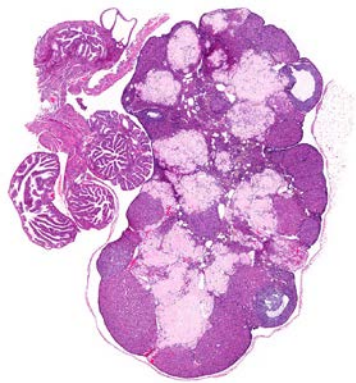
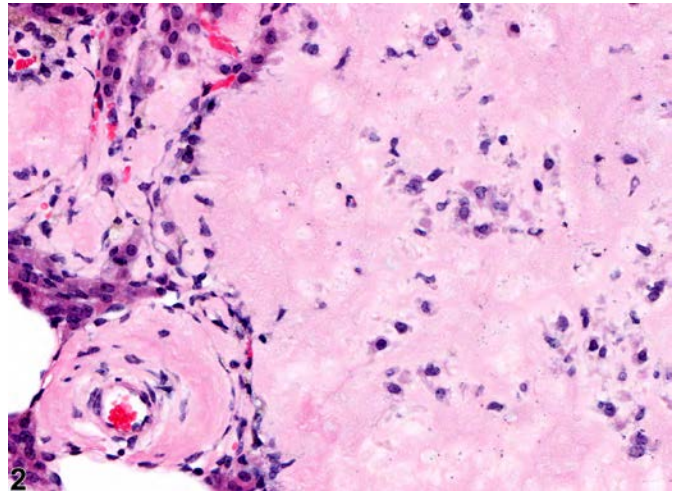


NTP Nonneoplastic Lesion Atlas

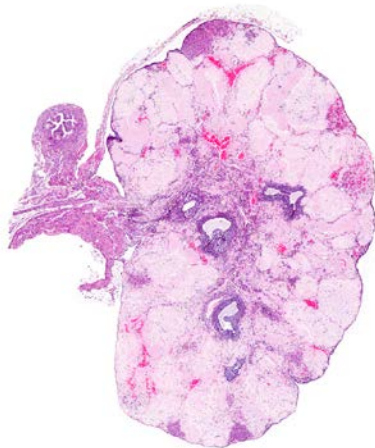
Ovary – Amyloid



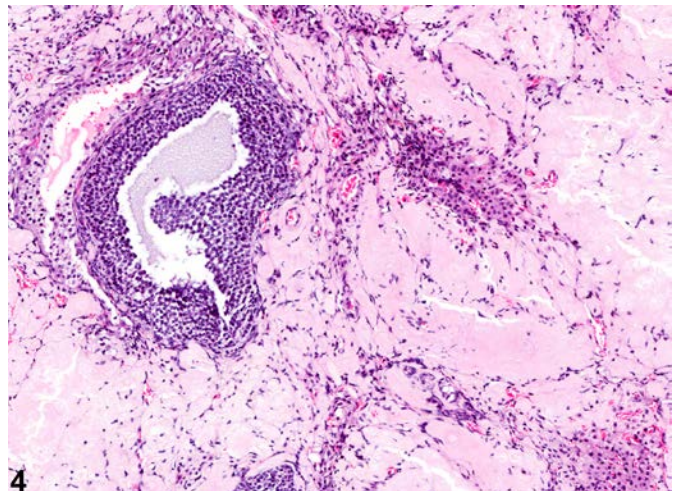
1



2

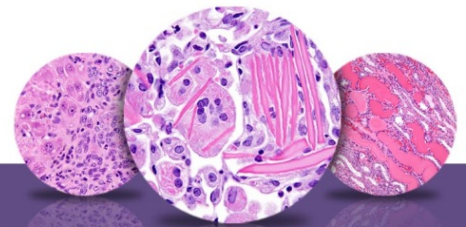


3



4

Figure Legend: **Figure 1** Ovary - Amyloid in a female Swiss CD-1 mouse from a chronic study. There are prominent deposits of pale amyloid. **Figure 2** Ovary - Amyloid in a female Swiss CD-1 mouse from a chronic study (higher magnification of Figure 1). There are extensive deposits of pale-staining material in the interstitium of the ovary and artery wall. **Figure 3** Ovary - Amyloid in a female Swiss CD-1 mouse from a chronic study. Extensive deposits of pale-staining material are present throughout the ovarian parenchyma. **Figure 4** Ovary - Amyloid in a female Swiss CD-1 mouse from a chronic study (higher magnification of Figure 3). There is extensive deposition of amyloid in the parenchyma of the ovary.



NTP Nonneoplastic Lesion Atlas

Ovary – Amyloid

Comment: Amyloid in the ovary is characterized the deposition of homogeneous, acellular, eosinophilic glassy material (Figure 1, Figure 2, Figure 3, and Figure 4). Deposits occur primarily in the corpora lutea and in the walls of medium-sized arteries (Figure 2). In more severe cases, amyloid deposits replace almost all of the parenchymal tissue (Figure 3 and Figure 4). Deposition of amyloid during senescence occurs at increased incidences in several strains of mice, such as Cd-1, A, SJL, or C57BL; however, it is uncommon in B6C3F1 mice and rats. Amyloidosis is a complex condition due to tissue deposition of misfolded proteins, with the most common type being immunoglobulin light-chain proteins. Increased severity and incidence of amyloidosis may occur in association with aging and/or with chronic inflammatory conditions such as ulcerative dermatitis. Amyloid shows a green birefringence under polarized light when stained with Congo red dye.

Recommendation: Ovary - Amyloid should be diagnosed and graded whenever present. The pathologist should describe this lesion in the narrative and comment on how the amyloid affects the results of the study. Lesions occurring secondary to amyloid deposition should not be diagnosed separately, unless warranted by severity, but should be described in the pathology narrative.

References:

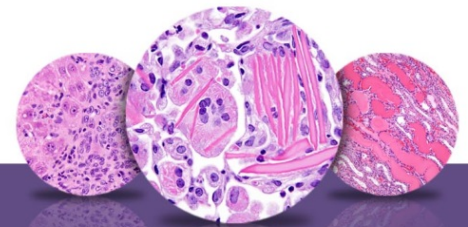
Alison RH, Morgan KT, Montgomery CA. 1990. Ovary. In: Pathology of the Fischer Rat: Reference and Atlas (Boorman GA, Eustis SL, Elwell MR, Montgomery CA, MacKenzie WF, eds). Academic Press, San Diego, CA, 429-442.

Cohen-Krausz S, Saibil HR. 2006. Three-dimensional structural analysis of amyloid fibrils by electron microscopy. *Protein Rev* 4:303-313.

Gertz MA. 2004. The classification and typing of amyloid deposits. *Am J Clin Pathol* 121:787-789. Abstract: <http://ajcp.ascpjournals.org/content/121/6/787.full.pdf>

Maekawa A, Maita K, Harleman JH. 1996. Changes in the ovary. In: Pathobiology of the Aging Mouse (Mohr U, Dungworth DL, Capen CC, Carlton WW, Sundberg JP, Ward JM, eds). ILSI Press, Washington, DC, 451-467.

Merlini G, Seldin DC, Gertz MA. 2011. Amyloidosis: Pathogenesis and new therapeutic options. *J Clin Oncol* 29:1924-1933. Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/21483018>



NTP Nonneoplastic Lesion Atlas

Ovary – Amyloid

References:

Montgomery CA, Alison RH. 1987 Non-neoplastic lesions of the ovary in Fischer 344 rats and B6C3F1 mice. *Environ Health Perspect* 73:53-75.

Abstract: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1474552/>

National Toxicology Program. 1995. NTP TR-444. Initiation/Promotion Study of *o*-Benzyl-*p*-Chlorophenol (CAS No. 120-32-1) in Swiss (CD-1®) Mice (Mouse Skin Study). NTP, Research Triangle Park, NC.

Abstract: <http://ntp.niehs.nih.gov/go/6032>

Rodriguez FJ, Gamez JD, Vrana JA, Theis JD, Giannini C, Scheithauer BW, Parisi JE, Lucchinetti CF, Pendlebury WW, Bergen HR, Dogan A. 2008. Immunoglobulin derived depositions in the nervous system: Novel mass spectrometry application for protein characterization in formalin-fixed tissues. *Lab Invest* 88:1024-1037.

Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/18711355>

Seely JC. 1999. Kidney. In: *Pathology of the Mouse: Reference and Atlas* (Maronpot RR, Boorman GA, Gaul BW, eds). Cache River Press, Vienna, IL, 207-234.

Vrana JA, Gamez JD, Madden BJ, Theis JD, Bergen HR, Dogan A. 2009. Classification of amyloidosis by laser microdissection and mass spectrometry-based proteomic analysis in clinical biopsy specimens. *Blood* 114:4857-4959.

Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/19797517>

Authors:

Gabrielle Willson, BVMS, DipRCPath, FRCPath, MRCVS
Senior Pathologist
Experimental Pathology Laboratories, Inc.
Research Triangle Park, NC

Karen Y. Cimon, DVM, MS
Senior Pathologist
Experimental Pathology Laboratories, Inc.
Research Triangle Park, NC