

Macrorhabdus Ornithogaster
(Megabacteria) – New name for an old disease.
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Most fanciers who breed and show budgerigars will, no doubt, have heard of - even if they have had the good fortune not to have experienced it at first hand - the disease Megabacteriosis. To some it is the disease synonymous with the condition of 'going light'.

For many years identification of the organism responsible for causing this chronic weight loss and ultimate death, sometimes in large numbers within a stud, has been contradictory. Many scientists claimed the bug had many characteristics consistent with those of bacteria and so, because of this and its large size (in bacterial terms) named it *Megabacteria*. Other researchers were not happy about this classification as many of the features aligned it more with yeasts and fungi than bacteria; none more so than the fact it was relatively unresponsive to treatment with antibiotics but was to antifungal agents. Although the disease has been known for more than 50 years it is only recently with the help of genetic fingerprinting that Megabacteria has finally been classified as a yeast-type organism. Hence the new name *Macrorhabdus Ornithogaster* – or 'large yeast from the stomach of a bird'. It will take a further few years before Megabacteria is lost from the scientific literature and more years still, I would imagine, until the fancy starts to use the more accurate and descriptive term of 'avian gastric yeast'. So let's start here and address the condition as AGY.

Let me digress a little and get on my soap box. I said in my introduction that for many AGY and 'going light syndrome' were synonymous. 'Going light' is a term referred to by many other branches of aviculture. For the canary breeder it may well be AGY but equally the breeder may be referring to Atoxaplasmosis another 'going light' disease of canaries. Greenfinch breeders call both Atoxaplasmosis and other coccidia-like diseases 'going light'. Pigeon fanciers may be referring to coccidia or salmonella or worms or chronic paramix virus when they address a condition as 'going light'.

Why the great diversity of diseases (and I haven't mentioned chlamydia (psittacosis) or the most common cause of 'going light' in budgies trichomoniasis, chronic bacterial infection or individual ailments such as liver and kidney disease, cancer, etc. etc.) all going under the umbrella name of 'going light'? Simple, the name describes a syndrome; a collection of clinical symptoms and signs the most significant, at least pre-death, is a loss of weight due to a malfunction of the digestive (or occasionally renal) systems. It is therefore extremely frustrating for me when a fancier rings for advice and medication to 'treat' going light in his or her birds. You can't treat a syndrome – you can only treat a disease causing agent! Making a diagnosis is the only way of reaching an effective treatment. Regrettably, many conversations end at this point. I don't lose any sleep at trying to do my job professionally; the fancier may well continue to lose birds though when the 'going light' medicine bought at over inflated prices from the Continent fails to arrest the problem. Continued deaths may well see him leave the hobby in despair and disillusionment, often with the comment that he couldn't get any help from vets. Penny wise, do they say?

Ok, so 'going light' doesn't have to be AGY. As I have said, post-mortems on 'light' budgies suggests that the protozoan parasite *trichomonas* is the most common cause and the symptoms are very similar to those of AGY. Birds in good condition

suddenly become fluffed up, lethargic, and severely depressed. Slimy seeds may be regurgitated leaving a visible smear on the bird's face or head. Many birds appear to eat frantically, but no food is actually consumed. They often spend lots of time at the feeding bowl or station but tend to grind up the seed or pellets, but don't actually consume any food. Palpation will show the crop to be empty. Some birds stretch their necks up in the air or mouth-gag repeatedly, appearing to have trouble either swallowing or regurgitating. This may be due to colic-type discomfort although it is hard to assess this, or an accumulation of mucous perhaps. The droppings are scant and dark green to brown/black in colour, with very little white colour (urates). The dark colour is due to the increased concentration of bile pigments and possibly digested blood from gastric ulcers. Affected birds invariably lose body weight with the breast muscles wasting away and the keel becoming prominent on the chest. In the last stages of the disease, no subcutaneous fat can be found and the muscles have atrophied and wasted away. Birds may die within a few days but more usually the disease takes a chronic form. Birds become progressively more emaciated and debilitated over a number of weeks or months and eventually die. Occasionally individual birds may appear to recover but then relapse weeks or months later to ultimately succumb.

How does AGY work? Although AGY can be found in all areas of the digestive tract, it has a preferential liking for colonising a very specific part of the avian digestive system – the junction between the stomach (proventriculus) and the gizzard (ventriculus). Here, the acidity of the digesta is to its liking and it invades the gut wall destroying the lining, interfering with gastric secretions and with it, the bird's ability to digest and absorb food. This ultimately gives rise to the emaciation observed. Disruption of digestive function is presumably responsible for the strange 'non-eating' behaviour and the bird eventually starves to death.

Diagnosis of AGY is made by identifying the yeast on slides made at post-mortem or from faeces. So, once your birds have been diagnosed AGY are they inevitably doomed? No, and here is one of the big problems; it is estimated that anything up to 50% of 'healthy' budgies carry AGY as part of their gut flora. (The jury is still out as to whether the presence of AGY is normal or whether the bird is just able to live without it causing any problems). Identifying AGY in the faeces of a healthy bird does not necessarily mean that the bird will eventually die – but equally, it doesn't mean that it won't! It would seem that AGY bides it's time until some other disease or stress to come along. These processes alter the bird's immune system allowing the yeast to gain a foot-hold and the disease process to start up. Many of these diseases have been listed above and in birds more than one disease entity at a time – intercurrent diseases- is not uncommon. Stresses can include physical ones such as going to shows or being transported; (mal)nutritional stresses; or physiological, breeding for example or overdosing with antibiotics and altering the balance of the microflora of the gut. As you will have worked out, if about half of the birds are harbouring the yeast but show no symptoms then these are the 'asymptomatic carriers' that can transfer the yeast from bird to bird or stud to stud.

So what is to be done? Prevention. Try and keep as closed a stud as you possibly can. This advice, whilst obvious, holds good for all disease problems. If you suspect AGY, the first thing should be to have an accurate diagnosis made. This involves, as I hope I have explained, as much ruling other diseases out as ruling AGY in. Once confirmed you may wish to treat. I say 'may', as treatment is not straightforward. The drug of choice (indeed the only drug that has been shown to be really effective against AGY for which resistance is not yet a problem) is the antifungal *Amphotericin B*. This used to be available under the trade names of Fungilin and Megabac S. Both

of these are now no longer available in the UK (but can be imported). The only effective route of administration is to give the drug twice-daily directly into the crop. This procedure is both time consuming and stressful to both the bird and the owner. In many circumstances it would prove just too impractical to implement. It may be feasible to treat new birds in this way to limit the introduction of AGY into a 'clean' stud whilst they are in quarantine. (You all quarantine your new birds prior to introducing them to your stud don't you?)

In previous times attempts were made to treat AGY by the addition of either acidifiers (dilute hydrochloric acid) or disinfectants to their drinking water. Cures were never achieved although some levels of control were made. As might be expected, acceptance of the products in the drinking water was low due to poor palatability. Recently, however, work with the product F10SC a unique disinfectant, has shown promise. Palatability at 1:1000 being readily accepted by most birds and the shedding of the AGY in the droppings has been greatly reduced. Its use to date in clinical outbreaks is limited but as more research is done and data gathered we may find that F10SC provides a simple, cheap and effective way of controlling the levels of Avian Gastric Yeast, old fashioned Megabacteria.

For those of you with an AGY problem wishing to try F10SC, the medication regime is 1ml in 1 litre of water given for 2 consecutive days once weekly. Where there is an endemic problem, using F10SC pre-pairing up (perhaps for 6 weeks and at least a month clear of egg-laying), to reduce the overall levels within the stud may be sensible. Don't use (any medication) while there are young in the nest as the parent birds will potentially concentrate the product and feed a potentially harmful level to the chicks.

A word of warning, don't use F10SC or any other medicinal product purely on a whim. If you don't have a problem don't be putting chemicals of any description into your birds, rather encourage a healthy gut flora population and promote a strong immune system with good husbandry and sound nutrition.

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