



## **EXOPHTHALMUS CAUSED BY THYROID TISSUE IN THE CHOROID LAYER OF THE EYE IN *Coris gaimard***

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**EXOPHTHALMUS CAUSED  
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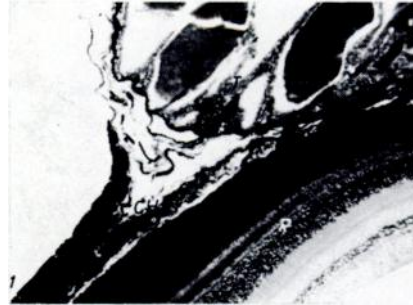
In the aquarium of the "Wilhelma" zoo of Stuttgart, Germany, a *Coris gaimard* developed a marked exophthalmus at the right side. The fish had lived in the zoo for about 15 months, and was feeding normally. Other fish of the same and different species living in the same tank showed no signs of disease. There are various causes of exophthalmus in fish, the most common being bacterial infections, such as those caused by *Mycobacterium* and *Aeromonas* spp., or parasitic larvae.

The fish was killed and examined. An unusual number of diatoms was found on the skin, but no other parasites or abnormalities except the protruding eye, could be detected. Behind the somewhat enlarged eye were several small brownish nodules (0.5mm in diameter). Stained smears revealed no acid-fast or other bacteria. The eye with the surrounding tissue was fixed and embedded in paraffin. The carcass was discarded.

There was no evidence of a bacterial infection in the stained tissue sections, but there were areas of thyroid tissue and a large blood sinus underneath and partly within the choroid layer of the eye. The thyroid follicles showed no sign of abnormal activity.

In fish, thyroid tissue has been found in various organs including ovary, spleen, kidney, rectum, heart, muscle, and bone. Pflugfelder (1966. *Endokrinologie*, 49: 87) has reviewed the literature. He reported that, after epiphysectomy, thyroid follicles entered the blood vessels and thus were transported to various organs. Baker et al (1955. *Cancer Res.* 15: 118-123) also found follicles in the choroid layer of the eye in inbred sword tail (*Xiphophorus helleri*).

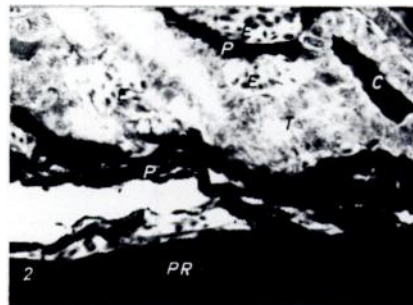
It would be interesting to learn how frequently exophthalmus is caused by this abnormal location of thyroid tissue in both aquarium and free living fish.



FIGURES 1 and 2.

*Thyroid tissue in the eye of Coris gaimard*

E = erythrocytes, C = colloid,  
CH = choroid layer of the eye  
P = pigment,  
PR = Pigment layer of the retina,  
T = thyroid tissue



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