



NTP Nonneoplastic Lesion Atlas

Parathyroid Gland – Hyperplasia, Diffuse

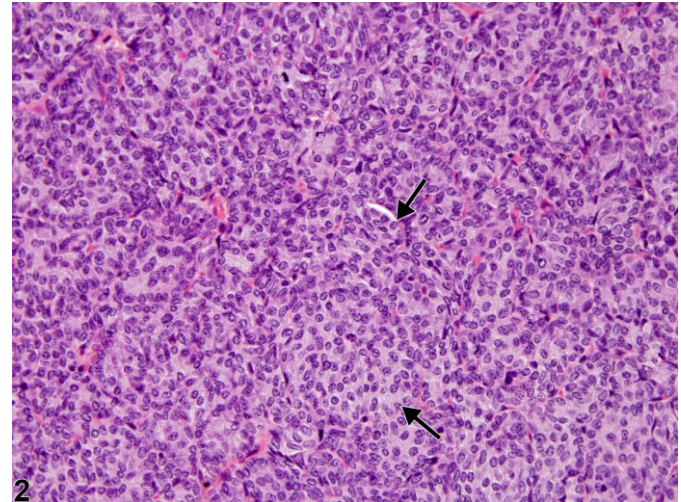
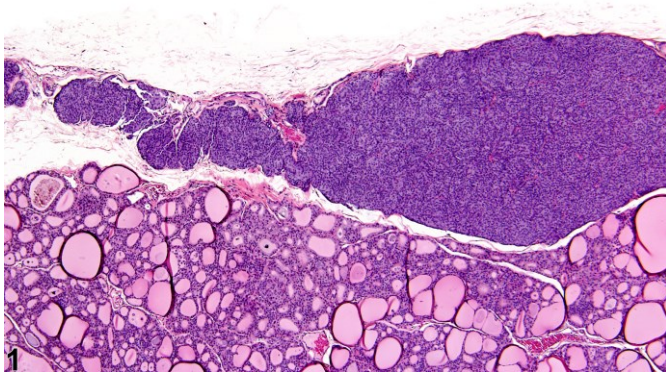
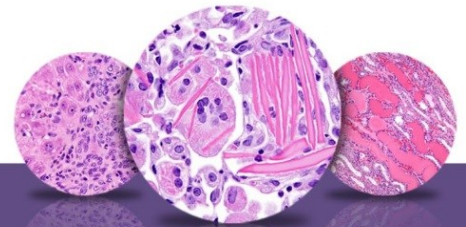


Figure Legend: **Figure 1** Parathyroid gland - Hyperplasia, Diffuse in a male F344/N rat from a chronic study. The parathyroid gland is increased in volume. **Figure 2** Parathyroid gland - Hyperplasia, Diffuse in a male F344/N rat from a chronic study. Enlarged nests of mildly hypertrophic parathyroid chief cells (arrows) have an increased cytoplasmic-to-nuclear ratio, and the intervening fibroreticular stroma is less apparent than normal.

Comment: Parathyroid hyperplasia can be focal or diffuse and occurs in low incidence in rats and rarely in mice. Diffuse hyperplasia may be associated with renal failure and long-term dietary imbalance of calcium and/or phosphorus and is usually bilateral. Diffuse hyperplasia presents as a uniform increase in cellularity due to combined hypertrophy and hyperplasia. With diffuse hyperplasia, the normal cellular nests and cords are altered, with increased size of hyperplastic nests being most obvious. Severe hyperplasia will usually result in a grossly enlarged parathyroid but may be difficult to determine histologically if the tissue in the histologic sections is not well sampled. Distinction from parathyroid adenoma is based on the adenoma appearing as a discrete expansile lesion, usually unilateral, within the gland and with compression of adjacent parenchyma.

Recommendation: Hyperplasia should be diagnosed and given a severity grade whenever observed. If both parathyroids are involved, the diagnosis should be qualified as bilateral and the severity grade should be based on the more severely affected gland. If the pathologist feels the hyperplasia is associated with renal disease, it should be noted in the pathology narrative. Other lesions that may be



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associated with the hyperplasia, such as gastric or renal mineralization, should also be commented on in the pathology narrative.

References:

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Rosol TJ, Capen CC. 1989. Tumors of the parathyroid gland and circulating parathyroid hormone-related protein associated with persistent hypercalcemia. *Toxicol Pathol* 17:346-356.

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