



NTP Nonneoplastic Lesion Atlas

Stomach, Forestomach – Hyperkeratosis

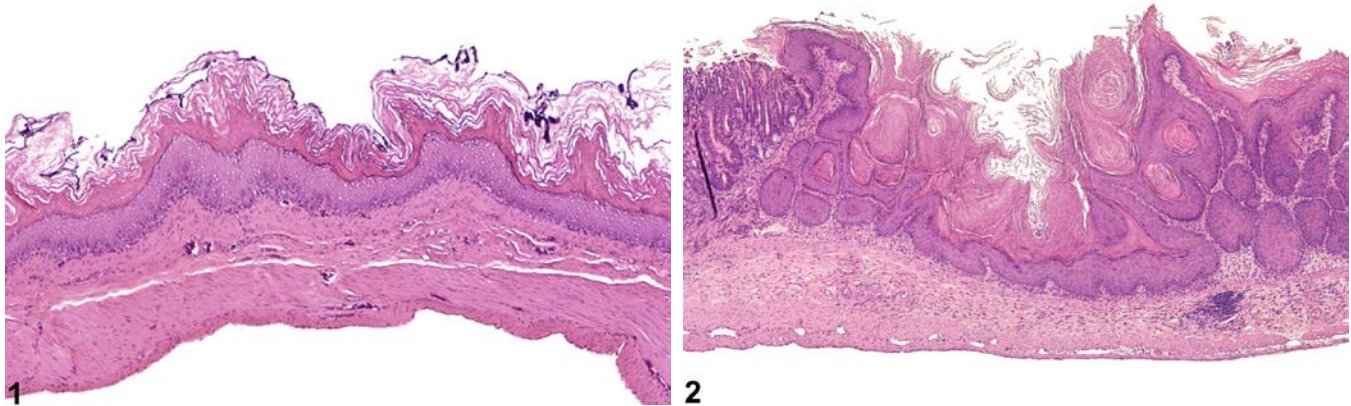


Figure Legend: **Figure 1** Stomach, Forestomach - Hyperkeratosis in a male F344/N rat from a subchronic study. A thickened keratin layer in the forestomach associated with epithelial hyperplasia. **Figure 2** Stomach, Forestomach - Hyperkeratosis in a male B6C3F1 mouse from a chronic study. A thickened keratin layer in the forestomach associated with epithelial hyperplasia.

Comment: Hyperkeratosis is defined as thickening of the stratum corneum. It occurs in two forms: orthokeratotic or parakeratotic hyperkeratosis. In orthokeratotic hyperkeratosis (also referred to as orthokeratosis) squamous epithelial cells are anuclear, whereas in parakeratotic hyperkeratosis (also referred to as parakeratosis) the squamous epithelial cells have retained pyknotic nuclei. Hyperkeratosis frequently accompanies hyperplasia (**Figure 1 and Figure 2**). Hyperkeratosis in the absence of hyperplasia should be diagnosed. It is a feature commonly present in anorectic rodents and has interpretative implications different from those of hyperkeratosis occurring as part of the process of enhanced epithelial proliferation. In the anorectic rodent, the excess keratin is presumably the result of reduced mechanical removal by the passage of food. In cases of hyperkeratosis in the forestomach associated with anorexia, hyperkeratosis is usually also present in the esophagus.

Recommendation: If hyperkeratosis is present without epithelial hyperplasia, then the hyperkeratosis should be diagnosed and graded. The severity grade should be based on the thickness of the keratin layer and the amount of surface area involved. If the hyperkeratosis accompanies epithelial hyperplasia, the hyperkeratosis is not diagnosed separately unless it is a prominent component of the lesion. If the hyperkeratosis is not diagnosed separately, it should be described in the pathology



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narrative. Hyperkeratosis is not subdivided into orthokeratosis or parakeratosis in the diagnosis, but the lesion should be well described in the narrative.

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Abstract: <http://ntp.niehs.nih.gov/go/11305>

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