Nose, Nerve – Atrophy

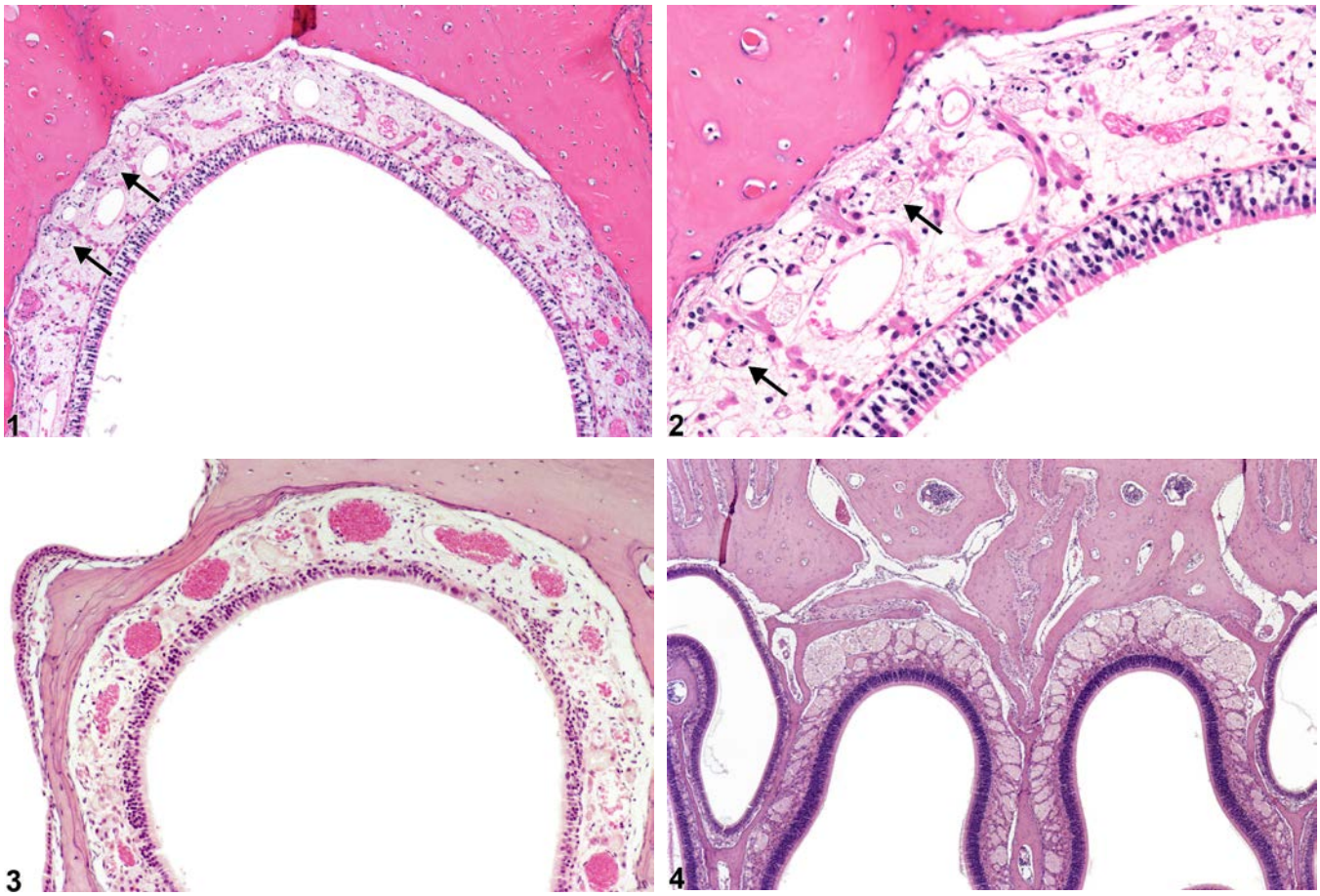
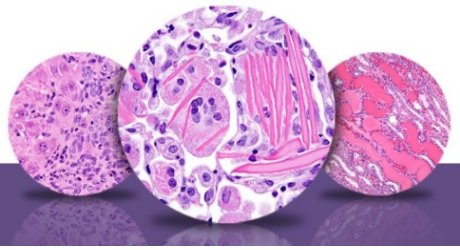


Figure Legend: **Figure 1** Nose, Nerve - Atrophy in a female F344/N rat from a subchronic study. The olfactory nerves in the lamina propria are small and decreased in number (arrows), and there is loss of cells in the olfactory epithelium. **Figure 2** Nose, Nerve - Atrophy in a female F344/N rat from a subchronic study (higher magnification of Figure 1). The olfactory nerves in the lamina propria are decreased in size and number (arrows), and there is loss of cells in the olfactory epithelium. **Figure 3** Nose, Nerve - Atrophy in a male B6C3F1/N mouse from a chronic study. No olfactory nerves remain in the lamina propria. **Figure 4** Nose, Nerve - Normal in a female B6C3F1/N mouse from a chronic study. Normal size and number of olfactory nerves are shown for comparison with Figure 3.

Comment: The olfactory nerves in the lamina propria are bundles of axons from the olfactory neurons whose cell bodies lie in the olfactory epithelium. These nerves are unmyelinated and traverse openings in the ethmoid bone and terminate at the olfactory bulbs. The lesion is characterized by decreased size



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and number, or complete loss in severe cases (Figure 3), of the olfactory nerves. Atrophy of the olfactory nerves (Figure 1, Figure 2, and Figure 3; compare with normal control in Figure 4) is secondary to loss of olfactory nerve cells from the olfactory epithelium or to damage to the olfactory bulb of the brain. It is most commonly the result of loss of olfactory neurons in the olfactory epithelium, so the lesion almost always accompanies changes in the olfactory epithelium, such as atrophy or respiratory metaplasia. Since these lesions are usually part of a larger spectrum of lesions in the nasal cavity, inflammation and changes to the respiratory epithelium are often present as well.

Recommendation: Olfactory nerve atrophy should be diagnosed as “Nose, Nerve - Atrophy” whenever present. It should be graded based on the size and number of affected olfactory nerves. Other lesions, including olfactory epithelial atrophy or respiratory metaplasia, should be diagnosed separately. Observation of this lesion should prompt close examination of the olfactory lobe of the brain.

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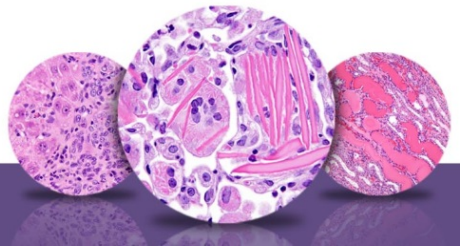

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