

Abnormalities in dorsal fin of *Cyprinus carpio communis*

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ABSTRACT

Since decade the abnormalities in fishes have not been uncommon. Much of the cases of abnormalities are reported in vertebral column (Al-Hassan & Naama, 1986). Only one or two cases of abnormalities in fins have been reported so far in Indian carps (Kapoor, 1955 and Unnithan, 1986 personal communication, Jain & Durve, 1978). The present communication deals with abnormality in four fishes of *Cyprinus carpio communis* in the dorsal fin.

It was noticed that the abnormal fishes have 19 fin rays in the dorsal fin whereas in the abnormal fishes it ranged from 8 to 17 or even the absence of dorsal fin. In the present paper possible causes of abnormalities have been explained.

The observed dorsal fin abnormalities in common carp are probably caused by mechanical disturbances in muscle tissues, infections, injuries and may be change in the quality of water.

Keywords: *Curvature, Locomotion, Common carp, Finray, Abnormality*

INTRODUCTION

Since decades the abnormalities in fishes have been reported. Gemmill (1972) and Dawson (1964, 1966) prepared a bibliography of more than 1000 references on abnormality and found that deformities of vertebral and caudal region are not common. Notable recent work on vertebral abnormalities is performed by Gill and Fisk (1966), Austand and Kittleson (1971), Bucke (1974), Al-Hassan and Naama (1986) and Srivastava (1990). However, notable cases in carps are scanty. In India,

Later, Kapoor and Sarkar (1955) reported four deformed specimens of *Labeorohita*. Notable work on vertebral deformity in carp in India is reported by Jain and Durve (1978) and Unnithan and Durve (1986). Very recent case of dorsal fin abnormality in *Puntius conchonioides* (Ham) from Jammu has been reported by Dutta and Kumar (1991).

MATERIALS & METHODS

The present communication deals with four common carp with dorsal fin abnormalities. These fishes were collected from a common breeding stock in Pathari lake of Vidisha district in live condition and reared in glass aquaria on artificial feeding to study growth and further development of the abnormalities.

The characters concerning the abnormalities in these fishes were compared with those of normal fishes of the same species and measurements of dorsal fin, total length, standard length and weight were taken. The speed of the normal fish and abnormal fish was also taken in account.

X-ray microscopic study was further conducted but it has not shown any significant results. For water quality examination APHA (1985) was consulted.

OBSERVATIONS & RESULTS

It was observed that when these four abnormal fishes were compared with normal common carp *Cyprinus carpio communis*, this investigation did not find any significant correlation in morphological features like total length, standard length, and weight. It was noticed that fish without dorsal fin ray has dorsal fin impression (No fin rays) of 0.5 cm. This distance increases gradually with increasing number of fin rays. However, this distance was highest in case of normal fish (Table-1), On the other hand distance from dorsal fin base to caudal fin was highest of fish without dorsal fin (fishno.1) and reduces with the presence of dorsal fin and the increase in fin rays. Thus it was least in normal fish (0.55 cm.) and highest in fish without dorsal fin (1.80 cm. fish no.1). The distance from mouth tip to dorsal fin gets reduced from fish no.1 to 4 and least in normal as in above case

Table : 1 . Morhometrical characters of Normal and Abnormal common carp

S.No.	CHARACTERS	NORMAL FISH	FISH 1 (Finrays NIL)	Fish 2 (08 Finray)	FISH 3 (15 F.R.)	FISH 4 (17 F.R.)
1	Total length (cm)	4.90	5.20	5.10	4.90	4.90
2	Standard length (Cm)	3.65	3.80	3.80	3.85	3.85
3	Head Length (Cm)	1.40	1.60	1.55	1.50	1.50
4	Dorsal fin length (Cm)	1.40	0.50	0.60	1.10	1.25
5	Distance from dorsal fin base to candal fin (Cm)	0.55	1.80	1.50	0.85	0.70
6	Distance from mouth tip to dorsal fin (Cm)	1.75	2.60	1.95	1.90	1.80
7	Weight of the fish (gm)	2.55	2.95	2.55	2.65	2.55
8	No. of fin rays	19	Nil	8	15	17
9	Speed of fish (Sec./metre)	7.2	9.2	8.8	7.8	7.6

Table : 2. Physico-chemical characters of water

S.NO.	PARAMETERS	VALUE
1	PH	7.6
2	Dissolved oxygen	6.9 Mg/L
3	Methyl Orange alcalinity	112 Mg/L
4	Transparency (Visibility)	85 Cm

5

Temperature 19.5 'C
of distance from dorsal fin base to caudal fin. This indicates that growth of dorsal fin takes place on anterior & posterior side. It was further, interesting, to note that speed and capacity of movement was highest in abnormal fish without dorsal fin and ray and least in normal fish. It, therefore, appears that dorsal fin does not effect speed of the fish, it may help only as a balancing organ in common carp fingerlings. Other behavioral activities of fish, like locomotion and feeding etc. were normal.

DISCUSSION

While discussing the causes of abnormalities in fishes, Gemmill (1912) concluded that no single reason was sufficient enough to explain the cause of deformities. Dawson (1964, 1966) , however, came to across different probable reasons for deformities in fishes. The absence of dorsal fin and fin rays as observed in fingerlings of common carp, Cyprinus carpio communis of the present study certainly differs from the deformities reported by Menon (1950), Kapoor and Sarkar (1955), Sarkar and Kapoor (1956), Buke (1974), Al-Hassan and Naama (1986) and Srivastava (1990). While studying the dorsal fin abnormality in Coilia, Menon (1950) suggested that an accidental amputation of the fin facilitated its degeneration leading to malformation. In the present study no signs of accidental amputation were visible externally in photograph. The absence of dorsal fin was clear and number of fin rays in dorsal fin counts was clear in photograph (fig.1) . The signs or marks of parasitism, bacterial and fungal infection were also not discernible, as suggested by klinke (1966).

Teratology in fish has been attributed to disturbances in muscle tissue , Srivastava (1990) , infections, injuries and toxicity of pollutants (McHugh, 1942; Gabriel , 1955; Bucke , 1974 and Baumann & Hamilton ,1984).

While discussing effects of pollutant, causing abnormality to the fish is ruled out as the source from where fishes were collected is free from any type of industrial, chemical and sewage wastes (Table - 2) similarly reported cause of abnormality due raised water temperature (Gabriel, 1955) is not the case in the present study.

The causes of these abnormalities have not been identified in the present study but it is worth while postulating that it is difficult to correlate this abnormality with any factor and hence, no single factor is sufficient to explain the cause of deformities (Gemmill, 1912 and Sarkar&Kapoor, 1956). Our study is quite similar to the above authors .



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