

Date: Fri, 3 Mar 1995 10:06:12 EDT  
From: "Dr. Elliott R. Jacobson" <ERJ@vetmed3.vetmed.ufl.edu>  
To: GBALAZS@honlab.nmfs.hawaii.edu  
Subject: NMFS REPORT

George: I finally sat down last night and reviewed the most recent NMFS administrative report titled " Pathology Associated with Cardiovascular Trematodes and Fibropapillomas in Green Turtles (Chelonia mydas) from the Hawaiian Islands". Although the pathology was quite complete (I know Terry Spraker fairly well and respect his pathological abilities with wildlife), I was dismayed and bothered by a significant comment (interpretation) presented in the Discussion on page 8. The statement "Cutaneous tumors were considered malignant (i.e., fibrosarcomas) since they clearly produced metastatic lesions in other organs." In my opinion there is no evidence of any kind to support this. In fact, there has been discussion over the years whether the skin lesions are really tumors at all. Our flow cytometry paper clearly showed that cutaneous fibropapillomas and internal fibromas have a normal cell cycle, supporting the contention that fibropapillomatosis is a multicentric disease. More than likely the causative agent is producing tumors at multiple sites. To me this is another example of a lack understanding of what happens when a person without the proper training gets involved with something that is beyond his or her expertise. I will speak (via letter) to Alonso and Terry about this and will send them a copy of the flow cytometry paper. I am not here to deride someone else's work because of personality conflicts, but instead to point out what I see as gross ill-founded and miss-leading interpretations. Such is the case with the above statement in the report. Also, I am not here trying to get you to take any sides but simply to understand the issues and problems. I realize that these reports do not necessarily reflect the views of NMFS, but realize that they do become part of the literature (albeit gray literature) and people will site these reports as references in other publications. Thus, it is your obligation to ensure that they are as scientifically correct as possibly. I strongly suggest that you consider having them scrutinized by at least 3 independent and outside experts in the field before publishing them as a governmental document. With regard to the above report, was any of the so-called fibrosarcomas seen in their study evaluated by other pathologists? How about John Harshbarger or John Sundberg? I am becoming more and more hard nosed about this because more and more garbage is being pumped out.

We can talk about this some more in Hawaii. It is our obligation to make sure that quality work is being done, especially when funds for this work are so limited.

With best regards,

Elliott



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March 6, 1995

Dr. Terry R. Spraker  
Wildlife Pathology International  
2905 Standford Road  
Fort Collins, Colorado 80525

Dear Terry:

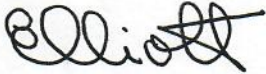
I recently received a copy of Southwest Fisheries Science Center Administrative Report H-95-01C, "Pathology Associated with Cardiovascular Trematodes and Fibropapillomas in Green Turtles (*Chelonia mydas*) from the Hawaiian Islands", and since I expect you read out the slides on the 14 cases which comprise this report, I have several queries for you. While much of what was reported is in agreement with what already has been published in green turtles and other marine turtles with spirorchid infections and fibropapillomas from other locations, there are several findings and interpretations which have resulted in my letter. First, I am intrigued by the following statement on page 8, 2nd paragraph of the Discussion: "Cutaneous tumors were considered malignant (i.e. fibrosarcomas) since they clearly produced metastatic lesions in other organs." Are you really interpreting the skin tumors as fibrosarcomas? If so, you are the first person since their original description to do so. If this is the case, this is a novel finding or interpretation. After reviewing several hundred green turtle skin tumors (fibropapillomas) over the last 14 years, I have never seen a cutaneous skin tumor in a marine turtle with fibropapillomatosis to have characteristics which support it being classified as malignant (i.e., junctional activity, invading local vessels, etc.). In fact, other investigators have even questioned whether this is truly a neoplastic condition at all. In a recent study we completed and which is in press (see enclosed paper titled "Flow Cytometric DNA Content analysis of Fibropapillomas in the Green Turtle, *Chelonia mydas*" to be published in Diseases of Aquatic Organisms), we evaluated a series of tumors (skin and visceral) from affected green sea turtles and found that cells in these tumors exhibited a normal DNA content and had normal cell cycles. Based upon these findings, it was our interpretation that fibropapillomatosis is a multicentric disease process with the causative agent producing tumors at multiple sites.

page 2.

Beyond the above, I still find it interesting that 2 of the tumors seen in your series of cases were interpreted as fibrosarcomas and one as a leiomyoma. Have the fibrosarcomas been reviewed by anyone else? If possible, I would love to look at the slides. If you could send me duplicate slides I will return them as soon as I have reviewed them. The material is yours and I will not take photos or use them in any way unless I have your permission. Further, was the leiomyoma diagnosed using supportive EM or immunohistochemical staining to clearly demonstrate the cell type. The reason I am asking is because after looking at several g.i. tumors in green turtles with fibropapillomatosis, all appear to be fibromas. However, I have not pursued trying to accurately identify the cell type in each case.

Please do not take the above in any shape, way, or form as a personal attack on your diagnostic abilities but purely as a skeptic when new information is presented which goes against popular belief. It may be that your interpretations are accurate and shed new light on the pathogenesis of this significant disease. Any help you can give will be appreciated.

With best regards,



Elliott Jacobson, D.V.M., Ph.D.  
Professor, Wildlife and Zoological Medicine

cc. Dr. A. Alonso Aguirre  
Mr. George Balazs

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May 19, 1995

Dr. Elliott Jacobson  
Department of Small Animal Clinical Science  
College of Veterinary Medicine  
University of Florida  
Gainesville, FL 32610

Dear Elliott:

This letter is in reference to the questions in your correspondence of 6 March 1995 in regard to the diagnoses of various tumors reported in the SWFSC Administrative Report found in green turtles. Thank you for sending this inquiry regarding the tumor diagnosis that we found in the serosa of the intestinal tract and dermis in two green turtles. Thank you, also, for sending the articles on "Fibropapillomatosis of Marine Turtles" by Herbst and the article on flow cytometric DNA content analysis by Papadi et. al. I did a Masson stain on the one tumor that I at first could not distinguish between a leiomyoma or a low grade well differentiated fibrosarcoma. The tumor did contain collagen and not muscle, therefore, it was not a leiomyoma, but a fibrosarcoma. I have shown this intestinal tumor and a dermal tumor to two other veterinary pathologists. One is Dr. David Getzy, who is the director of our diagnostic lab and has done an extensive amount of work with the Denver Zoo with fish and reptile histopathology. He also is doing histopathology on the endangered arboreal toad found here in Colorado. I also have shown this tumor to Dr. Barb Powers who does the majority of the neoplasia diagnoses for the veterinary teaching hospital. She also does research with various types of neoplasia especially tumors of bone and fibroblastic tissues. The conclusion reached by the three of us on the diagnosis of these two tumors (of which I have sent you a slide of each) is a low grade well differentiated fibrosarcoma. There is a possibility that the tumor of the intestine could have originated from the nidus of spirorchid trematode eggs that is located in the middle of the muscular wall of the intestine. The section I sent to you does not show this as well as the section that I have, but I have drawn a picture for you on another page of paper to show you the communication of this particular tumor to the nidus of spirorchid trematode eggs. The origin of the dermal tumor does not appear to be associated with spirorchid trematode eggs. I am aware of the controversy stemming from the etiology of the fibropapillomas of the skin, whether the tumor is

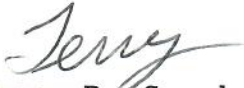
May 18, 1995  
Jacobson  
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caused by a virus (Herpes) or from a parasite. In my opinion, you are on the right track on the cause of the skin lesions, Herpesvirus. However, I do not think you should totally disregard the role that parasites could play in some of the other tumors, especially visceral tumors.

In regard to the statement in the SWFSC Administrative Report H-95-01C (page 8, 2nd paragraph), we do not consider the cutaneous tumors as malignant nor have we seen any evidence of metastasis to internal organs. However, finding these two tumors that are highly suggestive of a fibrosarcoma does suggest that there may be several different etiologies that play various roles in fibroblastic cellular proliferative lesions in green turtles.

A paper reporting these findings has been accepted for publication in the Journal of Wildlife Diseases and is currently under revision. Hope to see you at the next WDA meeting.

Sincerely,



Terry R. Spraker, DVM/PhD

ml:

cc: Dr. A. Alonso Aguirre  
Mr. George Balazs

George  
That was a good meeting that  
we had on the 9th of May,  
Hope everything is going well -  
Hope to see you soon  
Terry

neoplastic  
cells  
around  
eggs

tumor

eggs

muscular  
wall

mucosa

picture of tumor  
from ~~the~~ intestine  
# H1-92-37-02

