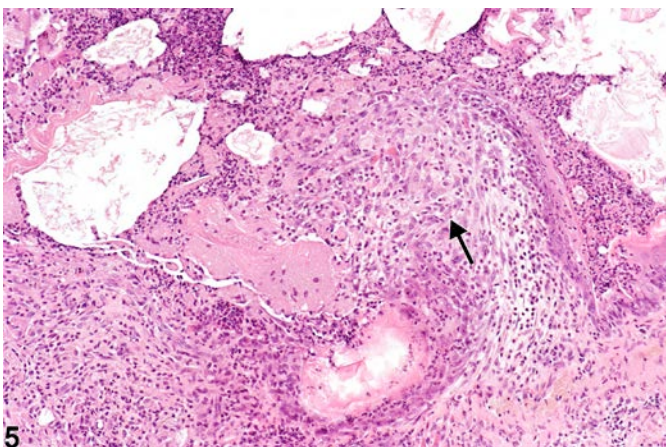
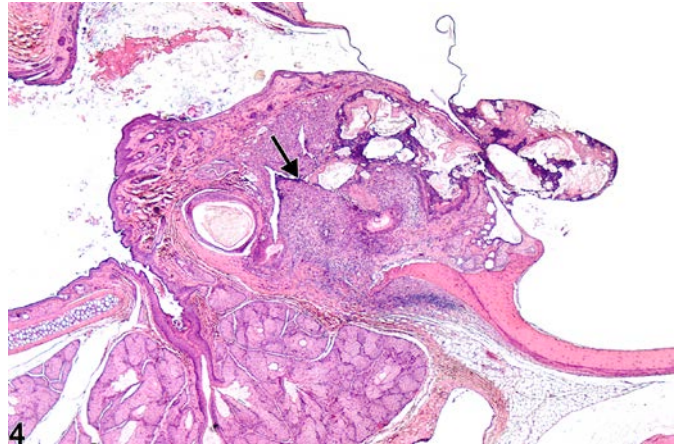
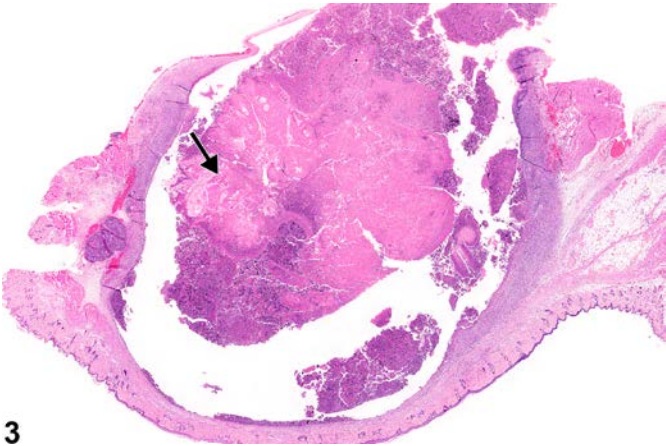
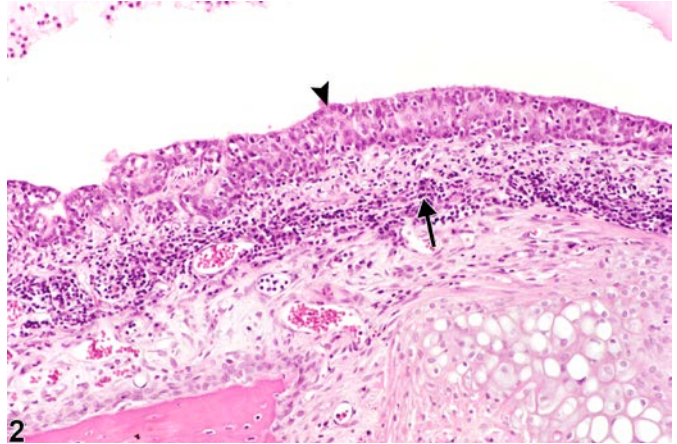
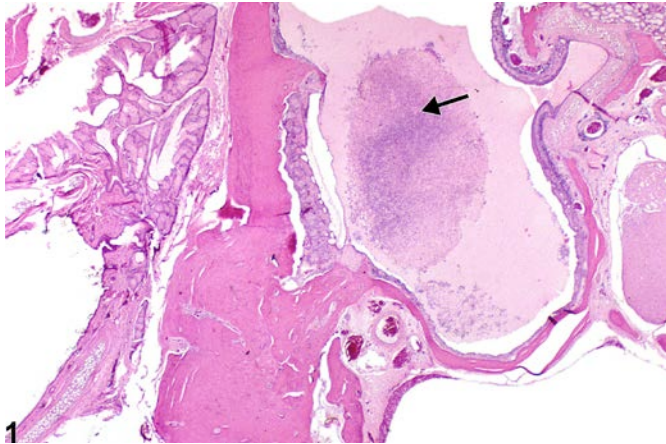




NTP Nonneoplastic Lesion Atlas

Ear – Inflammation





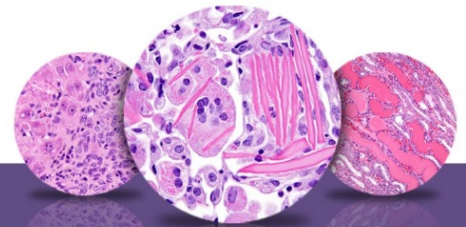
NTP Nonneoplastic Lesion Atlas

Ear – Inflammation

Figure Legend: **Figure 1** Ear - Inflammation, Acute in a male Fischer 344/N rat from a chronic study. There is predominantly neutrophilic infiltrates in the epithelium and lamina propria and abundant neutrophils and proteinaceous fluid in the external ear canal (arrow). **Figure 2** Ear - Inflammation, Chronic active in a male Fischer 344/N rat from a chronic study. There are neutrophils and mononuclear cells in the lamina propria (arrow) extending into the hyperplastic epithelium (arrowhead) lining the tympanic cavity. **Figure 3** Ear - Inflammation, Suppurative in a male F344/N rat from a chronic study. There is intraluminal necrotic debris and neutrophils (arrow); epithelial necrosis with denudation and neutrophil infiltration of the lamina propria is also present. **Figure 4** Ear - Inflammation, Chronic in a female Fischer/344N rat from a chronic study. There are macrophages and mononuclear cells in the lamina propria (arrow) with stromal fibrosis in the wall of the external ear canal and tympanic cavity. **Figure 5** Ear - inflammation, chronic in a female Fischer/344N rat from a chronic study (higher magnification of Figure 4). The inflammatory cells and fibrosis in the wall of the external ear canal are shown in greater detail.

Comment: Inflammation of various ear regions can result from many causes, including infectious agents; foreign bodies; topically applied irritants, and systemic toxins. Chronic inflammation of the ear with accumulation of fluid, cerumen, and cellular debris in the ear canal can result in cystic dilation of the ear canal (see Ear canal - Dilation).

In NTP studies, there are five standard categories of inflammation: acute, suppurative, chronic, chronic-active, and granulomatous. In acute inflammation, the predominant infiltrating cell is the neutrophil, though fewer macrophages and lymphocytes may also be present. There may also be evidence of edema or hyperemia. The neutrophil is also the predominant infiltrating cell type in suppurative inflammation, however, in suppurative inflammation, the neutrophils are aggregated and many of them are degenerate (suppurative exudate). Cell debris, both from the resident cell populations and infiltrating leukocytes, proteinaceous fluid containing fibrin, fewer macrophages, occasional lymphocytes or plasma cells, and, possibly, an infectious agent may also be present in within the exudate. Grossly, these lesions would be characterized by the presence of pus. In the tissue surrounding the exudate, there may be fibroblasts, fibrous connective tissue, and mixed inflammatory cells, depending on the chronicity of the lesion. Lymphocytes predominate in chronic inflammation. Lymphocytes also predominate in chronic-active inflammation, but in chronic-active inflammation, there



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are also a significant number of neutrophils. Both lesions may contain macrophages. Granulomatous inflammation is another form of chronic inflammation, but this diagnosis requires the presence of a significant number of aggregated, large, activated macrophages, epithelioid macrophages, or multinucleated giant cells.

Recommendation: Inflammation of the ear should be diagnosed and graded. The type of inflammation (e.g., acute or chronic active) should be indicated in the diagnosis as a qualifier. Similarly, the location of the lesion within the ear should be indicated with an appropriate site modifier (external ear or middle ear). Findings considered secondary (cyst, epithelial hyperplasia, etc.) should not be diagnosed separately unless warranted by severity. Secondary lesions not diagnosed separately should be described in the pathology narrative.

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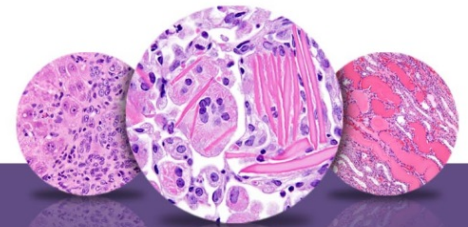
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