

Diagnostic Exercise

From The Davis-Thompson Foundation*

Case #: **209**; Month: **March**; Year: **2023**
Answer sheet

Title: Oesophageal retention cysts in a dog

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Clinical History: An 11-year-old female spayed Greyhound X Bull Arab was euthanised after diagnosis of osteosarcoma to the right shoulder.

Gross Findings: Diffusely, there are 100s of a miliary pinprick, 1-mm diameter, well-demarcated, ovoid, minimally raised, firm, dark purple to black nodules elevating the mucosal surface of the oesophagus. These nodules increase in number progressively towards the aborad oesophagus.

Macroscopic Photographs:

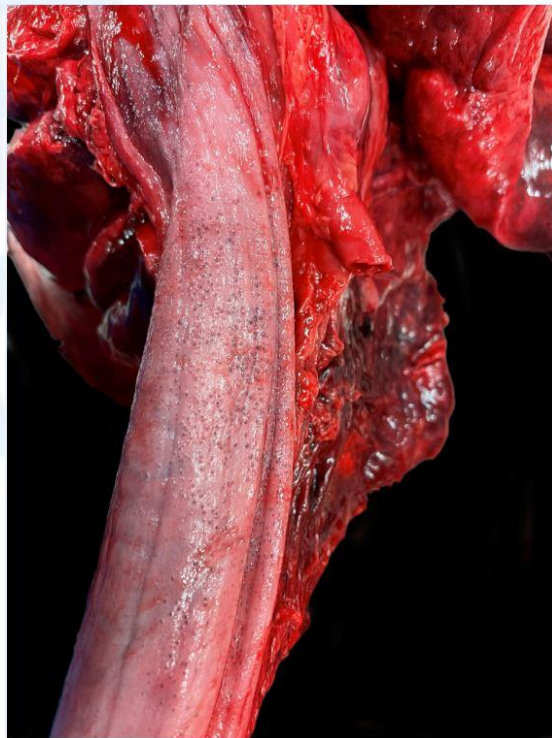


Figure 1: Oesophagus

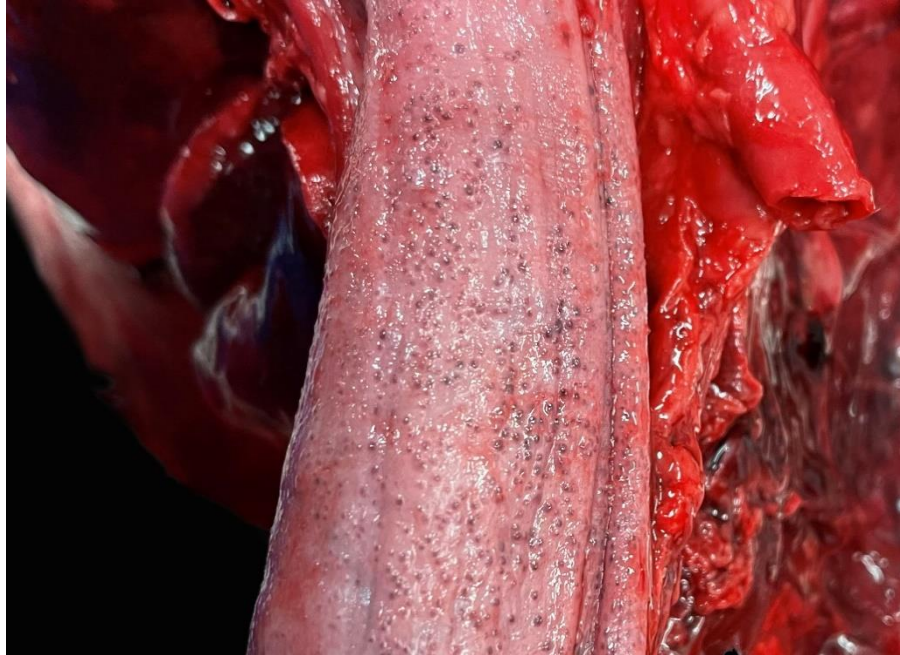


Figure 2. Higher magnification.

Microscopic Photographs:

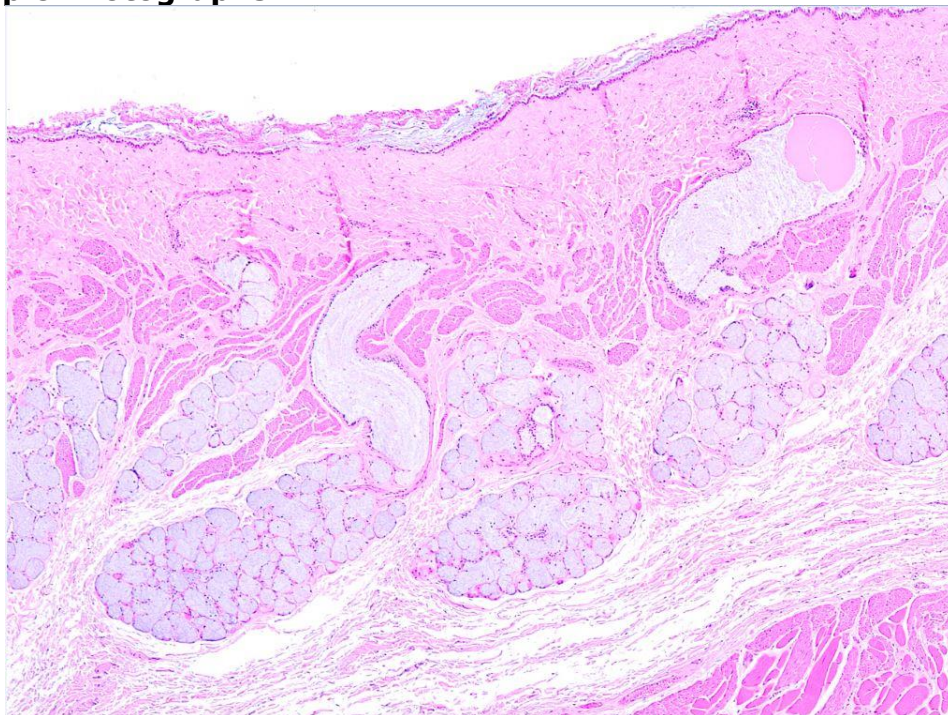


Figure 2: H&E, oesophagus, 4X

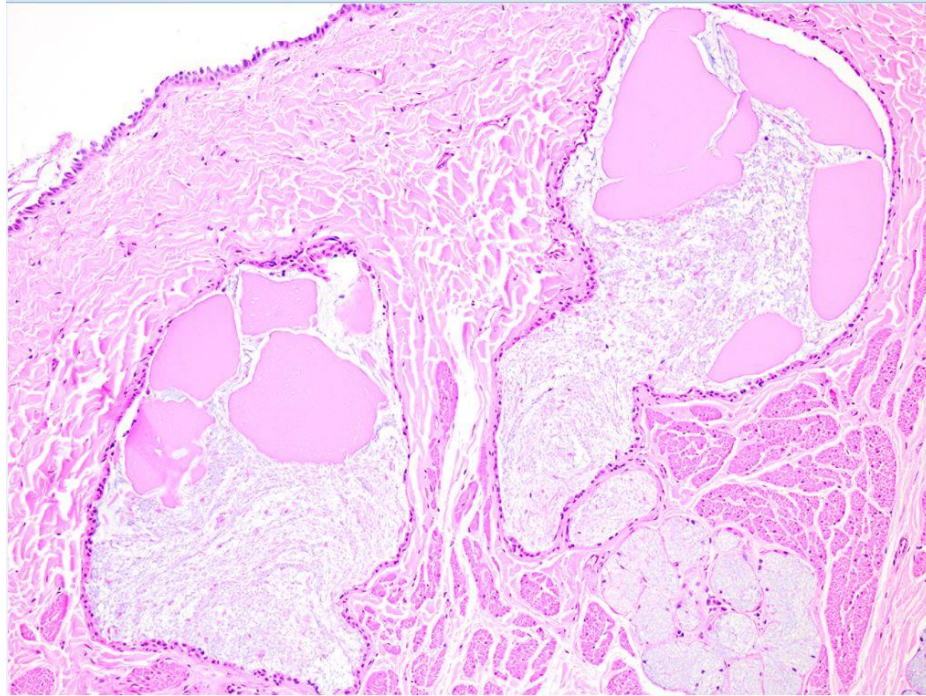


Figure 3: H&E, oesophagus, 10X

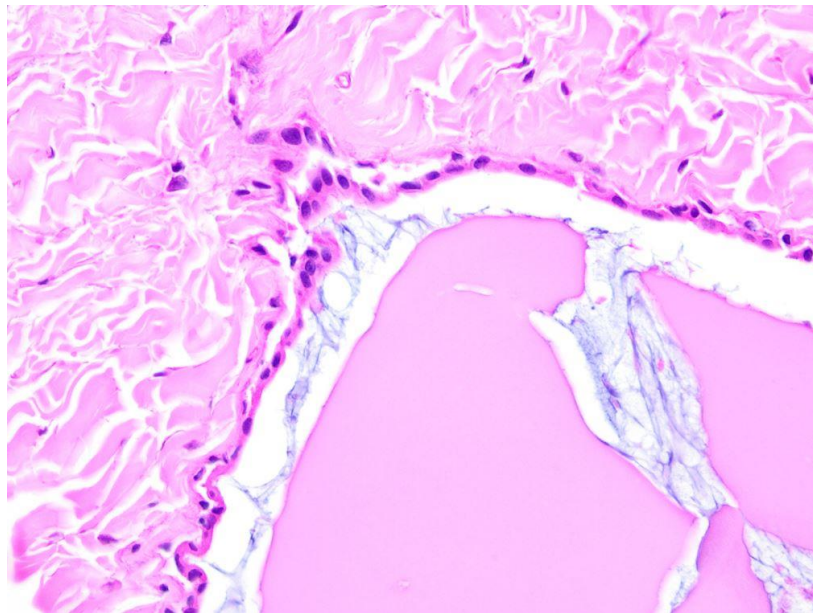


Figure 4: H&E, oesophagus, 40X

Follow-Up Questions:

Histologic Description:

Oesophagus: There are multifocal oesophageal retention cysts present predominantly within the lamina propria and inner circular layer, characterised by saccular irregularly shaped dilation of submucosal gland excretory ducts, measuring up to 500um in diameter. Excretory ducts are lined by non-ciliated low cuboidal epithelium and diffusely contain basophilic fibrillar material (mucin). In

approximately 30-40% of excretory ducts, extensive eosinophilic homogenous material (protein-derived) deposits are intermixed with mucin. The overlying squamous epithelial layer remains intact or has sloughed off post-mortem.

Morphologic diagnosis:

Oesophagus: Oesophageal retention cysts, with intraluminal mucin and protein accumulation

Clinical significance: Incidental

Comments: Oesophageal retention cysts (1,2,3) or cystic dilated glands, as mentioned in the veterinary literature (5), have no known etiology. In human literature, a cystic dilation secondary to obstruction of submucosal gland excretory ducts in the oesophagus has been proposed. However, the exact aetiology is unknown (1,3). Blockage of these ducts, through means such as oesophageal dysmotility, inflammation of oesophageal mucosa, basal cell hyperplasia and mucous plug formation, leads to accumulation of mucous within submucosal glands, and consequent retention cyst formation (3). Occasionally, minimal inflammation is visualised histologically (1,3). No inflammatory infiltrates identified in this case. Oesophageal retention cysts are lined by either cuboidal, as seen in this case, or non-ciliated columnar epithelium (2). Other types of esophageal cysts reported in the classic literature include congenital duplication cysts and epithelial inclusion cysts. Congenital duplication cysts are larger and fewer and histologically (1) must be intramural, lined by columnar, squamous, cuboidal or pseudostratified epithelium, and the wall must contain a double muscular layer. Epithelial inclusion cysts are typically lined by stratified squamous epithelium and filled with keratin fragments (4). In the veterinary literature, cystic dilated glands are described as a common incidental finding with no clinical repercussions in old dogs' distal portion of oesophageal mucosa and submucosa (5).

1. Farman J, Rosen Y, Dallemand S, Iyer SK, Kim DS. Esophagitis cystica: lower esophageal retention cysts. American journal of roentgenology (1976). 1977;128(3):495-6.
2. Hover AR, Brady III CE, Williams JR, Stewart DL, Christian C. Multiple retention cysts of the lower esophagus. Journal of Clinical Gastroenterology. 1982; 4(3):209-12.
3. Mehta N, Ayazi S, Landau M, Eriksson S, Jobe BA. Esophageal Retention Cyst: Esophagogastric Junction Outflow Obstruction (EGJOO) as a Potential Etiology and Management with Endoscopic Mucosal Resection (EMR). In: International Journal of Surgery Case Reports. 2022;95: 107-94.
4. Uzal FA, Plattner BL, Hostetter JM. 2016. Alimentary System. In: Jubb, Kennedy, and Palmer Pathology of Domestic Animals. 6th edition. Elsevier, St Louis, Missouri. p. 30-2.

5.Spagnoli S, Gelberg HB. Alimentary system and the peritoneum, omentum, mesentery, and peritoneal cavity. In: Zachary JF, editor. Pathologic Basis of Veterinary Disease, 7thEd, St. Louis: Elsevier; 2022, p.429

*The Diagnostic Exercises are an initiative of the Latin Comparative Pathology Group (LCPG), the Latin American subdivision of The Davis-Thompson Foundation. These exercises are contributed by members and non-members from any country of residence. - Consider submitting an exercise! - A final document containing this material with answers and a brief discussion will be posted on the CL Davis website (http://www.cldavis.org/diagnostic_exercises.html).

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