# 实验五、头索动物、尾索动物、圆口纲、鱼纲观察

# 一、实验目的

1.通过文昌鱼装片观察文昌鱼的主要特征；

2.学习解剖鱼类的方法、主要步骤；

3.总觉并掌握鱼类代表种类，掌握鱼类适应水生生活的基本特征；

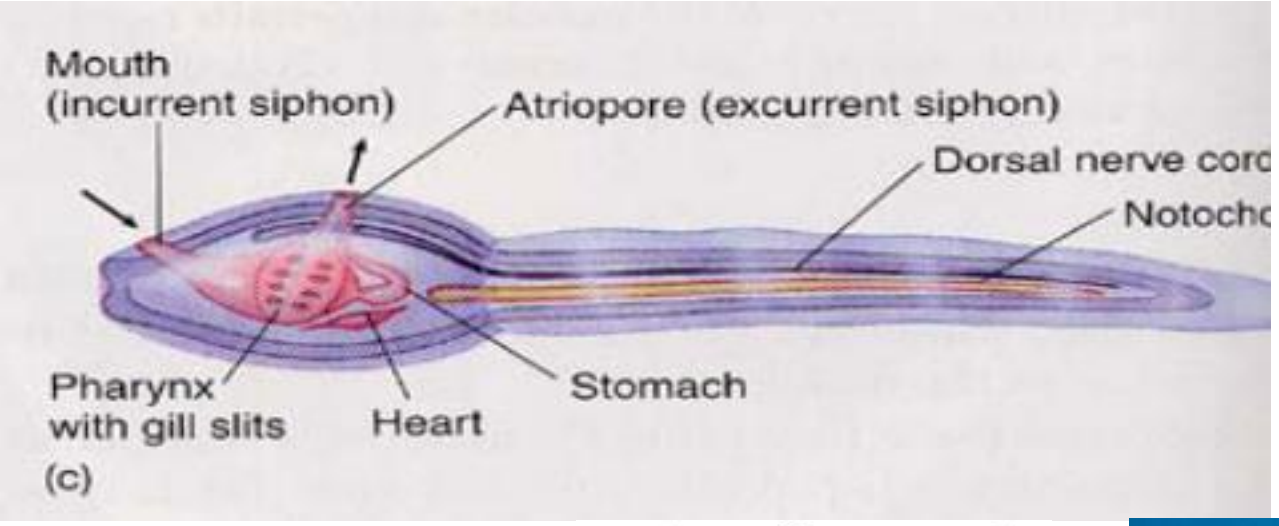
4.了解圆口纲的主要特征。

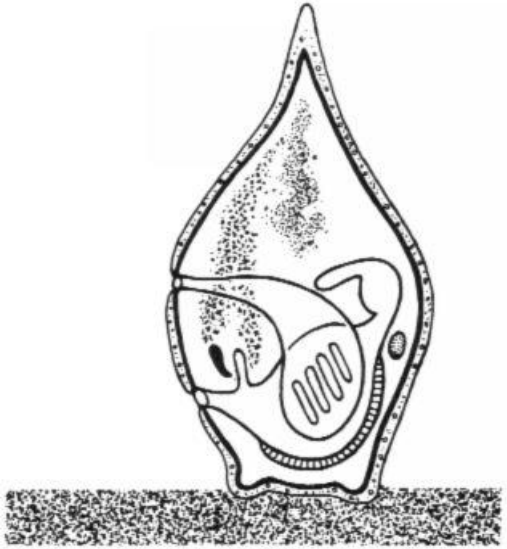
## 二、材料与用具

鲤鱼、草鱼、青鱼、鲢鱼、文昌鱼浸制标本、止血钳、骨剪、手术剪、其他鱼类浸制标本、七鳃鳗浸制标本

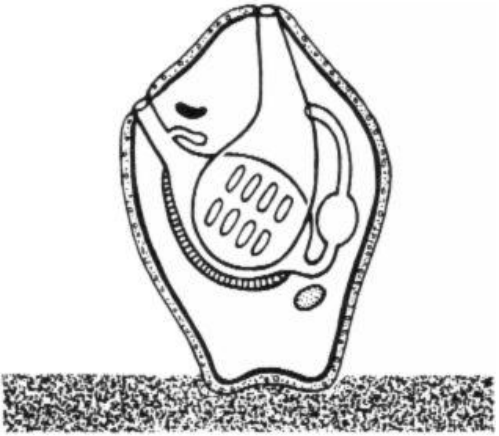
# 三、操作与观察

## （一）尾索动物亚门

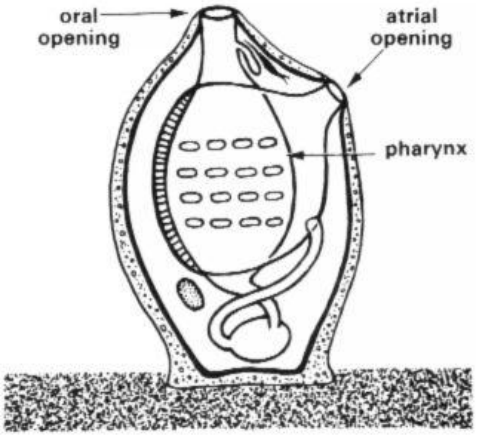


2. Larva attaches at its anterior end and begins **metamorphosis**. Tail, notochord, and most of the nervous system are resorbed.

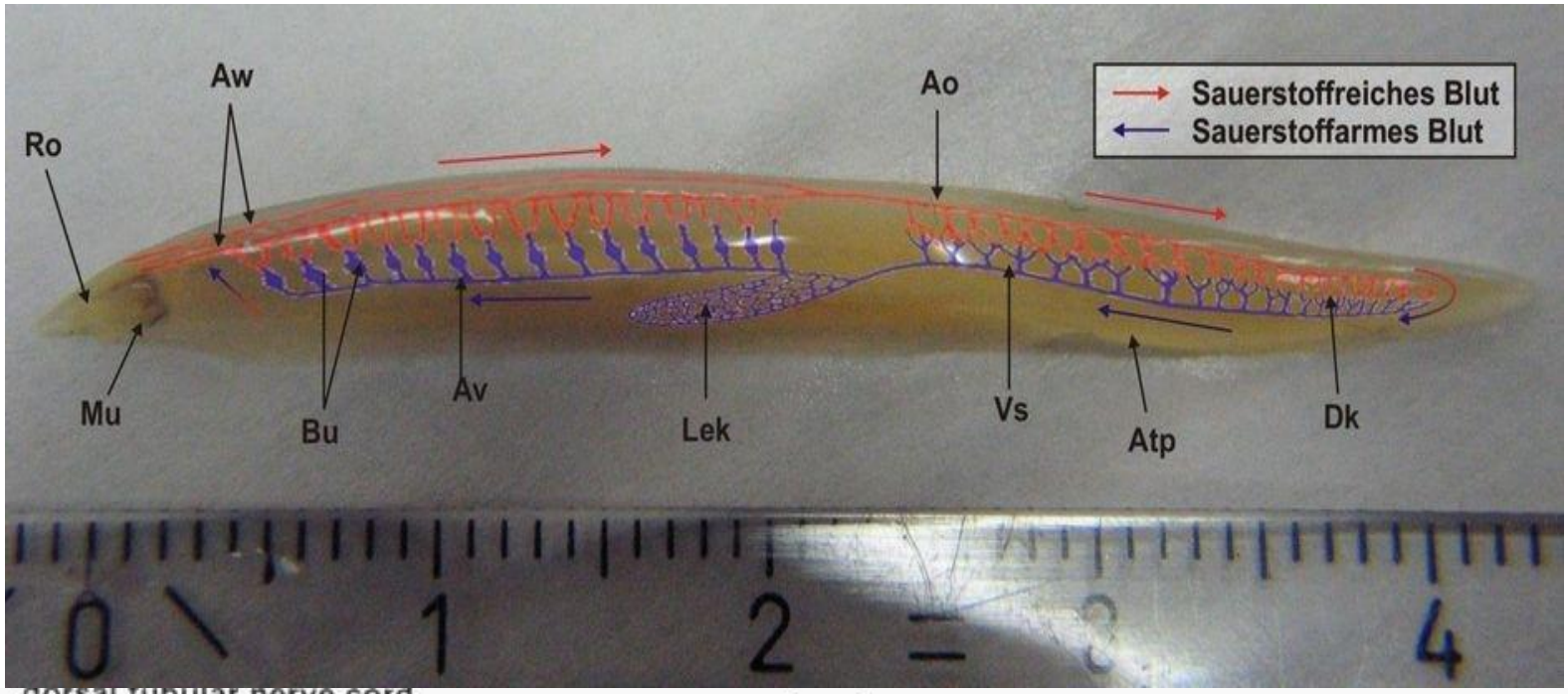


3. While the ganglion, heart, digestive system, and atrium continue to develop, and pharyngeal slits divide into many smaller openings, ...




4. ... the siphons and internal organs become rotated about 90° so that the siphons are directed away from the substrate. (Combined from various sources)

# （二）头索动物亚门


Aw
Ro
Ao
Sauerstoffreiches Blut
Sauerstoffarmes Blut
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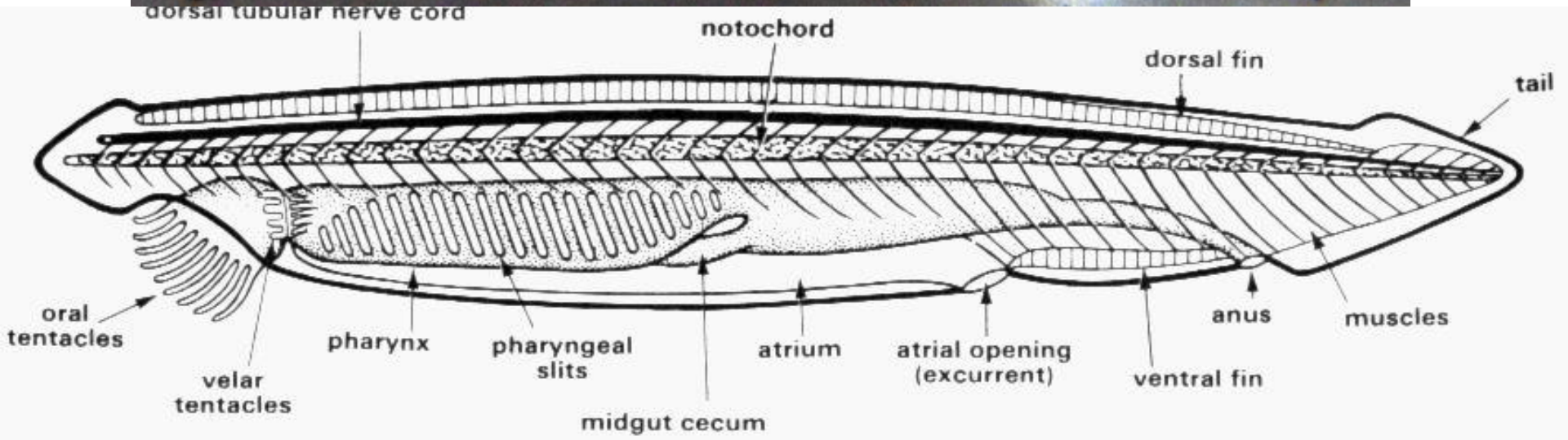
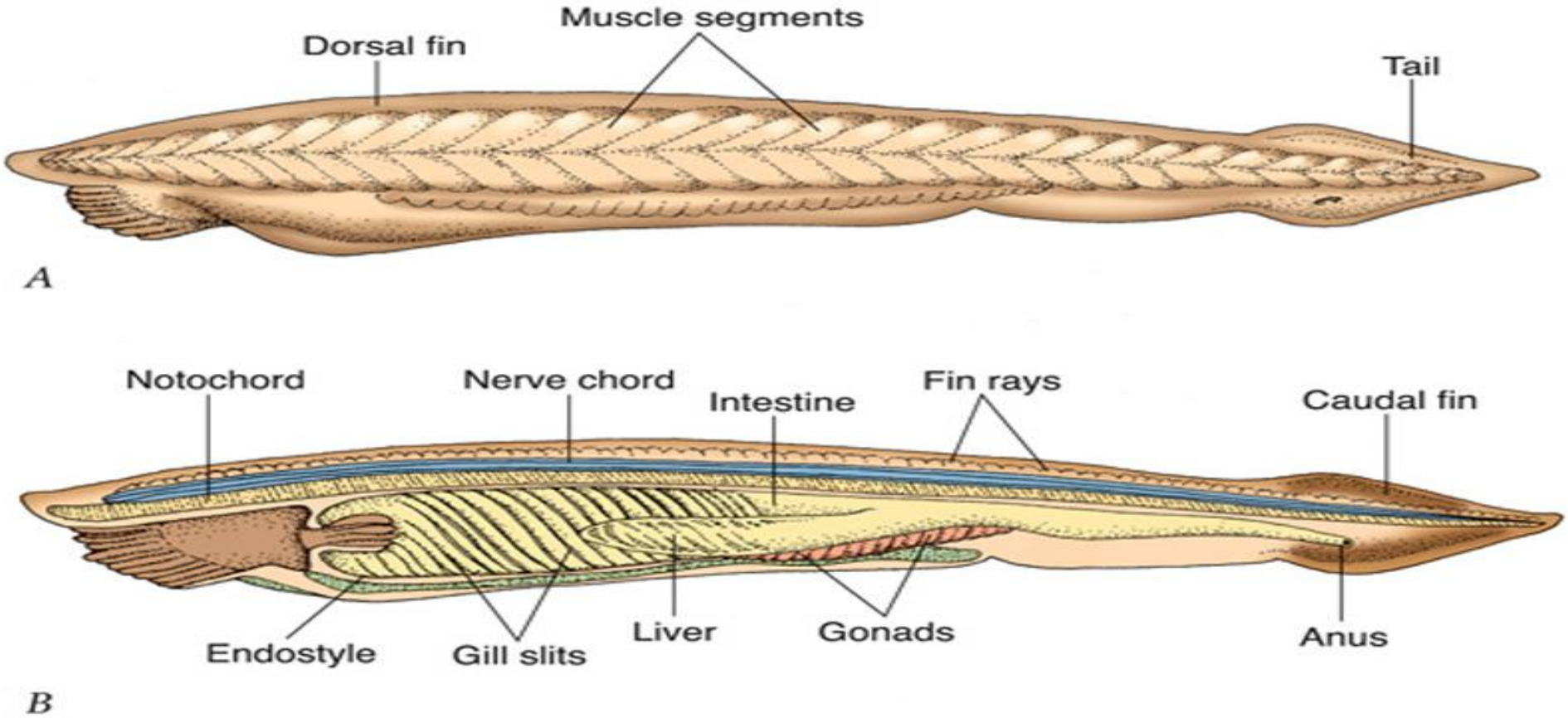
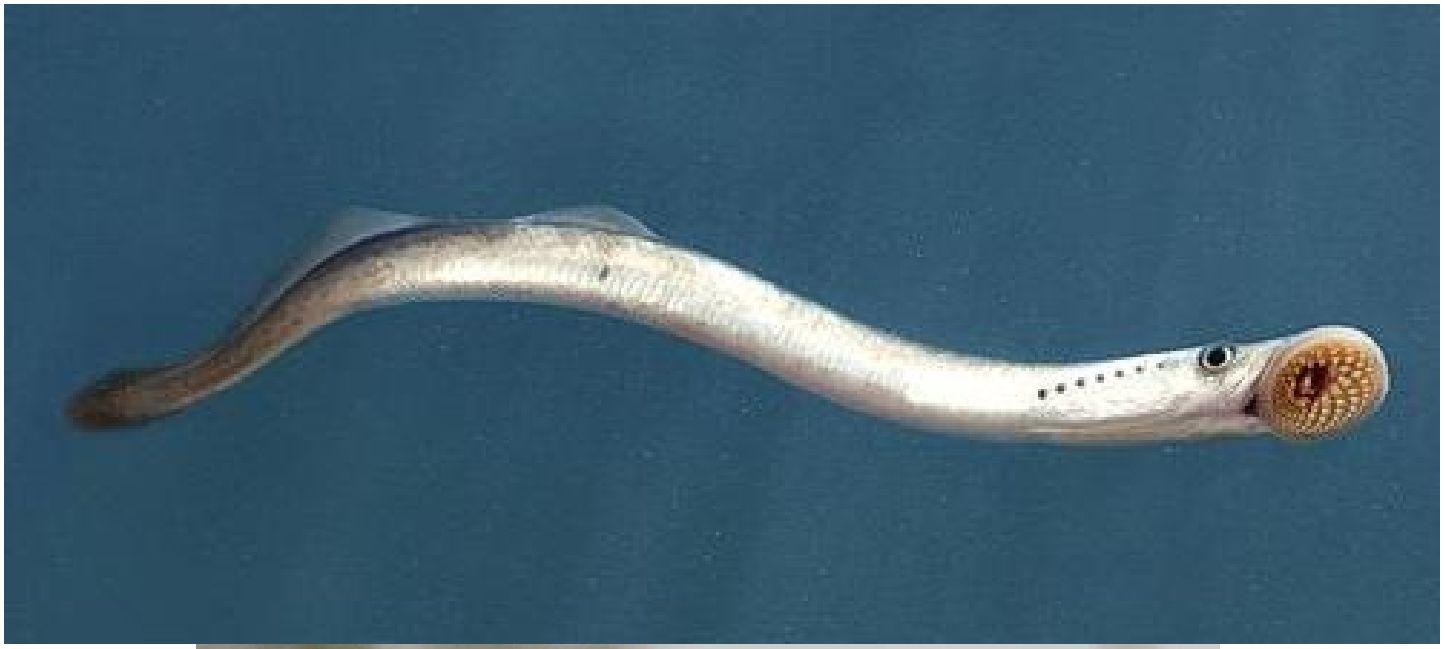

dorsal tubular nerve cord
notochord
dorsal fin
tail
oral tentacles
velar tentacles
pharynx
pharyngeal slits
midgut cecum
atrium
atrial opening (excurrent)
ventral fin
anus
muscles

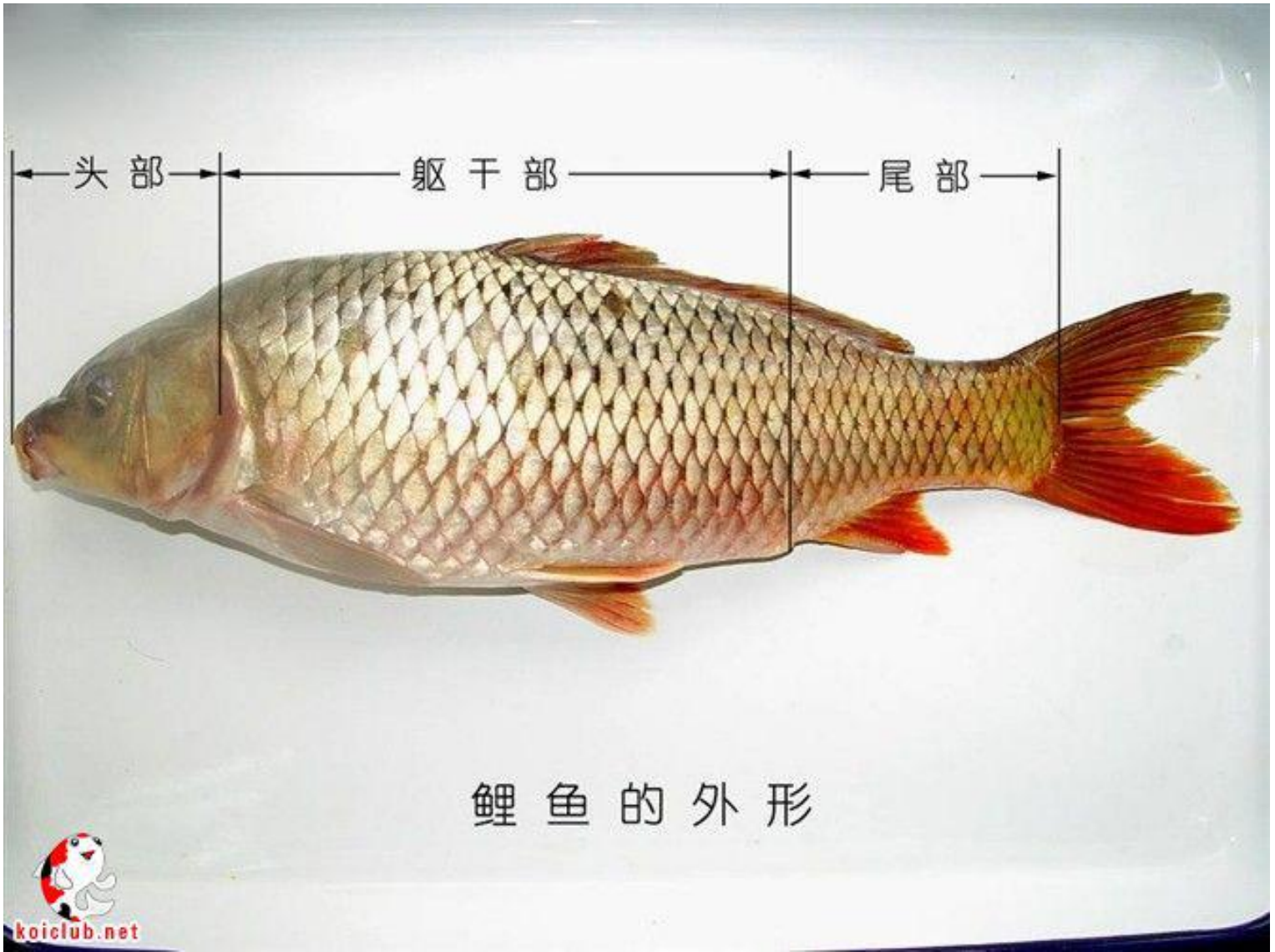

Muscle segments
Dorsal fin
Tail
A
Notochord
Nerve chord
Intestine
Fin rays
Caudal fin
Endostyle
Gill slits
Liver
Gonads
Anus
B

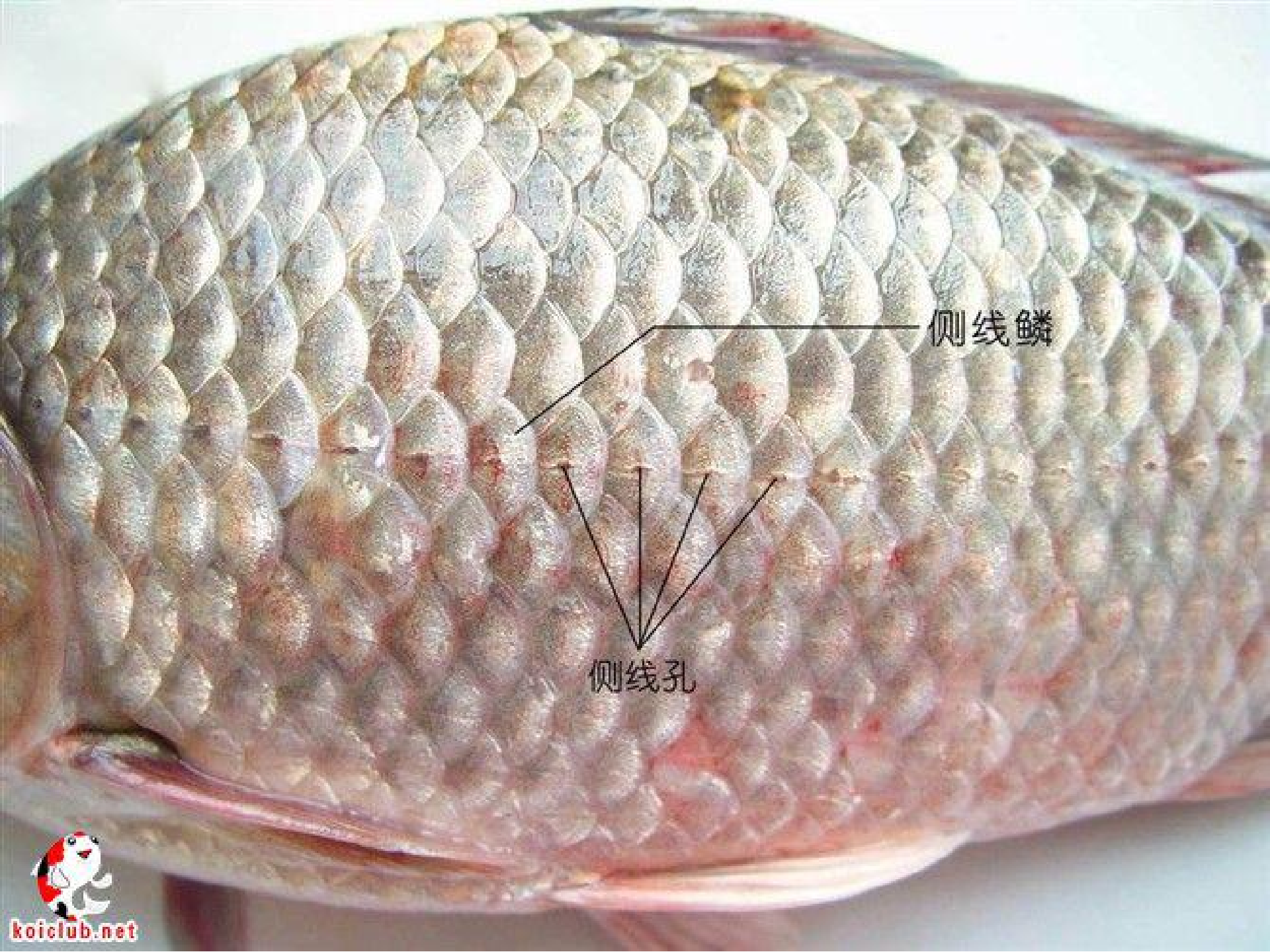
# （三）圆口纲

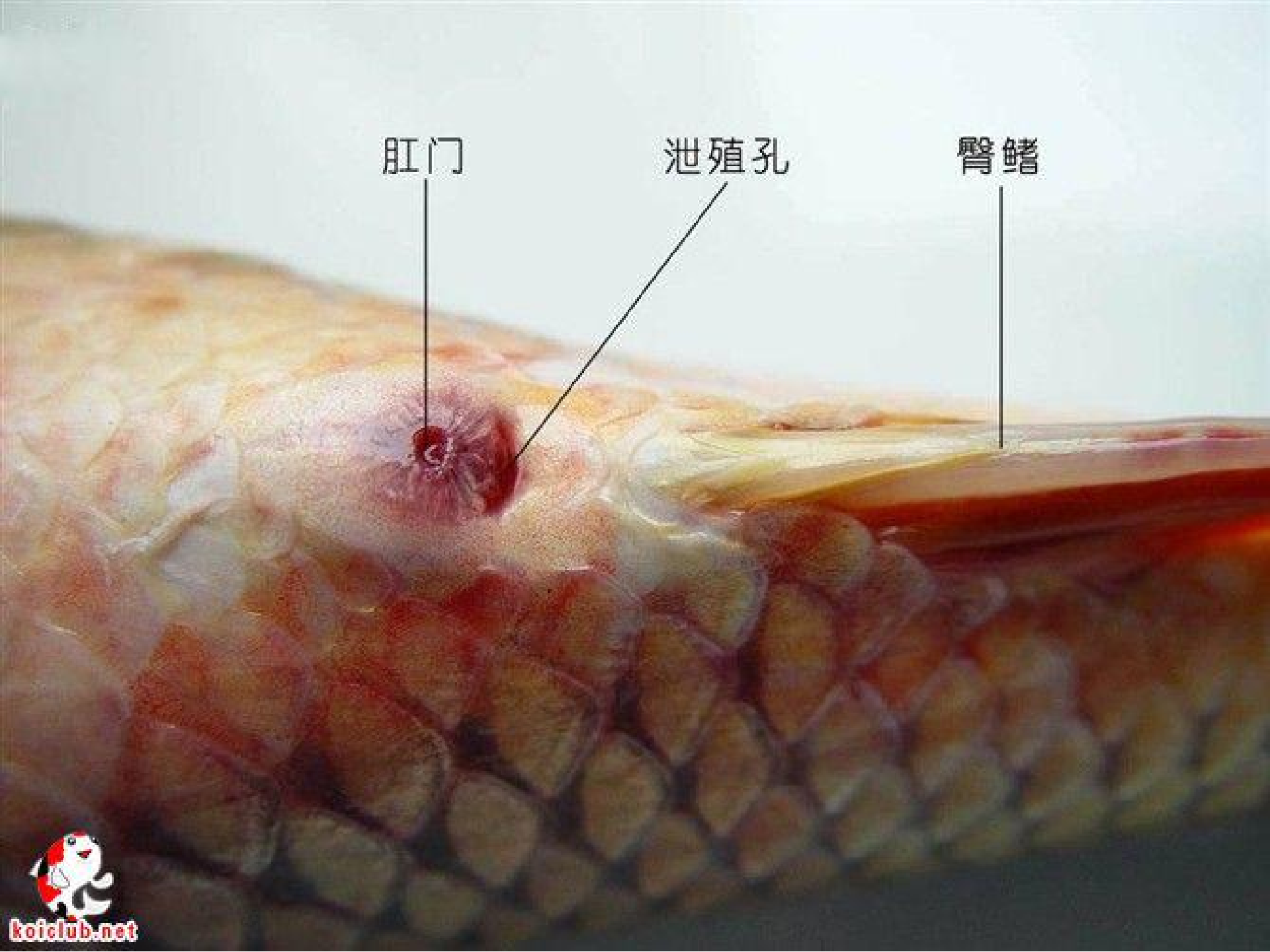


# （三）鱼纲（以鲤鱼为例）

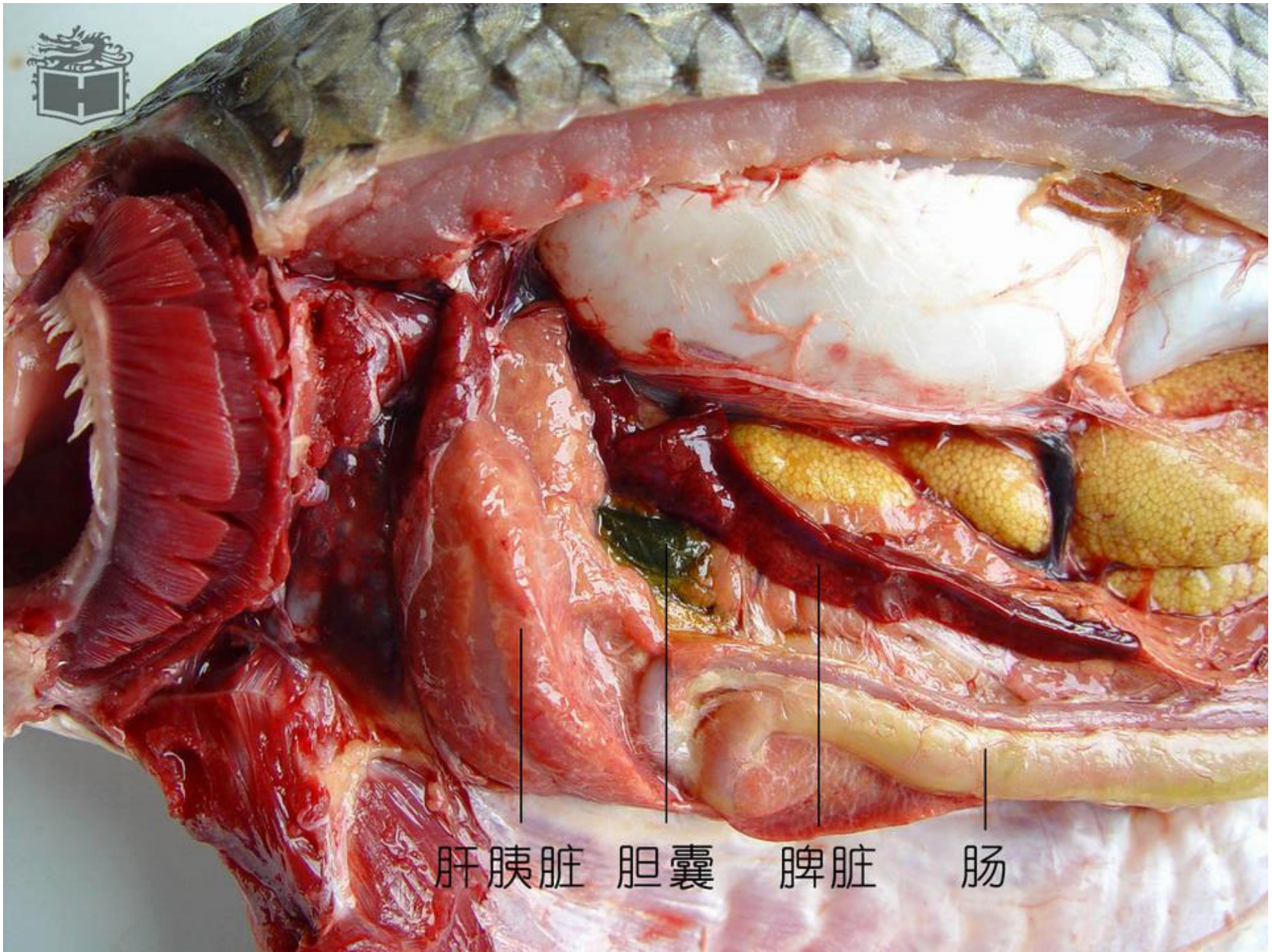
## 1.外形

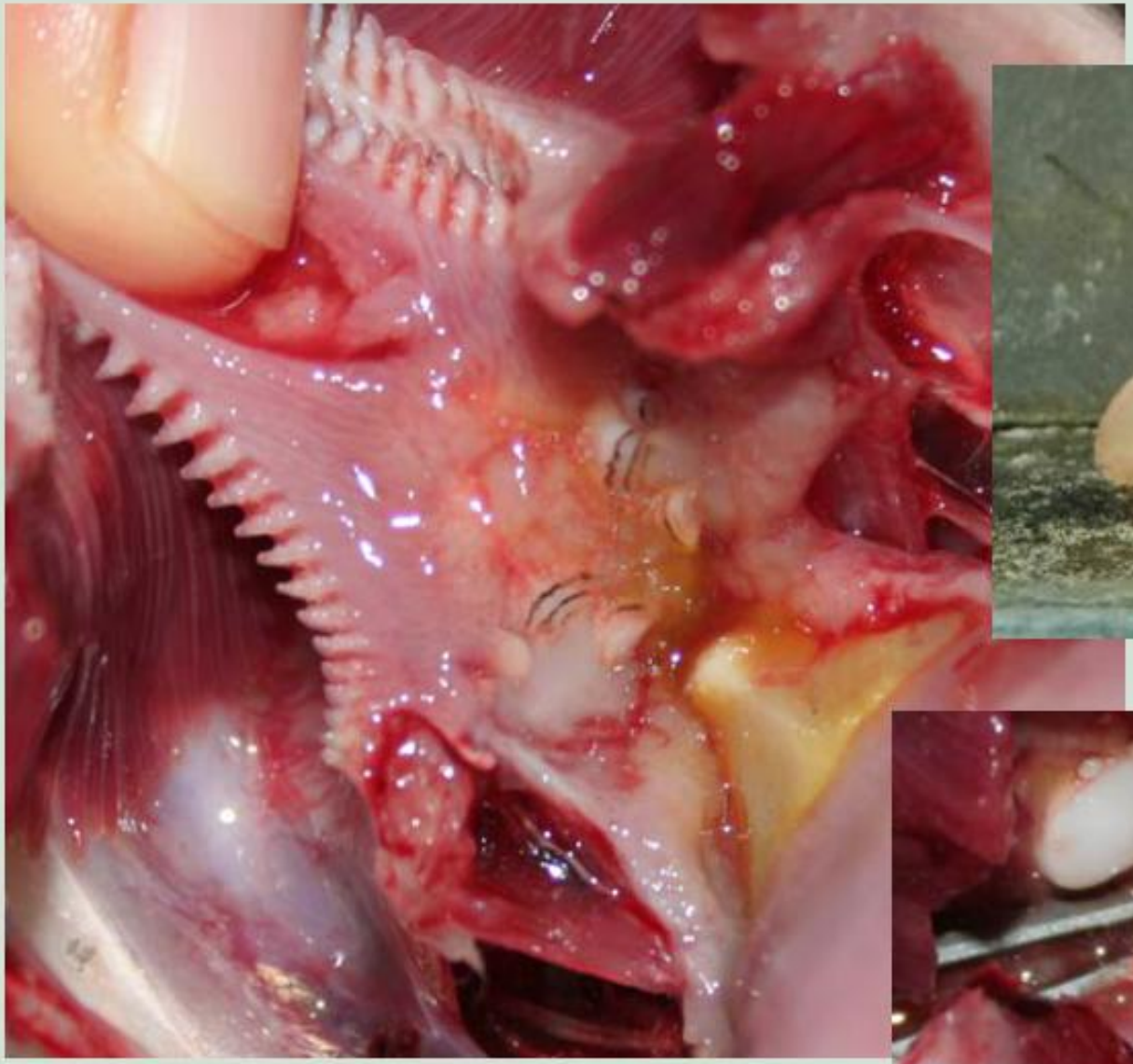






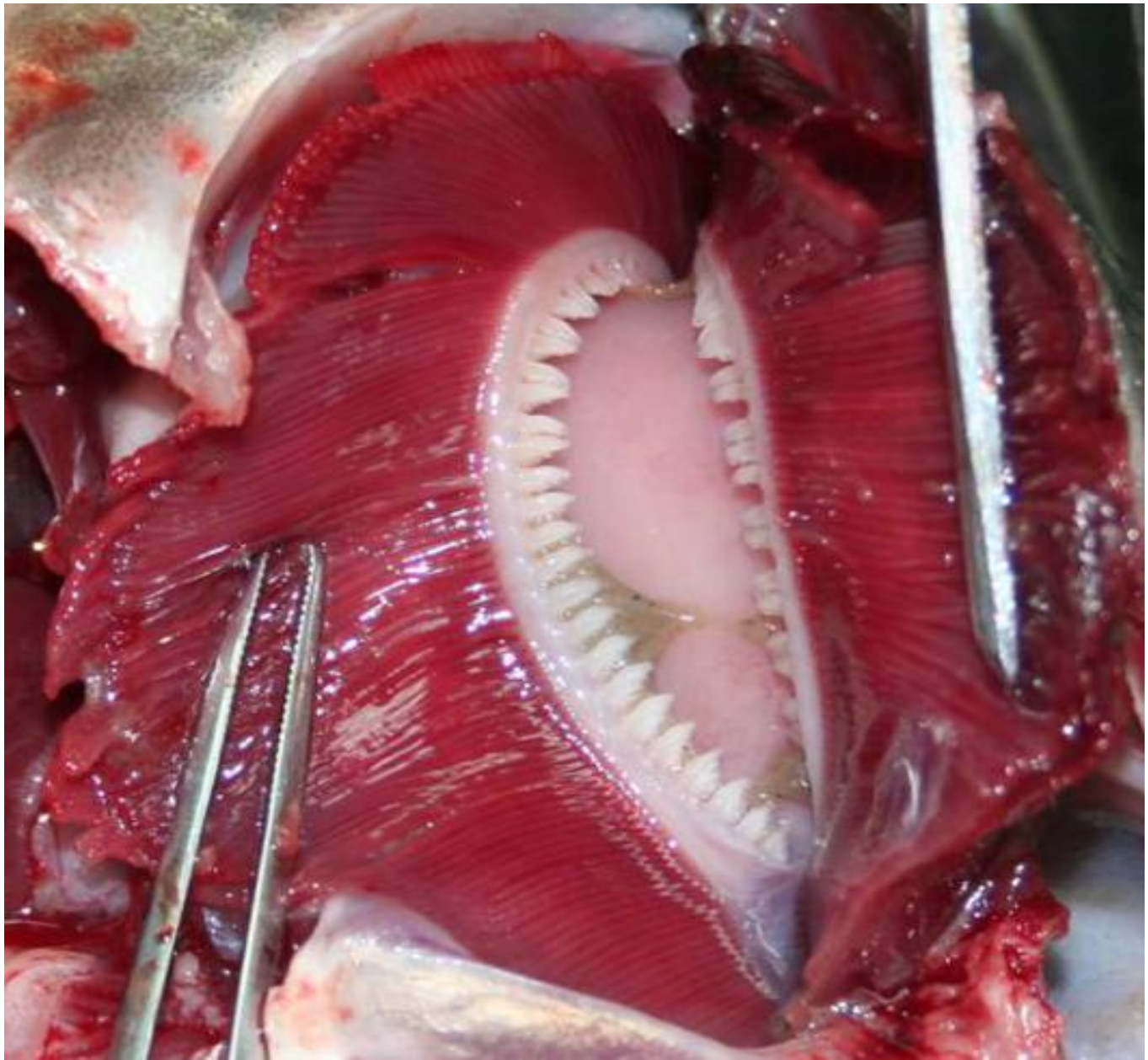
# 2.消化系统

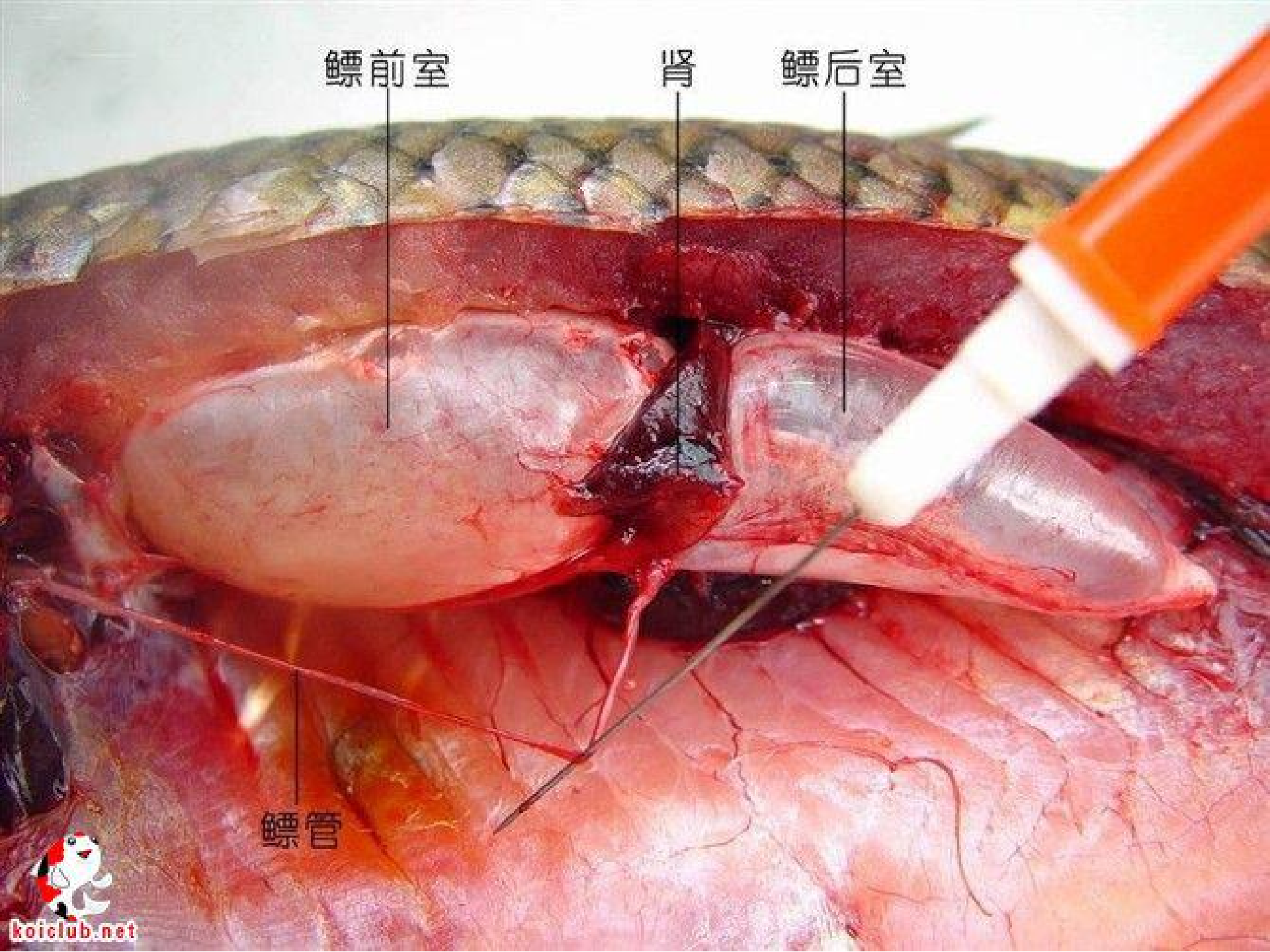




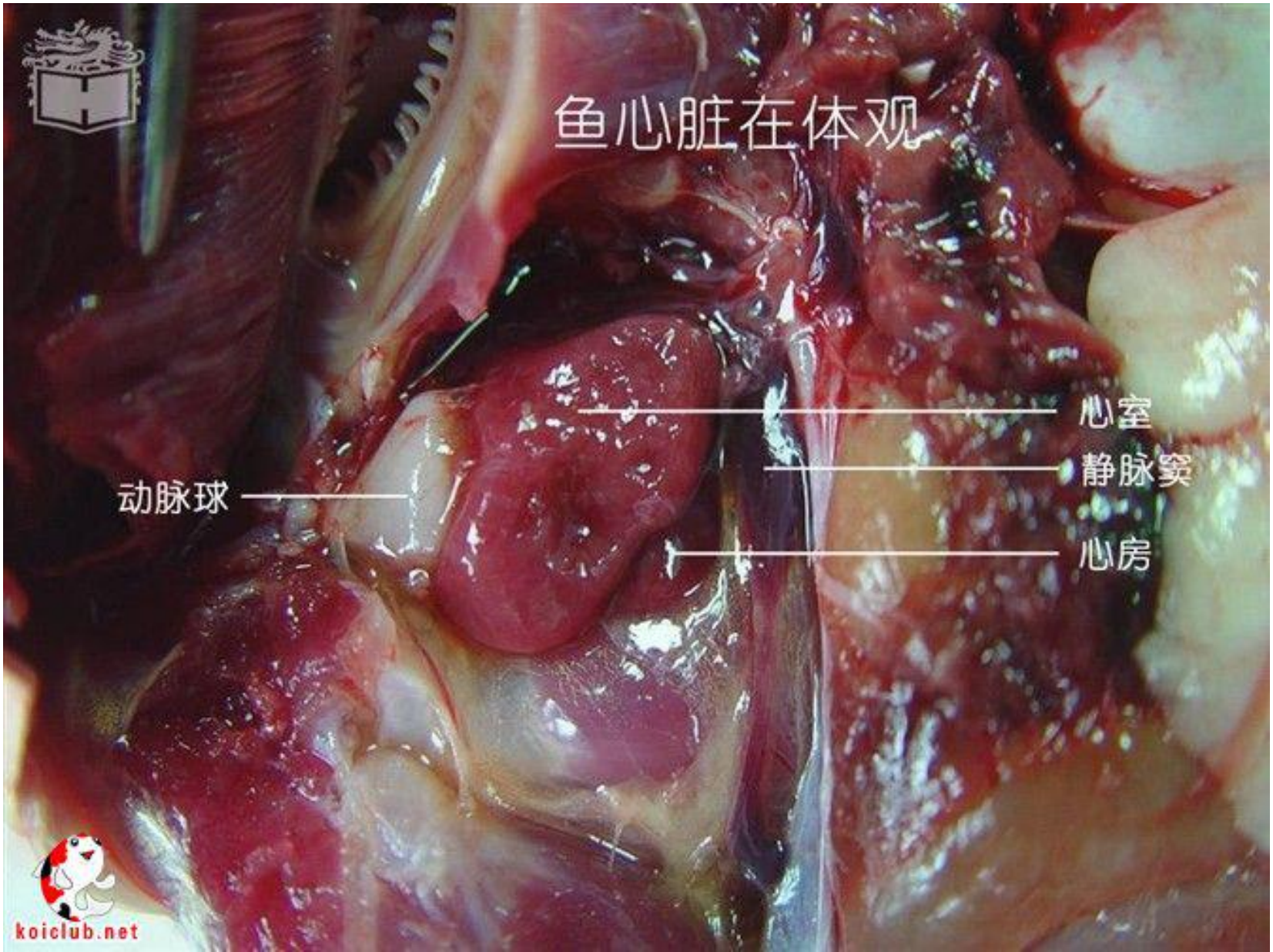
咽喉齿

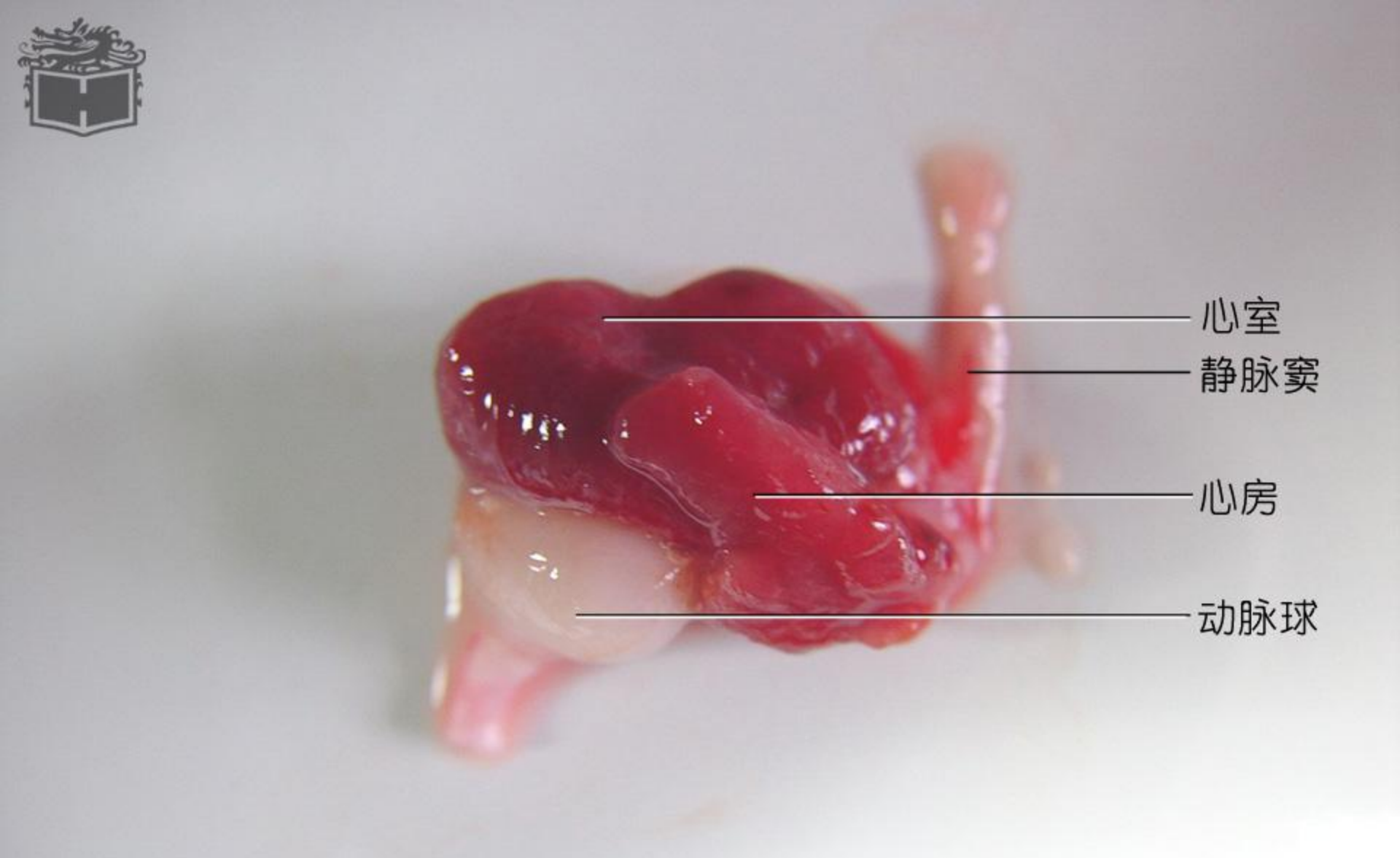
# 3.呼吸系统





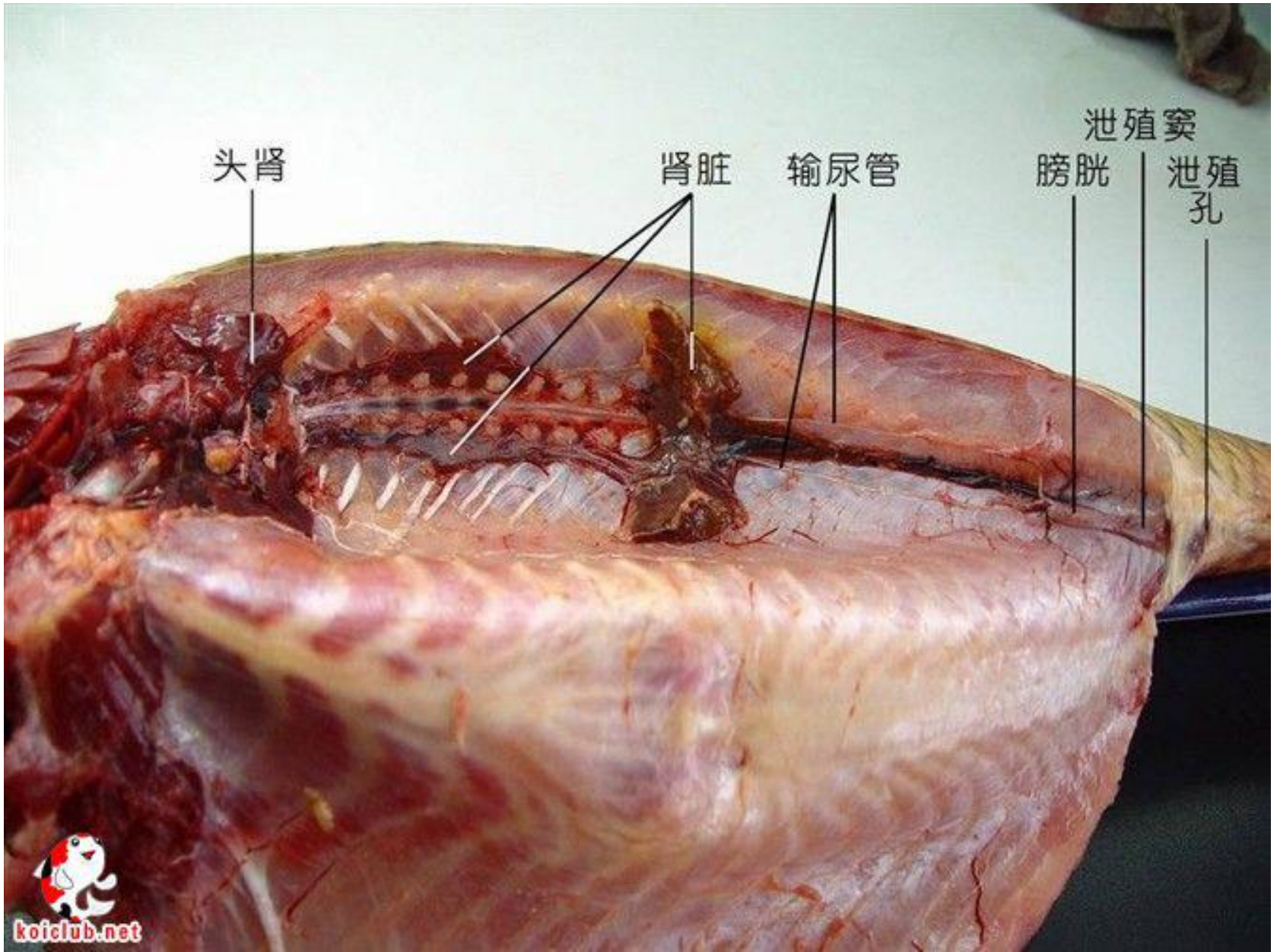
# 4.循环系统

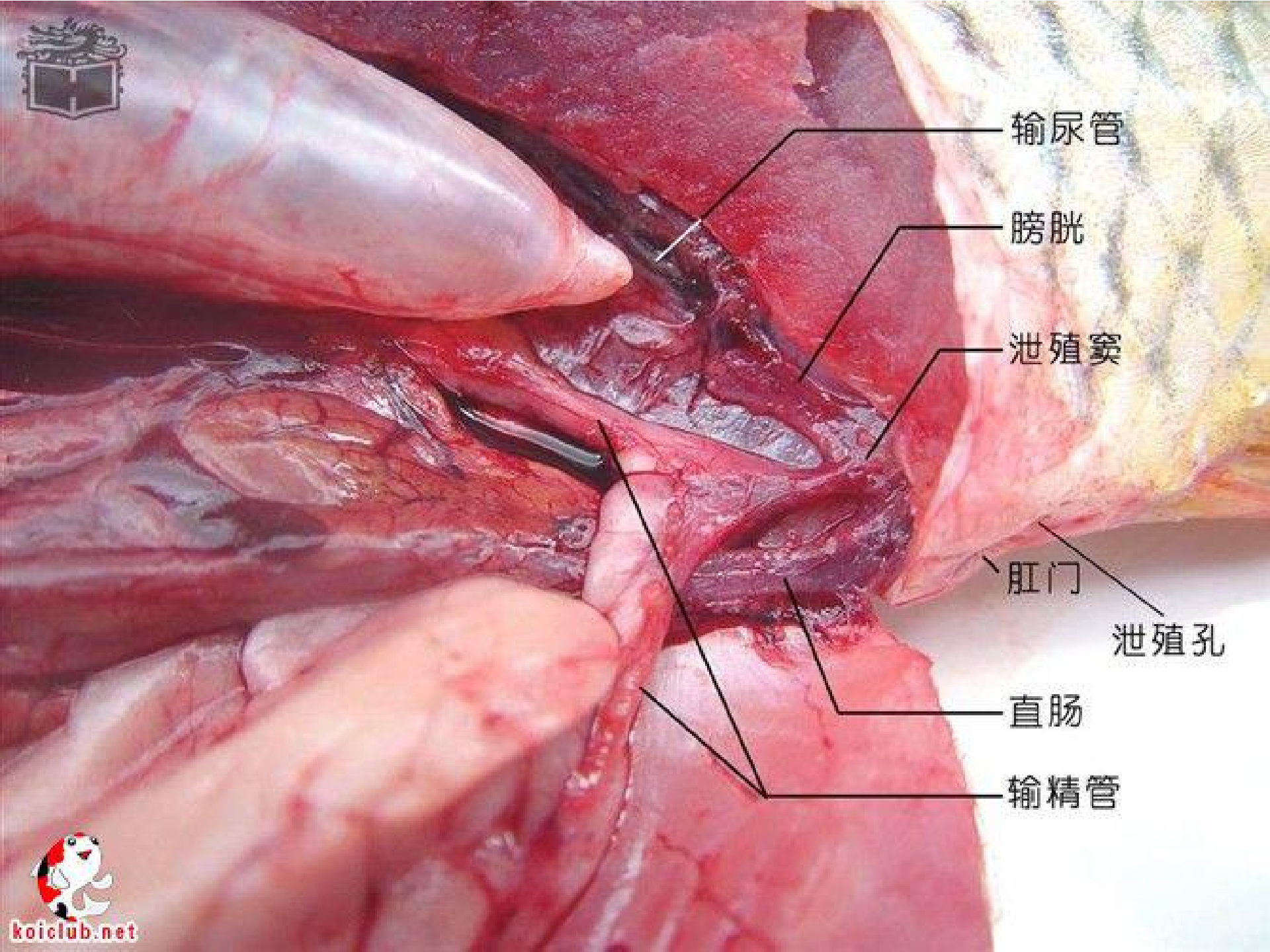


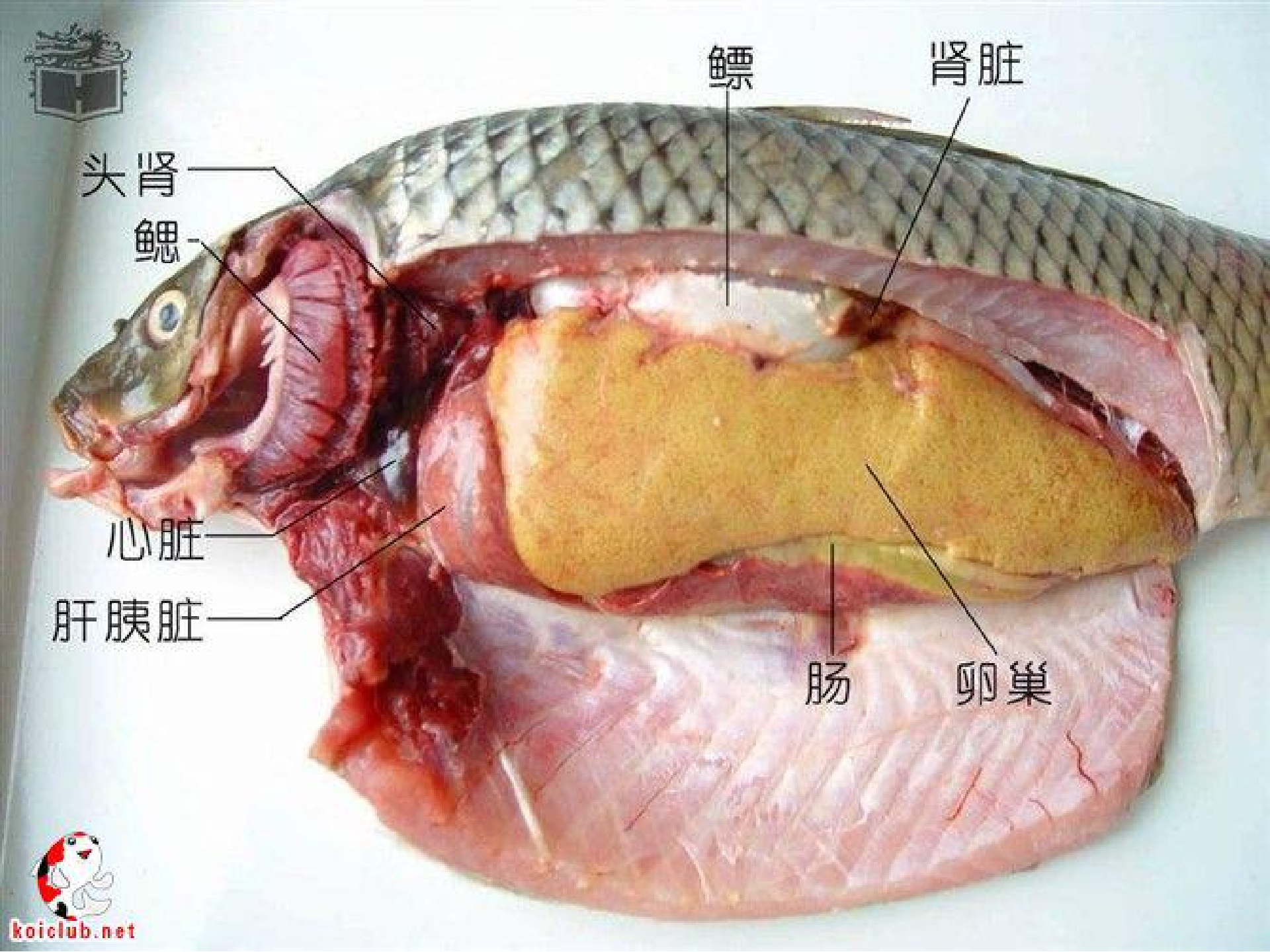



鱼心脏离体观（右视）

# 5.泄殖系统







# 6.神经系统


视神经
大脑
脑下垂体
中脑
血管囊
下叶
脊髓
鲤鱼脑
腹面观

# 四、作业

1.绘制鲤鱼外形及内脏结构，并标注；

2.总结鱼类适应水生生活的主要特征。