

MONOCENTRIS JAPONICUS WITH ABNORMAL VENTRAL SPINES

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SEVEN FIGURES

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Abnormal cases of the spines of ventral fin described in the present note were found in the specimens of pine-cone fish, *Monocentris japonicus*, which had been given to me by Dr. Y. Yazaki, professor of bacteriology at the Zikeikwai Medical College, Tokyo, to whom I must express my thanks.

NORMAL VENTRAL SPINES

The ventral fin of this peculiar fish (fig. 1, 2) is composed of a very stout spine and a fin proper, which is small and is provided with three soft rays.

The spine is about 30 mm. in length in the adult fish. It has fine longitudinal grooves along its entire length, but one of them is particularly deep which runs along the mesial side when the spine is folded close to the body.

The spine is articulated in a trigger fashion, the interesting mechanism of which has been described at some length by Thilo¹. So I shall not enter into the detailed description of this mechanism, but the structure of the head of the spine will here be briefly dealt with so as to help the reader toward a better understanding of abnormalities to be described later on.

1 Thilo, O. 1896 Die Umbildungen an den Gliedmassen der Fische. Morph. Jahrb. Bd. 24, S. 287-355.

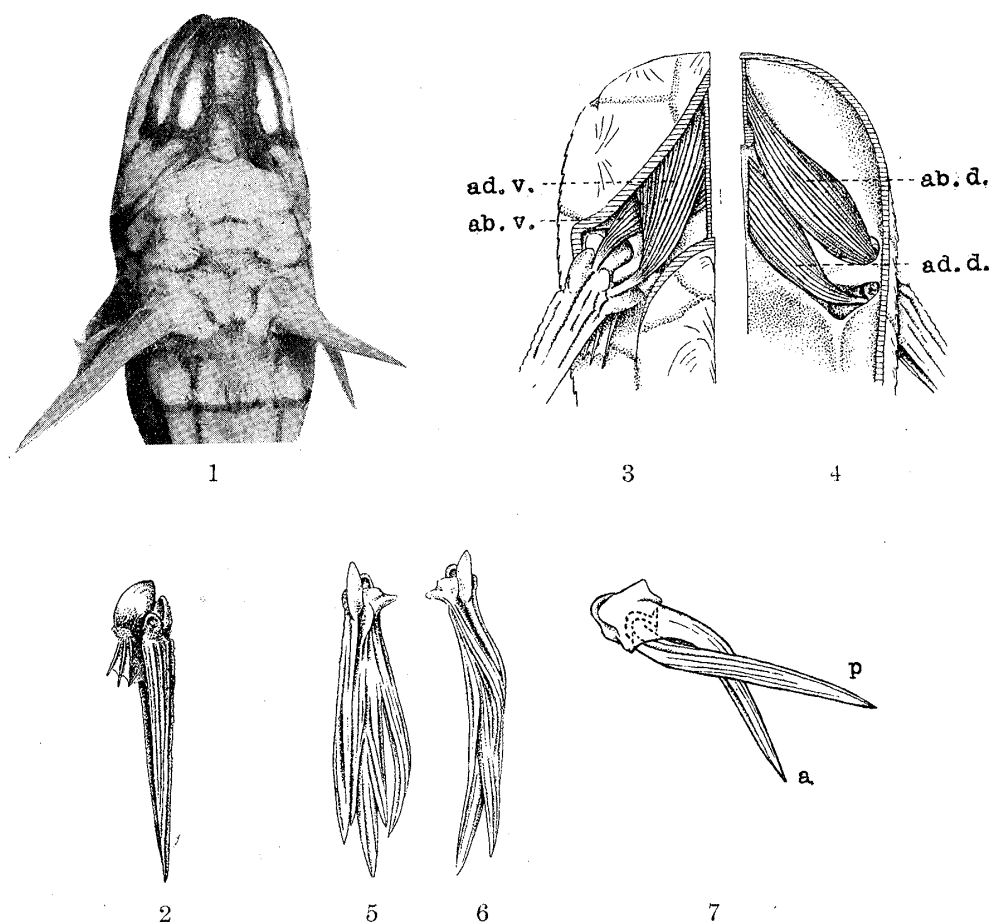


Fig. 1 Ventral view of the upper half of pine-cone fish with double ventral spines. Fig. 2 Normal spine with fin. Fig. 3 Ventral view of spine muscles. Fig. 4 Dorsal view of spine muscles. Fig. 5, 6 Abnormal spines of Type A. Fig. 7 Abnormal spines of Type B.

The head of the spine has a vertical axle, a horizontal disc and a checking knob. The disc, it may be noted, glides on a transverse beam of the pelvic girdle, as the spine is folded or stretched (fig. 2).

Each spine is moved by four muscles, dorsal and ventral abductors, and dorsal and ventral abductors. The places of attachment and insertion are shown somewhat schematically in fig. 3 and 4.

ABNORMAL VENTRAL SPINES

Fairly frequently one comes along abnormal ventral spines in the pine-cone fish. They may be divided into two classes.

TYPE A

I have eight specimens in which the ventral spines show a more or less similar anomaly (fig. 5, 6). Here the head remains single, while the body of spine consists of smaller spines numbering in some cases as many as five. They give one an impression that smaller spines have run together and twisted in a peculiar way. However, I know nothing of the genesis of such anomalies. It may be added that the fin proper is always normal irrespective of the aberrant form of the spines.

TYPE B

I have a single case of this type of anomaly, in which the ventral spine have undergone a complete doubling, that is, there are two spines one behind the other. The posterior spine is in all respects homologous with the normal one, the anterior being an addition (fig. 1, 7). Both the spines are shorter and thinner than the normal. They measure 24 mm. and 22 mm. in length respectively. When they stretch out, they cross each other (fig. 7). The posterior spine alone has a fin part which shows no anomaly.

It is important to note that each of the spines has a longitudinal groove. This undoubtedly shows that the re-duplication does not mean the splitting of an originally single spine along the groove.

The anterior spine has acquired a new articulation surface with the posterior and is provided with a reduced disc-like expansion. The posterior one has no disc at all.

It is of interest to mention that the anterior spine has only the ventral set of muscles, while the posterior only the dorsal one.

The shape of the two scales mesial to the base of the abnormal spines are somewhat modified in shape.

So long as the normal development of the ventral spine remains in the dark we do not know what the above two types of anomalies really mean. At any rate this short note may be of some interest regarding the spine formation in the fish in general.