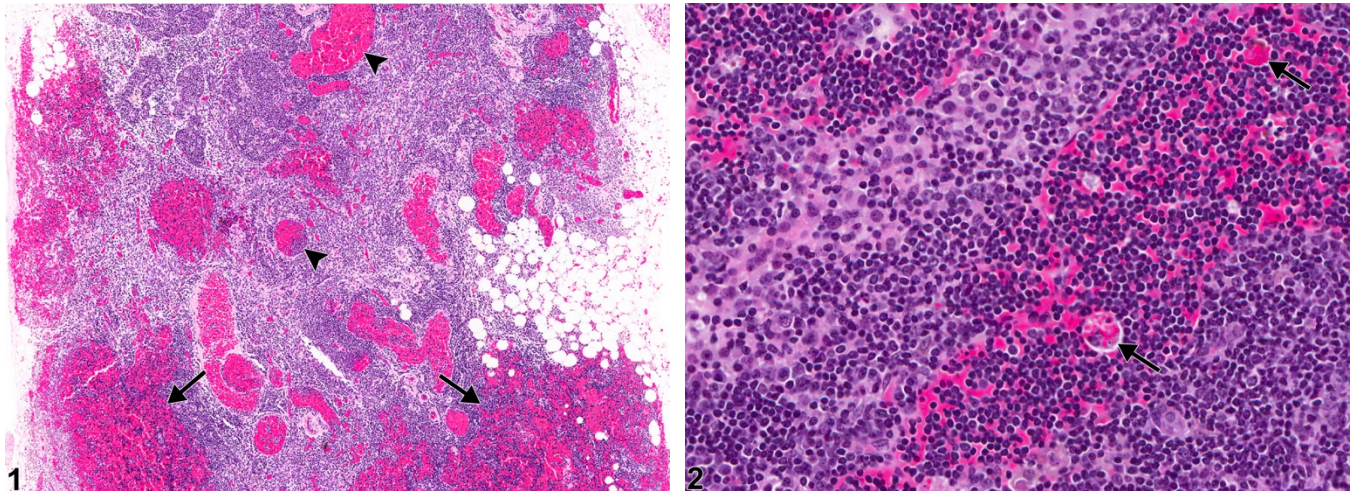




# NTP Nonneoplastic Lesion Atlas

## Thymus – Hemorrhage



**Figure Legend:** **Figure 1** Thymus - Hemorrhage in a male F344/N rat from a chronic study. Multifocal to coalescing areas of hemorrhage are present within this involuted thymus (arrows). Numerous vessels are also congested (arrowheads). **Figure 2** Thymus - Hemorrhage in a female B6C3F1/N mouse from a chronic study. Macrophages with intracytoplasmic erythrocytes (erythrophagocytosis) (arrows) are associated with the hemorrhage.

**Comment:** Hemorrhage is characterized by the presence of extravasated erythrocytes within the thymic parenchyma (Figure 1, arrows). Hemorrhage can be seen in the cortex and/or medulla of the thymus of rodents and may be an agonal change. In the absence of necrosis or other lesions such as erythrophagocytosis (Figure 2, arrows) or pigment-laden macrophages, hemorrhage in the thymus may be attributed to necropsy technique (iatrogenic) and considered a dissection-induced artifact and not the result of a vascular lesion. However, thymic hemorrhage can occur with some vitamin deficiencies, so diet should be a consideration. Hemorrhage should be distinguished from congestion, where the blood is contained with well-defined vascular spaces lined by endothelial cells.

**Recommendation:** Hemorrhage in the thymus that is not attributed to necropsy technique should be diagnosed and graded. Hemorrhage that is considered to be secondary to necrosis, inflammation, or neoplasia should not be diagnosed separately unless warranted by severity, but should be described in the pathology narrative.



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## *Thymus – Hemorrhage*

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