



NTP Nonneoplastic Lesion Atlas

Epididymis, Epithelium – Vacuolation

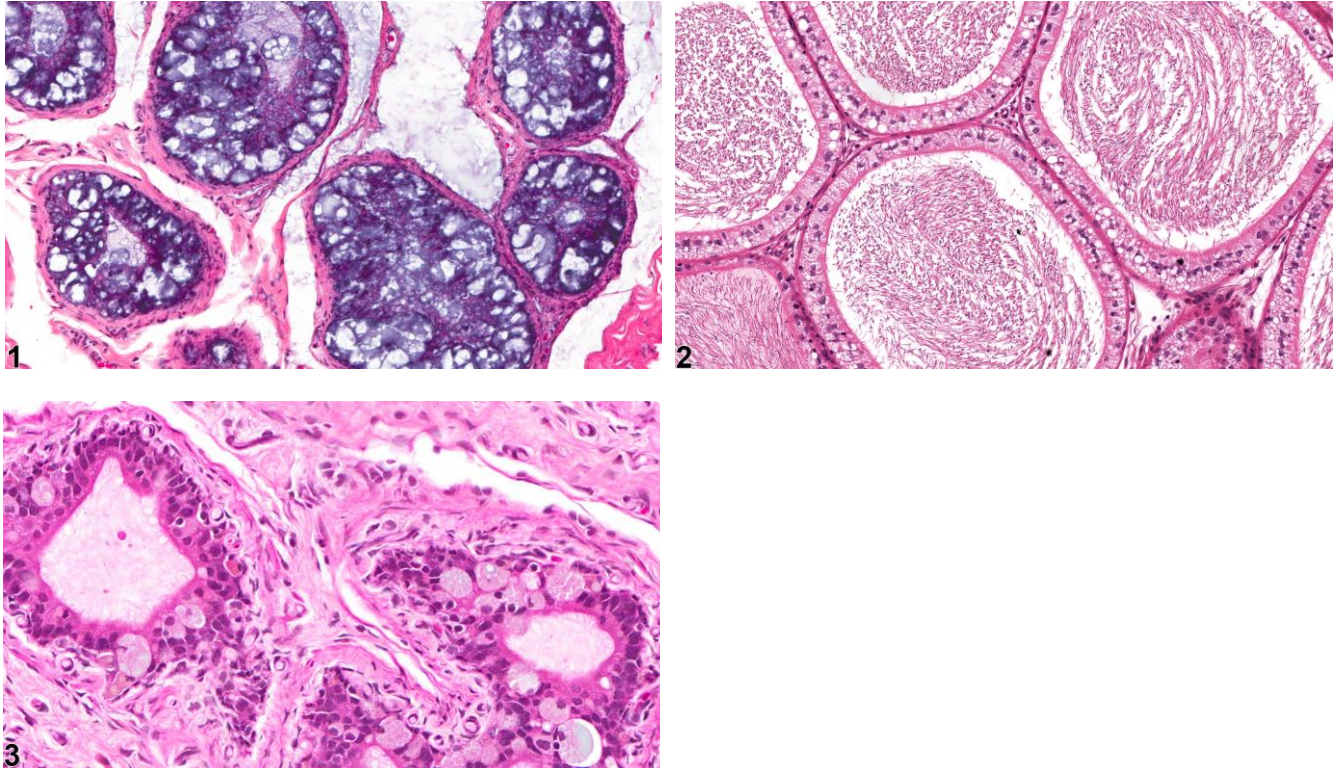


Figure Legend: **Figure 1** Epididymis, Epithelium - Vacuolation. Numerous macrovesicular cytoplasmic vacuoles are present in the ductal epithelium in a male F344/N rat from a chronic study. **Figure 2** Epididymis, Epithelium - Vacuolation. Microvesicular vacuolation is present in the epididymal duct cells of a rat. (Photograph courtesy of D. Creasy.) **Figure 3** Epididymis, Epithelium - Clear cells. Clear cells in a male F344/N rat from a chronic study. Clear cells are a normal cell type responsible for endocytosis of luminal particulate matter and should not be confused with degenerative cytoplasmic vacuolation.

Comment: The epididymal epithelium develops many different forms of vacuolation. They are often segmental and region specific. The vacuolation may be the result of a number of degenerative processes, including the accumulation of lipids, phospholipids (phospholipidosis), glycoproteins, or fluids. The vacuoles may be or large (macrovacuolation, Figure 1) or small (microvacuolation, Figure 2) and may appear empty or filled with basophilic or eosinophilic material. Basophilic vacuolation is a common age-related, background finding in a specific segment of the distal caput region of the rat (Figure 1). Large clear vacuoles are frequently seen as an incidental finding at the corpus cauda



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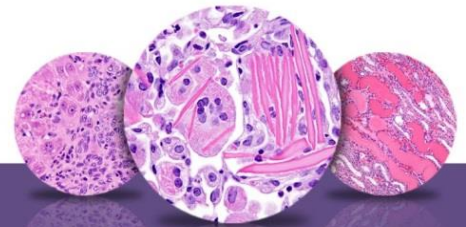
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junction in the rat epididymis. Vacuolation of the epididymis can also be test article related and may be diffuse or segmental. Clear cells are a normal cell type of the epididymal epithelium involved in endocytosis of luminal particulate matter. They are often increased in number and prominence, particularly in the cauda, when there is increased cell debris in the epididymal lumen (Figure 3). Care should be taken to distinguish these normal clear cells from degenerative vacuolar changes. The distinction can be made since clear cells are filled with lysosomes that stain strongly positive with Periodic acid-Schiff.

Recommendation: Vacuolation of the epithelium 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. The type and location of the vacuolation should be noted if it appears specific and noteworthy. Diagnosis should indicate if the change is bilateral. Correlation with disturbances in other male reproductive organs is recommended to aid interpretation.

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