

NTP Nonneoplastic Lesion Atlas

Eye, Optic Nerve – Gliosis

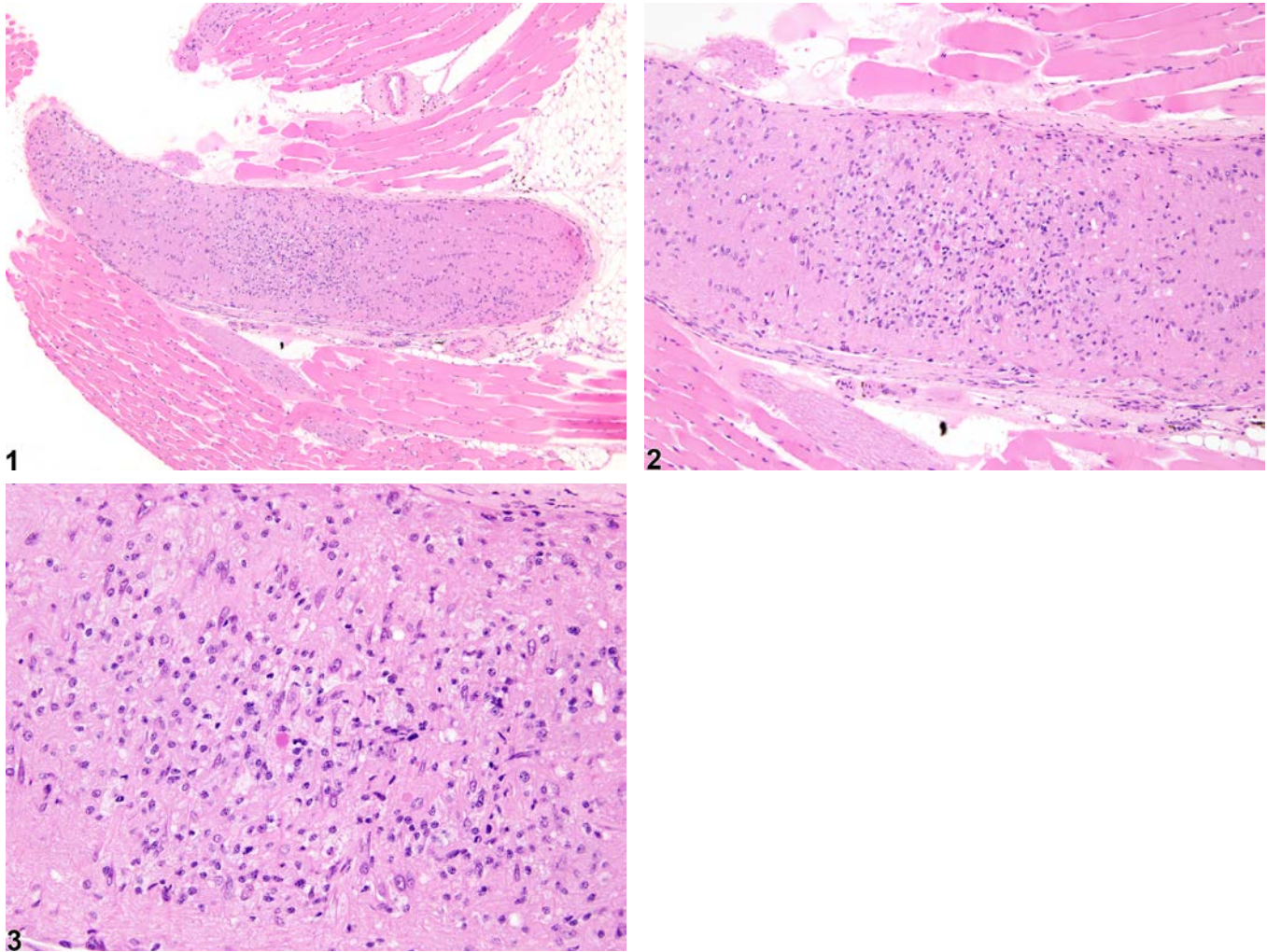


Figure Legend: **Figure 1** Eye, Optic nerve - Gliosis in a male B6C3F1 mouse from a chronic study. There is a diffuse increase in number of glial cells in the optic nerve. **Figure 2** Eye, Optic nerve - Gliosis in a male B6C3F1 mouse from a chronic study (higher magnification of Figure 1). The optic nerve contains increased numbers of glial cells. **Figure 3** Eye, Optic nerve - Gliosis in a male B6C3F1 mouse from a chronic study (higher magnification of Figure 1). There are increased numbers of glial cells in the optic nerve.

Comment: Glial cell proliferation and/or activation (gliosis) in the optic nerve usually occurs as a reactive change associated with optic nerve degeneration. It has various causes, such as trauma or increased intraocular pressure, and is characterized by focal to diffuse increases in the numbers of glial



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cells (Figure 1, Figure 2, and Figure 3). The increased glial cell populations can consist of astrocytes, oligodendrocytes, and/or microglia. Proliferating astrocytes can exhibit a reactive phenotype, with increased cytoplasmic volume, thicker cell processes, and larger, more vesicular nuclei. They also become more metabolically active. Reactive oligodendrocytes and microglia also undergo morphologic and metabolic changes. Focal accumulations of reactive astrocytes, connective tissues elements, and other glial cells are sometimes referred to as “glial scars.”

Recommendation: Optic nerve gliosis should be diagnosed and assigned a severity grade. The presence of optic nerve gliosis should prompt careful examination of the retina (especially the ganglion cell and nerve fiber layers) for concurrent pathology. Associated lesions, such as optic nerve degeneration, should be diagnosed separately.

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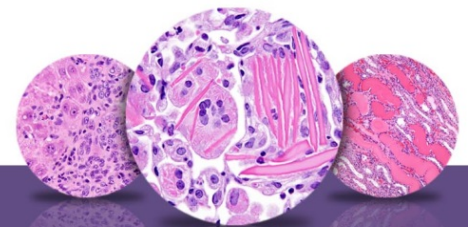
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