Testis, Seminiferous tubule – Giant cells

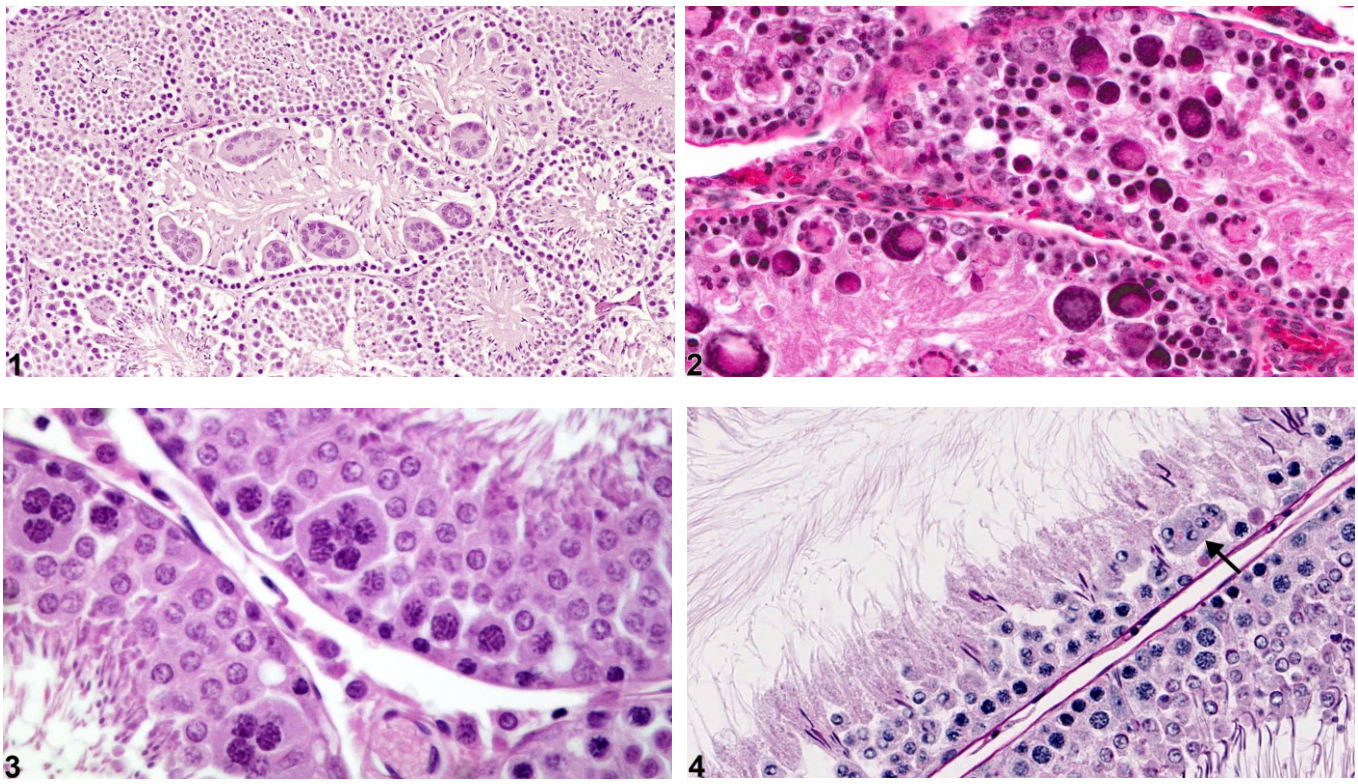


Figure Legend: Figure 1 Testis, Seminiferous tubule - Giant cells in a male B6C3F1 mouse from a subchronic study. These cells are associated with germ cell degeneration. **Figure 2** Testis, Seminiferous tubule - Giant cells in a male F344/N rat from a chronic study. These cells are associated with germ cell degeneration. **Figure 3** Testis, Seminiferous tubule - Giant cells in a male Harlan Sprague-Dawley rat. These cells represent spermatocytes that have coalesced into individual syncytial cells. (Photograph courtesy of Dr. D. Creasy.) **Figure 4** Testis, Seminiferous tubule - Giant cells in a male Harlan Sprague-Dawley rat. A multinucleated giant cell (arrow) formed by fusion of round spermatids. (Photograph courtesy of Dr. D. Creasy.)

Comment: Multinucleated giant cells in seminiferous tubules are a specific form of degenerating germ cell, in contrast to nonspecific germ cell degeneration (see “Testis, Germ cell - Degeneration”). The presence of giant cells can be focal or diffuse and may affect one or both testes. Multinucleated giant cells can occasionally be seen as an incidental background lesion. The phenomenon occurs because normal germ cell division is characterized by incomplete cytokinesis, so the progeny of each cell

division are joined to each other by cytoplasmic bridges. During some forms of degeneration, these cytoplasmic bridges can open and allow fusion of the cellular contents of the conjoined cells. Some degree of multinucleated giant cell formation may accompany germinal cell degeneration/atrophy, and if this is the case, they should not be recorded as a separate finding. However, if multinucleated giant cells are present as a dominant feature of a testicular lesion, as in Figure 1 and Figure 2, the finding of "multinucleated giant cells" may be warranted.

Recommendation: Multinucleated giant cells should be diagnosed and graded when they represent the predominant form of germ cell degeneration in a testicular lesion. Bilateral involvement should be recorded when present because unilaterality frequently provides evidence of an incidental lesion. If multinucleated giant cells occur as a minor accompaniment to nonspecific tubular degeneration, they should not be recorded as a separate finding but may be discussed in the pathology narrative.

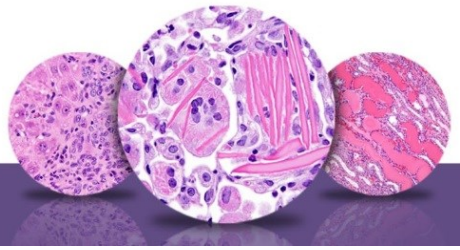
References:

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

Hild SA, Reel JR, Dykstra MJ, Mann PC, Marshall GR. 2007. Acute adverse effects of the indenopyridine CDB-4022 on the ultrastructure of Sertoli cells, spermatocytes, and spermatids in rat testes: Comparison to the known Sertoli cell toxicant di-*n*-pentylphthalate (DPP). J Androl 28:621-629.
Abstract: http://www.ncbi.nlm.nih.gov/pubmed/17409460

MacGregor GR, Russell LD, Van Beek MEAB, Hanten GR, Kovac MJ, Kozak CA, Meisrich ML, Overbeek PA. 1990. Symplastic spermatids (sys): A recessive insertional mutation in mice causing a defect in spermatogenesis. Proc Natl Acad Sci USA 87:5016-5020.
Abstract: http://www.ncbi.nlm.nih.gov/pubmed/2164218

Russell LD, Hikim AP, Overbeek PA, MacGregor GR. 1991. Testis structure in the sys (symplastic spermatids) mouse. Am J Anat 192:169-182.
Abstract: http://www.ncbi.nlm.nih.gov/pubmed/1759682



Testis, Seminiferous tubule – Giant cells

Authors:

Dianne M. Creasy, PhD, Dip RCPath, FRCPath
Dianne Creasy Consulting LLC
Pipersville, PA

Robert R. Maronpot, DVM, MS, MPH, DACVP, DABT, FIATP
Senior Pathologist
Experimental Pathology Laboratories, Inc.
Research Triangle Park, NC

Dipak K. Giri, DVM, PhD, DACVP
Toxicologic Pathologist
Integrated Laboratory Systems, Inc.
Research Triangle Park, NC