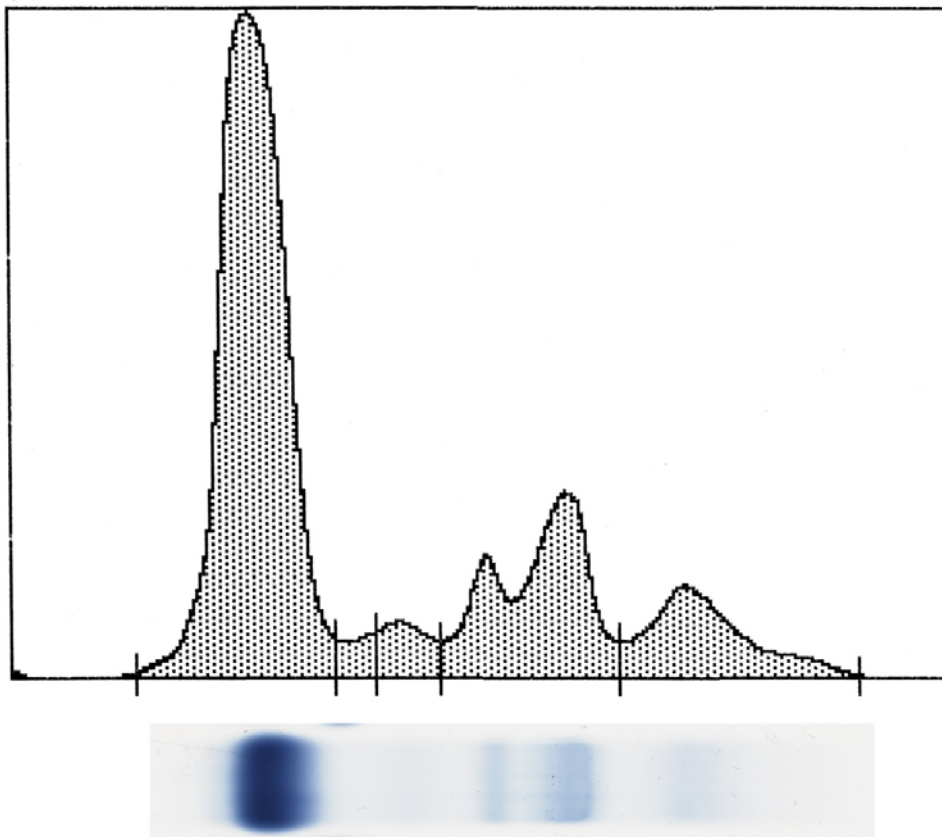


Clinical Case 3: Alpha 2 Globulins

Normal EPH

This is a normal EPH pattern from an African Grey Parrot. African Grey Parrots often have low or no visible prealbumin fraction. Albumin, in a normal animal, is the predominant fraction as shown here. Albumin can decrease with acute inflammation. Alpha 1 globulins are not commonly found in significant levels in psittacines (but are a major fraction in other avian species). A small alpha 2 fraction is demonstrated below. This fraction can increase non specifically with acute inflammation. In African Greys as well as a few other parrot species, beta globulins are present as a double peak. The gamma globulins shown below conform to the normal polyclonal resting pattern.

In EPH interpretation, the clinical pathologist examines both this densitometer tracing as well as the gel itself (shown underneath the tracing below). The two give a combined impression with the quantitated fractions to lead the pathologist to give the submitting veterinarian the most accurate interpretation possible.



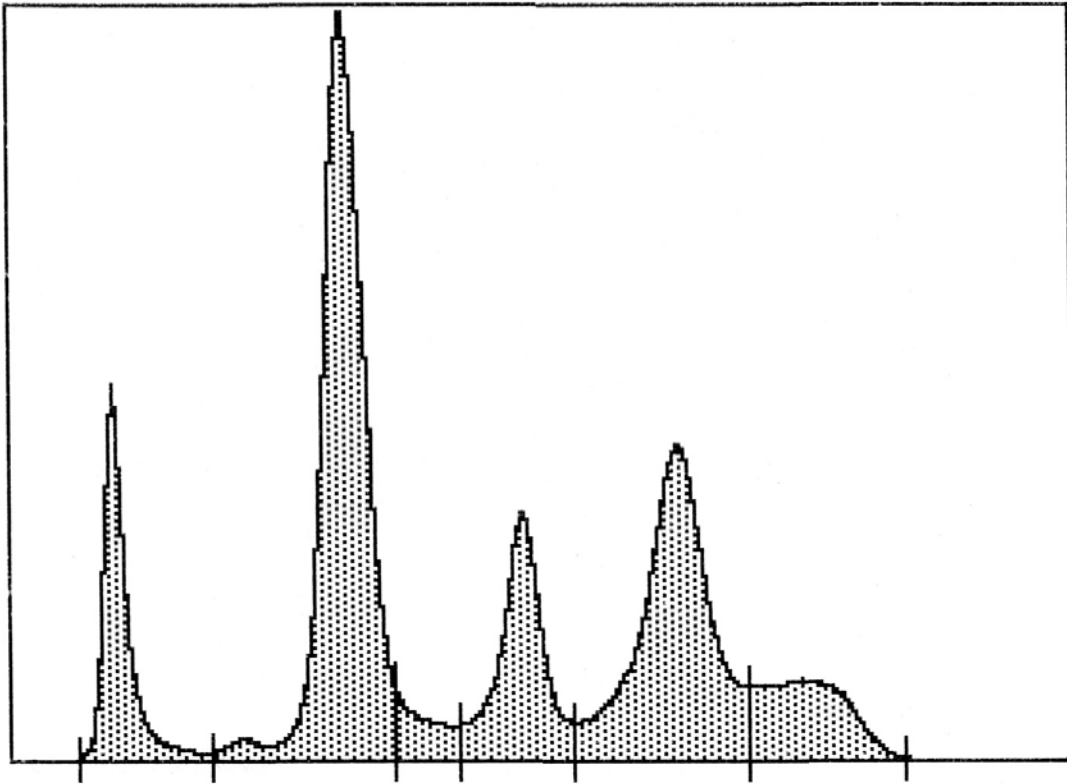
From left to right: albumin, alpha 1, alpha 2, beta, and gamma globulins. The prealbumin fraction is absent in this bird. The A/G ratio is 1.59.

What are Alpha 2 Globulins?

Psittacines rarely show minor or major changes in the alpha globulin range. This in contrast to many mammalian species and non-psittacine avian species. Much work on inflammatory proteins has been conducted in chickens and the beta globulins have been well described to be the major players. If you have used EPH in your practice, you likely have seen more comments on beta globulins rather than alpha globulins in your patients.

Refer again to the normal EPH shown above. The alpha 2 globulin fraction is a very small band to the right of albumin. By densitometry, it gives a small blip by which to quantitate and normal fraction values are just a few percent of the total protein. We can often see very mild changes of a percent or two in this fraction but since it is a low (quantitative) fraction to start, we often give little interpretative value to this change unless it is accompanied by other changes.

It is perhaps even so more notable when a significant change does occur. One example of this change is present below. A main alpha 2 globulin is alpha 2 macroglobulin. This is a very large protein such that in acute nephritis when many proteins are lost, this leads to an obvious increase in this fraction. This particular case involved an 8 week old conure that presented with lethargy. An elevated WBC was found and the uric acid was also increased (15.5 mg/dl with normals 2.5-11). Although appropriate therapy ensued, the patient did not survive. Histology confirmed an acute nephritis.



The A/G ratio was 1.01 (normal 1.5-3.8) and the percent alpha 2 globulins was 14.5% (normal 2-6). Albumin was decreased mildly and a slight increase in beta globulins was also present.