

NEWS OF NOTE

HEROIC LOCAL FILLY MAKES CONTRIBUTION TO EQUINE SCIENCE

BONE MARROW TRANSPLANT AT MIDDLEBURG EQUINE CLINIC

Makin Copy, an eight-year-old mare, came to Middleburg Equine Clinic with what was described as a gait deficit. Veterinarian Dr. Cleanth Toledano, who works with Dr. Willie McCormick, studies gait problems and she could see immediately that the filly was struggling.

"She was down in the trailer, so we knocked down the walls and pulled her out by her tail, all 815 pounds of her. She got up, although her owners, Ron and Ann Kilbourne, said she had been 'poor' for eight months. The ladlike animal wobbled around with serious spasticity to her gait and genuflection of her stifles (knees). Her throughout body was very correct and what little deficit she had was symmetric. But she was weak and losing muscle from something systemic. The beautiful young vet who loves to advocate for horses realized that Makin Copy clearly had a neuropathy that was causing the bad gait, but why? She'd tested negative for FPM and Lyme disease and they quickly sent off blood samples for more tests. Her eyes were cloudy, so they tested her Vitamin E levels, then supplemented her with plenty of Vitamin E.

"We were trying to care for her, at first simply as horsemen, but I was also observing her closely for any signs that would point us in the right direction. I observed everything

about her while I helped her eat, passing a tube if she choked, cleaning up after her, managing her daily life, monitoring her health and then conveying those observations into words to consult with medicine specialists."

While compiling different medical impressions concerning the case, Dr. Toledano contacted Abby Sage, a Cornell graduate, "who understood what I was thinking... that it could be meningitis affecting her nervous system. We chose tetracycline to treat her, and she began to improve."

"Since she responds to antibiotics, any antibiotic and quickly," Abby noted... "it verifies that this is a wimpy bacterial infection and that an immune deficiency is at the root of it, as you suspect. Send blood to Cornell, where they are studying immune deficiencies in the horse, to diagnose an immune deficiency causing bacterial meningitis."

Dr. Julia Felipe, a professor at Cornell, who is an expert in immunology, promptly contacted Dr. Toledano about the blood work, and became a critical consultant on the case.

"We detected a depletion of immunoglobulins and an arrest of gene expression in the B cell line of bone marrow cells. The B cell genes were simply not expressing. The progenitors were not making cells to protect her from bacteria."

Geneticists officially diagnosed "Makin Copy" with Common Variable Immune Deficiency, and

only 29 horses have ever been diagnosed. Because CVID has many similarities to the human disease, also called CVID, this horse became a model for the human condition. The diagnosis alone was a triumph, but with the help of an NIH grant and Cornell's research group, could more questions about the immune system and its deficiencies be answered by treating this little mare here in Middleburg?

Should we give her a bone marrow transplant in the hopes that it will activate her B cells or replace them?"

The decision to perform a bone marrow transplant on Makin Copy was confirmed. Moreover, this experimental treatment would be preceded by three days of intense, also experimental chemotherapy to kill off any remaining functioning part of the mare's entire immune system and thus decrease the likelihood of transplant rejection. Of course, a perfect genetic match for a donor would also decrease risk of rejection. Dr. Toledano traveled The Piedmont searching until she found a bone marrow match, the mare's full sister.

With Dr. Felipe's guidance, Dr. Toledano had the honor of performing the bone marrow transfer from Makin Copy's sister into Makin Copy. The procedure itself went smoothly but no one knew if she would survive the transplant.

"We worried about so many things that could have happened. She could have gone into anaphylactic



shock, or had a bad reaction to the pre-treatment chemotherapy, or all the post-treatment drugs she is taking from attacking her own body. Since we did not want the patient to reject the transplant, nor the transplanted immune cells to reject the patient, all immunity in Makin Copy has been suppressed, so we worry about her getting infections. Or she could even have adverse reactions to the antifungals, antivirals and antibacterials that are, in essence, serving as a substitute immune system while the transplant hopefully takes root."

Through the entire process Makin Copy has remained a horse.

She is not kept in a sterile environment, but goes out in a paddock, eating hay and debris from the environment. Dr. Toledano has also been the mare's advocate adamant that "no phase of the treatment was worse than the disease."

"If she ever became uncomfortable, especially during the chemotherapy, she was easily soothed by rubbing her and itching her." The mare's gratitude, patience and bravery were amply evident throughout the entire process.

But today, Makin Copy is doing well, although Dr. Toledano still describes her as a "dead horse walking." The mare is happily residing at Dr. Toledano's farm for further treatment, monitoring, and weekly genetic testing of her blood for evidence that the procedure took. This mare has already made a major contribution to equine science, human health and genetic studies.

"If it is ever her time to give up, I'll drive her to Cornell so that she can euthanize her and study her there."

Dr. Toledano insists that without the support of Makin Copy's owners this contribution to science would not have happened.

"They could not have been more supportive and were happy for us to try to find a bone marrow match for her. In the end, everyone involved in this brave mare's care wanted to do the very best for her and learn as much as possible about how to help other horses and humans in the future."

None of this would have been possible without the help and support of Dr. Willie McCormick, the renowned Hunt Country Veterinarian who owns Middleburg Equine Clinic.

"We love to work together," said Dr. Toledano.

"We believe sharing what we learn is a priority and everything we can contribute to equine education only makes our work more valuable."

Would anyone have predicted that the daughter of a barrel racer who grew up in New Orleans and Charlottesville would make such a significant contribution to equine science so early in her career?

Those who know Dr. Toledano are not at all surprised. Her love of horses transcends her frustration with their illnesses. She is an acute observer, and her conclusion about Makin Copy only underscores her commitment to the animals in her care.



Come see Loudoun's Culinary Gems
Find out more at FarmToForkLoudoun.com
July 26 - August 5, 2012

FARM, WINE, BREW & SPIRIT PARTICIPANTS -

- ALDIE: Fair Oaks Farm ASHBURN: Lost Rhino Brewery BLUEMONT: Checkmate Farm, Bluemont Vineyards
- Great Country Farms HAMILTON: Wegmeyer Farms HILLSBORO: Loudoun Valley Vineyards, Stonebrook Farm LEESBURG: Farmer John's Wayside Stand, Red Hill Farm, Singing Frog Farm LOVETTSVILLE: Quarter Branch Farm, Springhouse Farm
- PURCELLVILLE: Endless Summer Harvest, Fields of Athenry Farm, Notavia Vineyards, Catactin Creek Distillery ROUND HILL: East Lynn Farm, Practically Country at Bay Haven Farm WATERFORD: Buchanan Farms, plus others!

RESTAURANT PARTICIPANTS -

- ASHBURN: Palmer's Grill at Belmont Country Club, Cyle's Willow Creek Farm, Paralel Wine Bstro HAMILTON: The Beautiful South
- MIDDLEBURG: The French Hound, Goodstone Inn & Estates, Market Salamander, Red Fox Inn PURCELLVILLE: Grandale Farm Restaurant, Magnolia's at the Mill, The White Palace Restaurant LEESBURG: Ayara Thai Restaurant, Fire Works Pizza, King Pinz, MacDowell Brew Kitchen, 'On The Potomac' at Lansdowne Resort, Palo Pistorante, Tuscarora Mill, Vintage 50, The Wine Kitchen LOVETTSVILLE: The Restaurant at Patowmack Farm SOUTH RIDING: Rangoli Indian Restaurant

Compliments of - The Trilogy Group, LLC and Town of Leesburg
Thanks goes to our friends of Farm-To-Fork Loudoun - NOVA Medical Group, Farm Credit Mortgage and Loudoun County Department of Economic Development

THANKS ALSO TO OUR GENEROUS IN-KIND & MEDIA SPONSORS:



For questions & sponsor opportunities, call: Miriam Nasuti (founder) 703.771.8893.



Your Guide through Every Step

BEFORE

From early planning to the family dinner,

let BOWA be your guide through every step of the remodeling experience. BOWA transforms houses into homes through the design and construction of luxury renovations and additions. As your single point of accountability from the earliest stages of planning, we execute and manage the entire design and construction process and your overall experience. Combined with our expertise and culture of Heroic Customer Service, this allows us to provide our clients with the best in service, craftsmanship and value. So, when you have a project of any size in mind, call BOWA first.

BOWA
Transforming Houses Into Homes

George Hodges-Fulton, CR
Vice President
540-687-6771

DESIGN & CONSTRUCTION • RENOVATIONS & ADDITIONS • PURCHASE CONSULTATIONS

www.bowa.com