Epididymis – Inflammation, [Acute, Suppurative, Chronic, Chronic-active, Granulomatous]

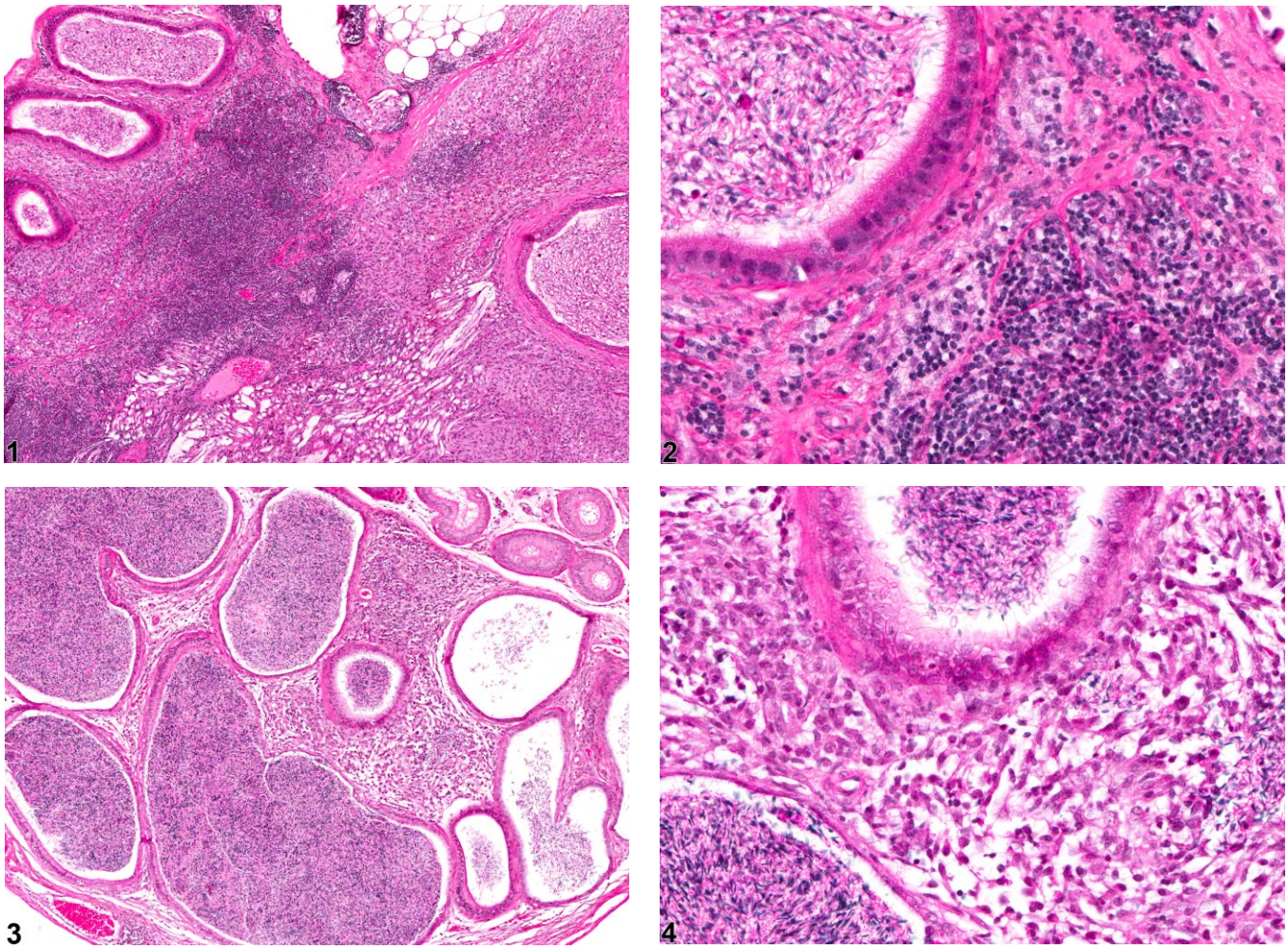
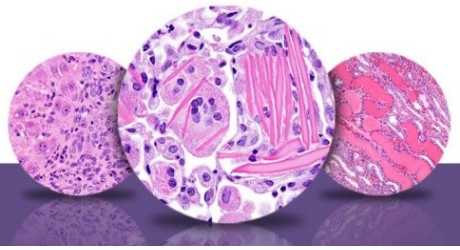


Figure Legend: Figure 1 Epididymis - Inflammation. Chronic inflammation with lymphoid aggregates in the epididymis in a male B6C3F1 mouse from a chronic study. **Figure 2** Epididymis - Inflammation. Higher magnification of Figure 1. Chronic inflammation with lymphoid aggregates in the epididymis in a male B6C3F1 mouse from a chronic study. **Figure 3** Epididymis - Inflammation. A primarily mononuclear infiltration has enlarged the interstitium between duct profiles in a male B6C3F1 mouse from a chronic study. **Figure 4** Epididymis - Inflammation. Higher magnification of Figure 3 showing mononuclear inflammatory cells between duct profiles in a male B6C3F1 mouse from a chronic study.



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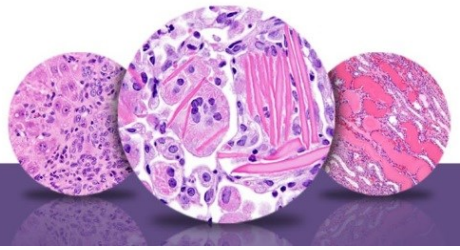
Comment: Inflammation generally occurs in response to tissue injury and breakdown of the blood-epididymal barrier, resulting in focally extensive or diffuse infiltration of the ductular lumen, the epithelium, and/or the interstitium with inflammatory cells and possibly edema. The inflammation may be predominantly acute, with a significant neutrophil component, or chronic, with lymphoid aggregates (Figure 1 and Figure 2). If the inflammatory response comprises a granulomatous reaction surrounding a core of sperm, the term “sperm granuloma” is more appropriate (also see Epididymis - Sperm Granuloma). Inflammation is an uncommon incidental finding but may occur as a sequel to chemically induced epididymal degeneration (e.g., methyl chloride).

NTP studies have 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*, but they are aggregated, and many of them are degenerate (suppurative exudate). Cell debris from both 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 the exudate. Grossly, these lesions would be characterized by the presence of pus. The tissue surrounding the exudate may have 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 there 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: The term “inflammation” should be reserved for cases where there is associated evidence of tissue injury. Inflammation should be recorded and graded and should be discussed in the pathology narrative if the incidence and/or severity appears to be related to chemical administration. A modifier may be used to characterize the predominant cell type. If both epididymides are affected, the diagnosis should be clarified as bilateral and the severity score based on the more severely affected



epididymis. Correlation with disturbances in other male reproductive organs is recommended to aid interpretation.

References:

Atanassova N, McKinnell C, Fisher J, Sharpe RM. 2005. Neonatal treatment of rats with diethylstilbestrol (DES) induces stromal-epithelial abnormalities of the vas deferens and cauda epididymis in adulthood following delayed basal cell development. Reproduction 129:589-601.
Abstract: http://www.ncbi.nlm.nih.gov/pubmed/15855622

Chapin RE, White RD, Morgan KT, Bus JS. 1984. Studies of lesions induced in the testis and epididymis of F-344 rats by inhaled methyl chloride. Toxicol Appl Pharmacol 76:328-343.
Abstract: http://www.ncbi.nlm.nih.gov/pubmed/6388032

Chellman GJ, Morgan KT, Bus JS, Working PK. 1986. Inhibition of methyl chloride toxicity in male F-344 rats by the anti-inflammatory agent BW-755C. Toxicol Appl Pharmacol 85:365-379.
Abstract: http://www.ncbi.nlm.nih.gov/pubmed/3094195

Creasy D, Bube A, de Rijk E, Kandori H, Kuwahara M, Masson R, Nolte T, Reams R, Regan K, Rehm S, Rogerson P, Whitney K. 2012. Proliferative and nonproliferative lesions of the rat and mouse male reproductive system. Toxicol Pathol 40:40S-121S.
Abstract: http://www.ncbi.nlm.nih.gov/pubmed/22949412

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