

NTP Nonneoplastic Lesion Atlas

Pituitary Gland, Rathke's cleft – Dilation

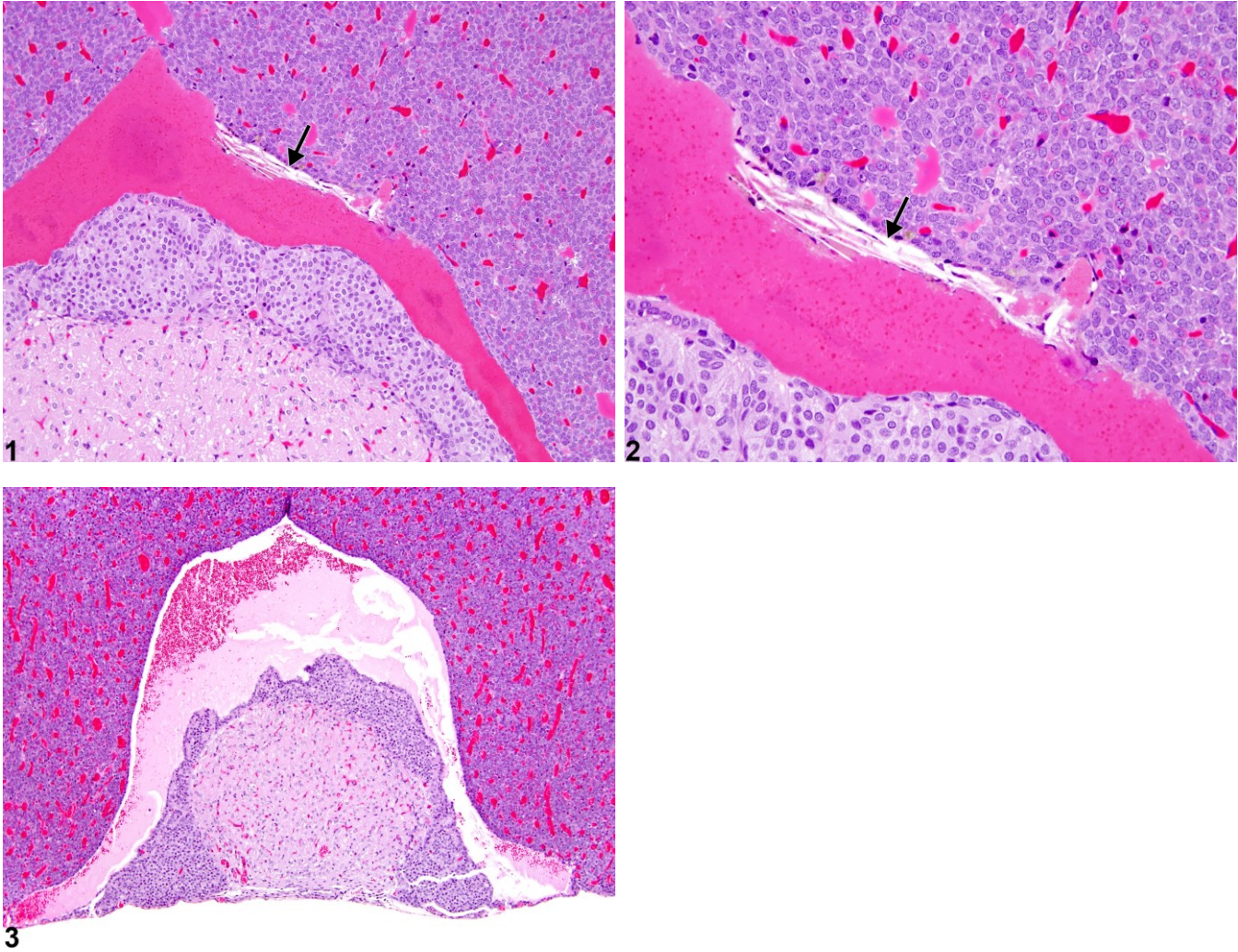
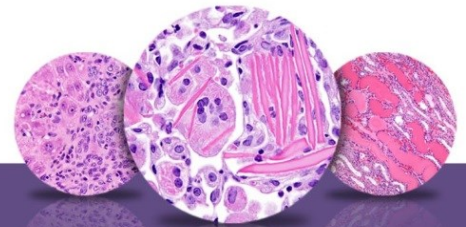


Figure Legend: **Figure 1** Pituitary, Rathke's cleft - Dilation in a female F344/N rat from a chronic study. The dilated Rathke's cleft is filled with intensely eosinophilic proteinaceous material with cholesterol clefts (arrow) present at the edge of the dilated cleft. **Figure 2** Pituitary, Rathke's cleft - Dilation in a female F344/N rat from a chronic study. Higher magnification of Figure 1 shows the dilated Rathke's cleft filled with intensely eosinophilic proteinaceous material and the cholesterol clefts (arrow) at the edge of the dilated cleft in greater detail. **Figure 3** Pituitary, Rathke's cleft - Dilation in a female F344/N rat from a chronic study. The dilated Rathke's cleft contains pale eosinophilic proteinaceous material and erythrocytes (hemorrhage).



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Comment: Dilated persistent Rathke's clefts are relatively common in rats and typically contain eosinophilic colloid-like proteinaceous material. Cholesterol clefts (arrow, Figure 1 and Figure 2), as well as free erythrocytes (Figure 3), may be present. Pituitary cysts may also be present (see Pituitary Gland - Cyst).

Recommendation: Since chronic studies may incorporate in utero exposure, developmental alterations potentially related to treatment could influence the ultimate presence and appearance of Rathke's cleft. Thus, this change should be documented when present. A severity grade is appropriate if there is a potential treatment-related effect on the occurrence or severity of this change. Hemorrhage or cholesterol clefts within the dilated Rathke's cleft should not be diagnosed separately unless warranted by severity.

References:

Capen CC. 1983. Functional and pathologic interrelationships of the pituitary gland and hypothalamus. In: Endocrine System (Jones TC, Mohr U, Hunt RD, eds). Springer, New York, 103-120.

Abstract: <http://www.springer.com/medicine/pathology/book/978-3-642-96722-1>

Capen CC, DeLellis RA, Yarrington JT. 1991. Endocrine system. In: Handbook of Toxicologic Pathology (Haschek WM, Rousseaux CG, eds). Academic Press, New York, 697-705.

Abstract: <http://www.sciencedirect.com/science/book/9780123302151>

Carlton WW, Gries CL. 1983. Cysts, pituitary; rat, mouse, and hamster. In: Endocrine System (Jones TC, Mohr U, Hunt RD, eds). Springer, New York, 161-163.

Abstract: <http://www.springer.com/medicine/pathology/book/978-3-642-96722-1>

Gon G, Nakamura F, Ishikawa H. 1987. Cystlike structures derived from the marginal cells of Rathke's cleft in rat pituitary grafts. Cell Tissue Res 250:29-33.

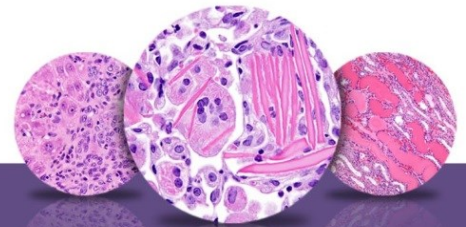
Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/3652164>

Herrick E, McCormack S. 1952. The occurrence and nature of cysts in the pituitary of fowls and rats. Trans Kans Acad Sci 55:178-183.

Abstract: <http://www.jstor.org/stable/3625875>

Iwata H, Hosoi M, Miyajima R, Yamamoto S, Mikami S, Yamakawa S, Enomoto M, Imazawa T, Mitsumori K. 2000. Morphogenesis of craniopharyngeal derivatives in the neurohypophysis of Fisher 344 rats: Abnormally developed epithelial tissues including parotid glands derived from the stomatodeum. Toxicol Pathol 28:568-574.

Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/10930044>



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References:

Kouki T, Imai H, Aoto K, Eto K, Shioda S, Kawamura K, Kikuyama S. 2001. Developmental origin of the rat adenohypophysis prior to the formation of Rathke's pouch. *Development* 128:959-963.

Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/11222149>

Lansdown AB, Grasso P. 1971. Histological observations on a Rathke's cleft abnormality in a laboratory rat. *J Comp Pathol* 81:141-144.

Abstract: <http://www.sciencedirect.com/science/article/pii/0021997571900661>

MacKenzie WF, Boorman GA. 1991. Pituitary gland. In: *Pathology of the Fischer Rat: Reference and Atlas* (Boorman GA, Eustis SL, Elwell MR, Montgomery CA, MacKenzie WF, eds). Academic Press, San Diego, 485-500.

Abstract: <http://www.ncbi.nlm.nih.gov/nlmcatalog/9002563>

Morton D, Tekeli S. 1997. "Have you seen this?" Pituitary cysts in a mouse. *Toxicol Pathol* 25:333.

Full-Text: <http://tpx.sagepub.com/content/25/3/333.long>

Quintanar-Stephano A, Munoz Fernandez L, Quintanar JL, Kovacs K. 2001. Cysts in the rat adenohypophysis: Incidence and histology. *Endocr Pathol* 12:63-71.

Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/11478270>

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