Location and Occupation? Sounds like a job interview! When it comes to earning the diagnosis of primary ITP these and other questions are key.

Keep these points in mind as you work through your internal algorithm for thrombocytopenia.

Since the identification of the mutation causing congenital macrothrombocytopenia in Cavaliers, the identical mutation has been documented in many other dogs including the Chihuahua, Labrador retriever, Poodle, English Toy Spaniel, Labradoodle, Shih Tzu, Maltese, Jack Russell, Havanese, Boxer, Cocker Spaniel, and Bichon.



Therefore, potentially **any dog** could have this congenital condition. The index of suspicion should increase when there is a persistently low platelet count in the absence of historical or clinical evidence of abnormal bleeding especially if there is no response to therapy for presumed ITP. DNA testing is carried out at Auburn University.

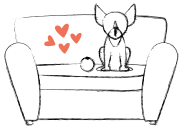
Which infectious agents have been associated with immune mediated disease? This goes beyond the snap.

Similar to the consensus on diagnosing IMHA, the ITP consensus statement is expected this year along with the evidence as to which diseases show a strong causative association with secondary ITP. Currently, *Anaplasma platys* is the only organism known to directly infect platelets causing **direct injury** as well as inciting immune-mediated mechanisms of platelet removal. Co-infections of anaplasmosis with other vector borne disease will often have lower platelets and more significant clinical signs. Coinfections with *Anaplasma spp*. and *B. burgdorferiare* are well documented in both dogs and *Ixodes scapularis* ticks, including in Canada. Studies have identified **platelet binding antibodies** in dogs with dirofilariasis, angiostrongylosis and babesiosis, *Rickettsia rickettsi*, *Leishmania infantum* and *Ehrlichia canis*.




Occupation? Why?

Babesia gibsoni is endemic in certain regions of the world but in the USA, Japan and Taiwan it is more commonly recognized in **fighting** dogs, especially pit bull or pit bull-like dogs along with the Tosa Inu (click if curious what this breed looks like). Of the non-pit bull dogs with Babesia, the majority have been bitten by a pit bull. Coyotes carry *Babesia conradae* which is endemic in California. Greyhounds and other dogs used to **hunt coyotes** will be at increased risk. Search and rescue dogs or show dogs may have travel histories or exposure and "occupation couch potato" is also good to know when planning a work-up for thrombocytopenia.



This week, I definitively saw more rescues from Mexico. If you have a patient with a travel history to a region where these diseases are endemic, additional testing is going to be necessary. This may mean an expanded serology panel along with PCR testing. Previous studies have shown that paired serology and PCR at the time of investigation increases the likelihood of identifying potential infectious disease. Incubation periods for each vector differ and antibody production takes time. PCR is going to be most sensitive in acute disease. In chronic disease the numbers of circulating organisms may be cyclic or below detection limits meaning serology along with repeat PCR testing may be necessary. In one study in California, convalescent serologic testing, repeating PCR, and using novel PCR gene targets **increased detection by 30%.**

I have a Cocker Spaniel with thrombocytopenia, petechiae, on tick prevention, no travel, medication or recent vaccination history, and whose littermate had ITP.

I have an acutely ill Lab-cross recently rescued from California with thrombocytopenia.

I have a young street dog rescued from Mexico with thrombocytopenia, moderately elevated globulins and proteinuria.

It comes down to risk as well as specific case constraints. Currently we live in a low risk area for vector borne disease but the risk is not zero. Climate change has been documented to affect tick distribution and this risk may be on the rise. For your Cocker Spaniel, extensive infectious screening is not likely necessary. Similarly if on a budget the likelihood of useful information on chest radiographs or abdominal US needs to be discussed on a cases-by-case basis. In two recent retrospective studies on IMHA, (not ITP), the utility of chest radiographs had less utility than abdominal ultrasound if needing to prioritize.

If you notice an initial good response to therapy that suddenly deteriorates or one cannot discontinue therapy additional screening for underlying disease or concurrent disease should be considered. Similar to human medicine, future discussions on ITP management is going to involve putting forth new thrombocytopenia limits and goals for treatment in certain cases and don't forget to make sure the low platelet count is real!

For your Lab-cross that has unknown history of tick prevention, potential exposure to both pit-bulls or coyotes as well as coming from an endemic area of several infectious diseases more thorough testing is warranted including PCR and serology. Given recent rescue and acute disease, PCR diagnostics would be expected to be more sensitive. "It is advised that finding thrombocytopenia along with hemolytic anemia, hyperglobulinemia, or proteinuria in pit bull breeds warrants combined PCR and serologic testing followed by repeated PCR testing for *B gibsoni* if initial tests are negative. Dogs living in California and coyote-hunting dogs should be specifically screened for *B conradae*."** Consider that *Rickettsia rickettsi* is also found in California.

For your street dog (or chihuahua) with thrombocytopenia, proteinuria, and increased globulins it would suggest there is more chronic disease at play and as such serology would be a good starting point. A single titer can only indicate exposure and can stay positive for years! The clinicopathologic test results along with lack of an another inflammatory focus to cause a globulin elevation is going to cause a high index of suspicion of clinical disease. Acute and convalescent titers can be used to help confirm active disease or more commonly PCR testing. If you do have skin disease, generalized lymphadenopathy and high globulins, then Leishmaniasis would be another consideration coming from Mexico.

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