



NTP Nonneoplastic Lesion Atlas

Nose, Steno's Glands – Degeneration

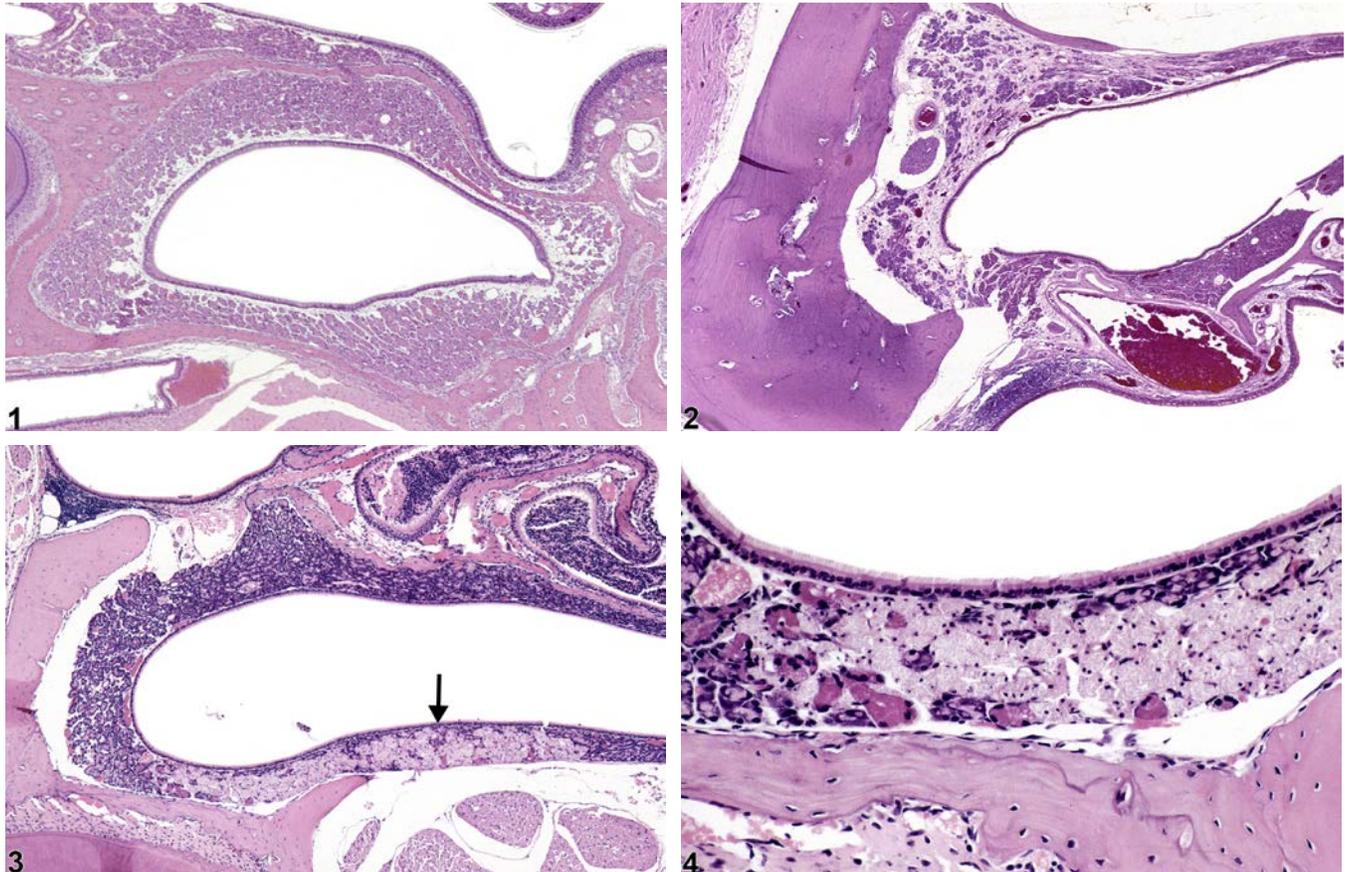


Figure Legend: **Figure 1** Nose, Steno's glands - Normal in a male F344/N rat from a chronic study. Normal Steno's glands are shown for comparison with Figures 2-4. **Figure 2** Nose, Steno's glands - Atrophy in a male F344/N rat from a chronic study. There is generalized loss of glandular acini in the Steno's glands. **Figure 3** Nose, Steno's glands - Atrophy in a male B6C3F1/N mouse from a subchronic study. Focal atrophy is characterized by a localized loss of glandular acini (arrow). **Figure 4** Nose, Steno's glands - Atrophy in a male B6C3F1/N mouse from a subchronic study (higher magnification Figure 3). There is loss of cells in the Steno's Gland acini, with morphology suggestive of apoptosis.

Comment: Steno's glands, also called the lateral nasal glands, surround the maxillary sinuses and extend into the lateral wall (Figure 1). The ducts of these glands empty into the nasal vestibule. Focal atrophy can be seen as an aging change in mice, but this is rare. Steno's glands are known to have



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high metabolic capacity and can be targeted by certain chemicals. Atrophy, the end product of cell loss due to necrosis, apoptosis, or degeneration, manifests as the absence or a decrease in number of glands, or shrunken glands (Figure 2, Figure 3, and Figure 4). Often, the glandular ducts remain. The space left by the loss or shrinkage of the glands may simply contain the normal extracellular matrix, or the glands may be replaced by fibrosis. Necrosis of Steno's glands is characterized by the presence of pyknotic nuclei, cytoplasmic eosinophilia, indistinct cell outlines, or exfoliation of cells and cellular debris. Degeneration, which is considered to be reversible form of cell damage, is characterized by cell blebbing, cellular disorientation, cellular eosinophilia, swelling, loss of cell-to-cell contact, or vacuolar changes within the epithelium and also may be accompanied by inflammation. Degeneration and necrosis may be accompanied by inflammation.

Recommendation: Whenever present, degeneration, necrosis, and atrophy of Steno's glands should be diagnosed and assigned a severity grade. Atrophy of Steno's glands should be diagnosed when the amount of Steno's gland tissue is decreased but there is little evidence of degeneration, necrosis, or inflammation. If the features of degeneration or necrosis described above are present, then the diagnosis should be recorded as such. If inflammation is present concurrently, it should not be diagnosed separately unless warranted by its prominence or severity, but should be described in the pathology narrative.

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