchronic study (higher magnification of Figure 1). The odontoblasts lining the dorsal tooth pulp have eosinophilic cytoplasm and pyknotic nuclei (arrow) indicative of necrosis. **Figure 3** Tooth, Odontoblast - Necrosis in a female F344/N rat from a subchronic study. There are 2 regions with necrotic odontoblasts (arrows). **Figure 4** Tooth, Odontoblast - Necrosis in a female F344/N rat from a subchronic study (higher magnification of Figure 3). The odontoblasts have eosinophilic cytoplasm and pyknotic or faded nuclei (arrow) indicative of necrosis.

Comment: Odontoblast necrosis is characterized by loss of odontoblasts and odontoblasts with highly eosinophilic cytoplasm and shrunken and/or faded nuclei (Figure 1, Figure 2, Figure 3, and Figure 4,



arrows). Odontoblast necrosis due to chemical exposure has been observed in NTP studies. The proposed mechanism of necrosis was infarction secondary to thrombosis of pulp vessels. Inflammation in the pulp can also result in ischemic necrosis due to increased pressure in the tooth pulp from tissue swelling within the confines of the dentin, which limits the degree of swelling that can occur. In addition, the development of collateral blood supply within the pulp is limited because blood vessels supplying the pulp must enter the tooth through the apex of the tooth. Inflammation of the tooth pulp with odontoblast necrosis can be an incidental lesion in rodents.

Recommendation: Odontoblast necrosis should be diagnosed and graded based on the extent of the lesion. If the odontoblast necrosis is secondary to thrombosis of vessels in the tooth pulp, necrosis should be diagnosed (as opposed to infarct), and the suspected pathogenesis should be thoroughly discussed in the pathology narrative. Associated inflammation should not be diagnosed separately unless it is severe enough to warrant a separate diagnosis. If the inflammation is the primary lesion and the cause of the odontoblast necrosis, the inflammation should be diagnosed, and the pathologist will need to use his or her judgment in determining whether the odontoblast necrosis should also be diagnosed. If the odontoblast necrosis is not diagnosed, it should be described in the pathology narrative.

References:

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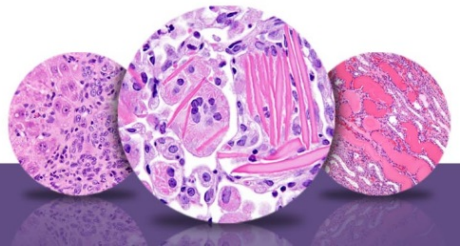

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