

DR DAVID PHELAN

DVM, PhD, Dipl. ABVP (Avian)  
Director, Wildlife Health and Conservation Centre  
425 Werombi Road  
Camden, NSW, Australia 2570

(Given at the Open Day held by Wynnum Redland Budgerigar Society Inc. on Sunday  
25<sup>th</sup> March 2007)

Message on the original invitation from Wynnum Redlands

From David -

" I graduated from Cornell University with a Doctor of Veterinary Medicine in 1983. I was then in practice until 1989 when I went back to school at Texas A&M and did a PhD. I became Board Certified in avian medicine in 1997. I have been an avian veterinarian since I graduated veterinary school. I taught and still teach avian and exotic animal medicine to veterinary students and do research in the field of infectious diseases of cage and wild birds. Currently I am the Director of the Wildlife Health and Conservation Centre at the Camden Campus of the University of Sydney. We will be opening up our clinic at Camden that will exclusively see birds and other exotic pets in early February.

Much of my research has focused on diseases that affect budgerigars. My PhD work resulted in 5 publications on avian polyomavirus and other papers on this topic have followed. For a detailed article on avian polyomavirus, you can download Avian Polyomavirus: My Thoughts off the web. Attached is a summary of what I presented last year at the World Budgerigar Organisation & BAA Grand National in Las Vegas.

I have worked with bird clubs for the past 18 years and have always been particularly fond of budgerigars.

I look forward to meeting you and your membership.

Yours,

David Phalen

BELOW ARE NOTES MADE DURING THE LECTURE BY DR DAVID PHALEN AT THE OPEN DAY – THEN QUESTION AND ANSWERED AT THE END.

NUTRITION & MALNUTRITION

- PROTEIN
- CARBOHYDRATES
- FAT

MICRONUTRIENTS

- Minerals Ca P K Na Cl Fe Cu Zn
- Vitamins – Fat Soluble & Water Soluble (B12 – Thiamine & Niacin)

There is a need to be careful in using these as too much Vitamin D can be poisonous so if using things like Cod Liver Oil – take care not to over use and use only small amounts of seeds such as Sunflower.

If there is not enough Vitamin D then the body cannot make use of the Calcium.

Histologically too much phosphorus and not enough calcium was a problem –

Now with the modern trends towards usual an all pellet feed has caused problems as all birds are different and need a mixture of seeds.

After many tests it was found that a Pellets only & Poultry food diet caused an increase in calcium deposits in the kidneys which caused renal failure & death.

When switched to a mixed seed diet the deaths stopped.

Calcium or Vitamin D Toxicity is a major problem that needs to be worked on in designing your birds diets.

This was shown in an experimental designed as follows:

12 groups of birds were used in a control study for 2 yrs

And it was found that in testing chicks at 12, 24 & 28 days bone structure and internal organs showed weakness & deterioration on a pellet only diet.

When given a prepared mixed diet the tests showed normal bone growth and parathyroid.

Seed Only diets showed that soft eggs & soft bones developed.

Results with calcium at:

.3%. there were no deaths

.7% .. no deaths in 40-50% of birds

1.5%... severe renal failure and death

Millet Exclusive diet showed it was not sufficient for good bone growth & Very high calcium diet shows – renal deposits & death.

= Calcium Toxicity is more of a problem than Vit. D Toxicity in these cases.

Budgies require 0.3% to 0.4% only of calcium in the diet.

The birds know how much they need and eat accordingly from cuttlebone & calcium blocks etc. placed in their cages.

Other birds may be like budgies in regards to Calcium Sensitivity

- Cockatiels
- Some finches
- Blue & Gold Macaws
- Insect eating birds.

With Vitamin D

- Minimum concentration - Not determined

- But less than 500 iu/kg
- Not toxic even at relatively high concentrates
- May have some synergistic toxic effect with high calcium levels
- Safer than we thought

Megabacteria was first found to be a yeast fungus by Dorrestein et al  
Then called a bacterium by Van Herck & Scanlan S C & Graham D L

But now confirmed to be a fungus (but not know which one)

By Fillipich L J – Perry R A

Ravelhofer – Rotheneder et al

Tomaszewski et al

And found that it was susceptible to a fungicide (Amphotericin B) and not an antibacterial antibiotic.

Analysis of rDNA proved it a fungus (yeast)

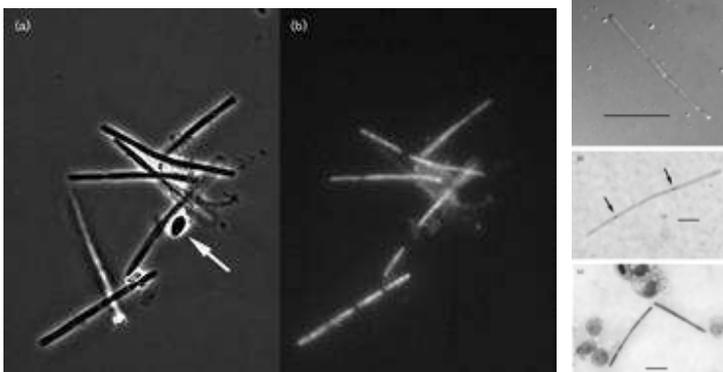
Identify - Detection - Treatment & Growth of the organism formerly known as MEGABACTERIA

Now know as MACRORHABDUS ORNITHOGASTER

(in Greek means Long Rod from a Birds Stomach)

Also know as AGY or Avian Gastric Yeast

Macrorhabdus ornithogaster



Tomaszewski, Logan, Snowden, Kurtzman & Phalen sp. nov.

We thank Lucio Filippich, Nancy Keller, Pat Holman and John Roths for technical assistance and Brian Berridge for supplying the bacterial PCR primers. We also thank Jason Millership, Laurie Jaeger and Larry Wadsworth for excellent photographic assistance, Christie J. Robnett for rDNA database compilation, Christoph F. Konrad for providing the Latin descriptions and Susan W. Phalen for her assistance with the Greek derivations. This project was supported by the Schubot Exotic Bird Health Center, Texas A&M University, Central California Avian Society, the Georgia Cage Bird Club, the International Parrotlet Society and the Peninsula Caged Birds Society.

Dr Phalen showed pictures of slides showing the long narrow rod – and indicated that that is how Macro looks.

Macro is found in the Isthmus (Tiny Neuro Zone) between the glandular & grinding stomachs)

Species that have been detected with Macro are:

- Canaries

- Finches
- Budgies
- Parrotlets
- Galahs
- Other birds – Ostriches & Poultry

Detection – is done by strapping the Isthmus but  
 Best result was 5 days of regularly checking of the droppings-  
 But tests showed poor correlation and not as effective as they would like.  
 Sick birds shed lots more and easier to detect and these birds are more likely to be  
 infectious to others – possibly best to cull these birds if they do not respond well to  
 treatment.

Treatment for more than 10 days is recommended

Amphotericin B is still the best treatment found for Macro (Mega)  
 When treated for 10 days the numbers went down but did not go away completely  
 So it best given for more than 10 days for effectiveness.

To grow the fungus needs:

- A Low oxygen environment
- Narrow range of above Ph 3.0 to 4.0 starts to grow & above rapid growth
- Needs serum to grow (product from the host bird-feeding each other etc)

An experiment showed that if the babies were removed from the egg just prior to normal  
 hatching time and reared in an isolation area and hand reared the babies showed no  
 sign of the fungus – so this shows that it is passed on from the parents feeding and that  
 it only grows inside the bird in a strong acid of 3 to 4.0% upward  
 If acid was introduced then the growth will increase.

Treatments are:

Amphotericin B –is very effective if given for more than 10 days.

Fluconazole – is too strong for small birds.

Nystatin – also effective in some birds to start but then they build up resistance.

Some tests have been made with the chemicals used on fruit to make them look shiny &  
 keep longer (Only early studies at this stage)

They are Simple & inexpensive:

Sodium & Potassium Benzoate

Sodium Sorbate

Gentian Violet (but bird throw up purple)

As Macro is a yeast fungus it is hard to detect unless the bird is sick.

### Q & A

Q.

David Ganzer asked- if a bird is under stress, would Macro then come into the picture?

A. David Phalen said that stressful situations could add to the problem.

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Q. Member - How is the Ph made higher?

A. D.P. We know that acid products increase the Ph.

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Q. Camelle Lamb - As apple cider vinegar has been used for years to try to stop Mega getting a hold on the birds –should we now stop using it?

A. D.P. As it increases the Ph it may be advisable, but in the low dosage used (5mls-6mls to litre of water) this should not effect it greatly.

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Q. Jacki Jansen found Chilli's lowered the acid in her & Husband who had been diagnosed with Helicobacta Piloni (that caused stomach ulcers)-could this be used for birds?

A. D.P. No study has been done to show this that he knows of, but it may work and some parrots like chilli.

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Q. Member . Fungilin lozenges help with mouth & stomach ulcers, could these help birds?

A. D.P. As these are made from Amphotericin – yes.

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Q. Camelle Lamb. The baby birds that were hand raised from the shell in isolation and had no Macro(Mega)in their system, when introduced back amongst other birds – would their resistance be lower (ie their immunity)?

A. D.P. Macro is in the birds intestinal system and no antibodies as such are built up – but they could pick it up from the serum from the host birds(feeding each other etc.)

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Q. Jack Jansen. As many of the Australian aviaries have more access to sunlight than say the UK or European aviaries could this help with the Vit.D intake for the birds without giving additive.

A. D.P. The sunlight has to be direct and not reflected, then it would work.

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Q. Natalya Taylor. Is artificial lighting sufficient.

A. D.P. Some UVV light are good but they have a UV life span of about six months and are

expensive.