

Hyperglobulinemia

Julie Allen, BVMS, MS, MRCVS, DACVIM (SAIM), DACVP

FOR MORE

Find more Differential Diagnosis lists in upcoming issues of *Clinician's Brief* and on cliniciansbrief.com

Following are differential diagnoses for patients presented with hyperglobulinemia. Hyperglobulinemia can be caused by monoclonal or polyclonal gammopathies; serum electrophoresis is required for differentiation and can help prioritize possible diagnoses. Polyclonal gammopathies are composed of nonalbumin proteins (ie, globulins) and are typically caused by inflammation, infection, or immune stimulation. Monoclonal gammopathies typically result from production of a single type of globulin protein and are most commonly associated with neoplastic causes, although rare non-neoplastic causes have also been described.

- ▶ Acute-phase reactant response (ie, tissue injury of any cause [eg, inflammation, acute bacterial or viral infection, necrosis, neoplasia, trauma]; typically mild)*
- ▶ Chronic antigenic stimulation/inflammation*
 - Bacterial endocarditis
 - Chronic skin disease
 - Immune-mediated disease (eg, systemic lupus erythematosus, immune-mediated hemolytic anemia)
 - Infectious disease (eg, FIP, leishmaniasis, heartworm disease, coccidioidomycosis,

ehrlichiosis, hepatozoonosis, pythiosis, bartonellosis)

- Liver disease (eg, lymphocytic cholangitis)
- Severe dental disease
- ▶ Hemoconcentration (concurrent increase in albumin)
- ▶ Nephrotic syndrome*
- ▶ Paraproteinemia (due to abnormal immunoglobulin production resulting in a monoclonal gammopathy)
 - Infectious disease-associated monoclonal gammopathies (usually immunoglobulin G; eg, *Dirofilaria immitis*, *Ehrlichia canis*, visceral leishmaniasis)
 - Inflammatory disease (eg, lymphoplasmacytic enteritis, cutaneous amyloidosis; rare)
 - Neoplasia
 - Chronic lymphocytic leukemia
 - Extramedullary plasmacytoma that affects the skin (dogs), GI tract, or liver
 - Lymphoma
 - Multiple myeloma
 - Waldenström macroglobulinemia ■

References

- Moore AR, Avery PR. Protein characterization using electrophoresis and immunofixation; a case-based review of dogs and cats. *Vet Clin Pathol*. 2019;48(Suppl 1):29-44.
- Riemer F, Kuehner KA, Ritz S, Sauter-Louis C, Hartmann K. Clinical and laboratory features of cats with feline infectious peritonitis—a retrospective study of 231 confirmed cases (2000-2010). *J Feline Med Surg*. 2016;18(4):348-356.
- Rout ED, Shank AM, Waite AH, Siegel A, Avery AC, Avery PR. Progression of cutaneous plasmacytoma to plasma cell leukemia in a dog. *Vet Clin Pathol*. 2017;46(1):77-84.
- Stockham SL, Scott MA. Proteins. In: Stockham SL, Scott MA. *Fundamentals of Veterinary Clinical Pathology*. 2nd ed. Ames, IA: Blackwell Publishing; 2008:379-404.
- Whittemore JC, Hawley JR, Radecki SV, Steinberg JD, Lappin MR. *Bartonella* species antibodies and hyperglobulinemia in privately owned cats. *J Vet Intern Med*. 2012;26(3):639-644.

*Usually polyclonal gammopathies