

دیپلوستوماتوز ماهیان در ایران

دکتر بابامخیر*

خلاصه:

تعدادی ماهی اوزون برون (*Acipenser stellatus*) ماهی سفید (*Rutilus frisii kutum*) کپور معمولی (*Cyprinus carpio*) ماهی حوض (*Carassius auratus*) ماهی علفخوار (*Ctenopharyngodon*) *idella* فیتوفناگ (*Hypophthalmichthys molitrix*) و ماهی گورخری (*Aphanius sophiae*) و چند نوع دیگر از تاسیسات پرورش ماهی نزدیک رشت، اهواز، اصفهان و تهران و همچنین از آبگیرهای جنوب تهران بمنظور بررسی شیوع و شدت آلودگی آنها به متاسرکر انواع کیلکهای چشم ماهیان (*Diplostomum spp*) در بین سالهای ۱۳۶۴ و ۱۳۶۶ جمع آوری گردید. نوزاد دیپلوستوموم اسپاتاسه اول (*Diplostomum spathaceum*) در قسمت خارجی عدسی چشم انواع ماهیان یاد شده در بالا مشاهده گردید. جزئیات مربوط به شیوع و شدت آلودگی هر چشم گونه‌های ماهیان مزبور بیان شده است. همچنین آلودگی توام برخی از این ماهیان به این انگل و نوزادهای سایر ترماتودها مورد توجه واقع شده است. جدا کردن این انگل از ماهی اوزون برون و کپور ماهیان مختلف برای اولین بار از ایران و از ماهی گورخری محتملا " برای اولین بار جهان گزارش میگردد.

- 5- Roberts, R.J. and Shepherd G.J. 1974: Handbook of Trout and Salmon Diseases. Fishing News. PP. 64-65.
- 6- Roberts, R.J. 1978: Fish Pathology. Ed. Ballier Tindall, London. pp. 168-169.

is used (3 to 4 ppm)(2,3,5).

Acknowledgments: I wish to offer thanks to my students: H.Poustchi, M. Haramipour, M. Reza Ali and H. Zaim.

SUMMARY

The metacercaria of Diplostomum spathaceum were found in the lenses of stellate sturgeon, frisian roach, goldfish, common carp, grass carp, silver carp and barred killifish collected from fish hatcheries and water bodies. Details of the frequency and intensity of infestation of fish species are given. The isolation of this parasite from the sturgeon and different cyprinids is recorded for the first time in Iran and that of barred killifish probably for the first time in the world.

REFERENCES

- 1- Bykhovskaya-Pavlovskaya I.E., A.V. Gusev, M.N. Duninina, N.A. Izyumova, T.S. Smirnova, I.L. Sokolovskaya, G.A. Shtein, S.S. Shul'man and V.M. Epshtein 1964: Key to parasites of fresh-fish of the URSS, IPST, Jerusalem. pp: 598-604.
- 2- Christensen, N.O. 1968: Maladies des poissons. Ed. Synd. des Piscic. Salm. de France, Paris. PP: 83-86.
- 3- Davis, H.S. 1973: Culture and Diseases of game fishes. Berkeley, Univ. of California Press. PP: 227-222.
- 4- Post, G.W. 1983: Textbook of Fish Health, TFH Publications, New Jersey. pp: 171-175.

There is not antagonism or contrariety between eye-fluke and other larvae of trematoda. We have found D. spathaceum and Clinostomum complanatum (yellow grub) together in barred killifish, Posthodiplostomum cuticola (black-spot) with this eye-fluke in silver carp and finally grass carp was infected with both D. spathaceum and Echinochasmus perfoliatus (shedder scales).

We have observed that this parasite remains alive up to 14 days in about 6^{0C} after the death of fish.

Hens and pigeons are not probably suitable animals for obtaining the adult form of this fluke.

The infected fish may become unusually pale, lethargic with whitish turbidity in both lenses that can result in partial or total blindness, reduced growth and mortalities (with exophthalmia in some cases).

In extreme cases the outer part of the lens becomes soft and may be completely destroyed inflicting considerable losses in the fishing industry and fish culture.

There is no effective chemotherapy. Control methods include reducing or elimination of link in the transmission cycle, frightening off and shooting the gulls, wiring above the ponds and raceways, putting in an electric grid across the inlet, using copper compounds, calcium hypochlorite (HTH), chlorine gas, certain phenolic compounds, Frescon (Shell) and Trichlorphon, Flectron (molluscicide), immunizing with sonicated metacercarial antigens and biological control by spores of Nosema strigeoideae for elimination of intermediate hosts. In Iran, copper sulfate

Frequency and intensity of infestation with Diplostomum

Fish species	Length			No. Exam.	No. Infec.	Perc. Infec.	No. worms/fish			Right eye			Left eye		
	Min	Max	Av.				Min.	Max.	Av.	Min	Max.	Av.	Min.	Max.	Av.
Stellate sturgeon	14	20	16.1	42	24	57.1	1	12	2.2	1	3	1.3	1	11	1.7
Frisian roach	4.3	6	5.3	36	6	16.6	1	3	1.5	0	3'	3	1	2	1.2
	4	7.3	5.6	100	21	21	1	11	20	1	9	2.2	1	5	1.4
Common carp	4.7	7.6	5.6	20	1	5	1			0			1		
	8.5	12.9	10.2	4	1	25	1			0			1		
Grass carp	6	8.2	6.7	11	11	100	6	12	8.3	3	7	4.45	1	8	3.63
	8	16.5	13	10	1	10	2						2		
Silver carp	5	6	6.9	3	3	100	3	48	18	1	28	10.3	1	20	7.6
	8	24	12.4	11	5	45.4	3	9	4.2	1	4	2	1	5	2.6
Goldfish	5.7	13.8	9.9	50	50	100	1	19	7.3	1	12	4	1	11	3.7
Barred killifish	2.1	5	3.1	50	43	86	1	12	3.5	1	6	2		7	2
Frequency and intensity of infestation with both <u>Diplostomum</u> and <u>Clinostomum</u>															
Barred killifish	2	2.9	2.57	13	13	100	1	16	3.76	1	16	3.76	1	16	3.76
	"	"	"	13	7	53.84	1	3	1.71	1	3	1.71	1	3	1.71

Frequency and intensity of infestation with both Diplostomum and Clinostomum

Stellate sturgeon (Acipenser stellatus)

Frisian roach (Rutilus frisii kutum)

Goldfish (Carassius auratus)

Common carp (Cyprinus carpio)

Grass carp (Ctenopharyngodon idella)

Silver carp (Hypophthalmichthys molitrix)

Barred killifish (Aphanius sophiae)

In all cases mentioned above the parasite was free and unencysted but we have isolated only two specimens of encysted form from killifish.

These fishes were not infected: Acipenser guldenstadti, Slamo gairdneri, Aspius vorax, A. aspius, Tor grypus, Leuciscus spp, Varicorhinus spp and Mugil abu zarudnyi.

Details of the frequency and intensity of infestation in each eye of fish species are given in the following table.

CONCLUSION

Isolation of this parasite from the sturgeon and different cyprinids is recorded for the first time in Iran and that of barred killi-fish for the first time in the world.

The distribution of this worm is wide-spread in Iran.

The pond and cultured fishes are more sensitive than native fishes. The common carp is less sensitive among the other cultured cyprinids. The rainbow trout is actually non infected and it is probably more resistant than the cyprinids.

Free and unencysted forms of this parasite are found in the optic lens of over 125 species of fish, chiefly cyprinid with intensity of infestation up to 500 specimens per eye (1,4,6).

MATERIALS AND METHODS

A survey on the metacercaria of the eye fluke was made, for this about 550 fish which included 14 spp were collected from two fish hatcheries near Rasht and one hatchery near Isfhan and other near Ahvaz and also from water bodies, ponds and fish culture establishments near Tehran and finally from Ekbatan Dam near Hamadan (different cities in Iran) during 1985 and 1987.

The fishes were transferred alive or kept in ice to the Fish Dis. Laboratory of Vet. Fac., Tehran University. Lenses were cut on a slide with drop of water and examining the slide with a microscope at low power, and metacercariae were seen alive in infected fish.

To obtain the adult form of the eye fluke, some of the lenses of the infected frisian roach and gold fish were introduced in the throat of two hens (50 lens for each) and two pigeons (6-8 lens for each). After 5-10 days they were dissected and their digestive tract and eyes were free of this worm.

RESULTS

Examination of mentioned fishes revealed 7 spp positive for metacercaria of D. spathaceum.

The larvae of this worm were found in the outer part of the lens of all positive spp which are as following:

Fish Diplostomatosis in Iran

B. MOKHAYER*

INTRODUCTION

Diplostomatosis, Diplostomiasis, Eye fluke disease, Parasitic cataract or Worm cataract is an infection involving any of the various species of the larval genus Diplostomum, Diplostomatidae, Digenea, Trematoda.

Metacercariae of genera: Diplostomum, Tylodelphys and Apatemon are found encysted or free in eyes of freshwater fish (some species localized in brain, musculature and skin).

The most important species is Diplostomum spathaceum (Rudolphi, 1819). Its other names are: D. flexicaudum and D. volvens and its common name is Eye fluke.

The body is 0.3 to 0.5 mm in length and distinctly divided into a flattened anterior forebody and more cylindrical, narrower and shorter hindbody, found in the fish-eating bird intestine.

In the larvae, body is broad, feebly mobile, its anterior bluntly rounded end with angular lappetlike protrusions and lateral suckers, are distinct. Brandes's organ is round or somewhat extended transversely. Hindbody relatively feebly developed and short, distinctly differentiated from forebody.

* Department of Clinical Science, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran.