豚の局所解剖(5)

<table>
<thead>
<tr>
<th>項目</th>
<th>内容</th>
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<tbody>
<tr>
<td>誌名</td>
<td>山口獣医学雑誌</td>
</tr>
<tr>
<td>ISSN</td>
<td>03889335</td>
</tr>
<tr>
<td>巻/号</td>
<td>14</td>
</tr>
<tr>
<td>掲載ページ</td>
<td>p. 49-66</td>
</tr>
<tr>
<td>発行年月</td>
<td>1987年11月</td>
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REGIONAL ANATOMY OF SWINE

V. CROSS SECTION OF BRAIN OF SWINE (PART I)

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[Received for publication : October 5, 1987]

INTRODUCTION

As a series of studies of the anatomy of swine(pig), a comparison of swine and wild boar, including the survey of inner structure of their brain is in progress in this laboratory, using computer tomography scanning (CT scan), to be published separately. This is a part of that project to confirm the macroscopic structure in several planes of whole cross and horizontal sections of swine to establish coordination with CT scan of it.

Not a few atlases of the brain of humans, monkey, domestic animals including horse, cattle, goats, sheep, swine, dogs, cats, guinea pigs, domestic fowl and pigeon are already available, but most of them are for stereotaxic studies and not directed to brain slice - CT scan correlations except for some recently published textbooks of the human brain.

MATERIALS AND METHODS

Adult swine brains were perfused with paraformaldehyde and also immersed within this fixative for several weeks. Each slice of the brain was stained, taking the following three steps.

1° One minute in the mixture of 40g of carbolic acid, 5g of copper sulfate, 1.2 ml of conq. HCl, in 1,000 ml of water.
Wash in water for 1 min.

2° One minute in the 2% tannic acid.
Wash in water for 1 min.

3° 10 to 15 sec in 2% iron alum.
Wash well in running water.

RESULTS

I. A series. The brain of swine in coronal plane.

Ten transverse (cross) sections were made at levels indicated in diagram A to observe the inner structure of the swine brain. Since intervals of each slice are much wider than that of CT scan, which is usually 5 or 10 mm, these figures (A1 to A10) are not always guide maps of the CT scanning pictures. Identifiable
structures are labeled in illustrations that correspond to photographs.

II. B series. The brain of swine in horizontal (CT scan) plane.

As shown in diagram B, a series of 4 slices of brain in horizontal planes (B1 to B4) show cut surface of each level of the swine brain. Owing to staining of Mulligan (1931), grey matter and white matter can be clearly distinguished. Major regions identified were labeled in these illustrations. Photographs correspond to the illustrations. The size of the specimen was indicated by a scale attached to the illustration.

DISCUSSION

Using Weigert-Pal staining, Yoshikawa suggested elaborate figures of swine brain. His atlas included 24 transverse and 9 sagittal sections. Although those figures included meninges, ventricles and internal structures of the swine brain, the whole area was not included in each section except for cerebellum.

The present study was to correlate brain slice to CT scan observation, and only major structures were illustrated but every illustration included a whole area of slices. As mentioned already, the thickness of each slice and the direction of cutting of each plane had to be adjusted more directly to the condition of CT scan observation.

REFERENCES


豚の局所解剖　V. 脳の断面図（その１）

牧田登之・富永正哉（山口大学農学部獣医学科家畜解剖学教室）

（受付：1987年10月5日）

豚の解剖の一環として，総報の CT スキャンによる脳の観察の基礎資料も兼ねて，豚の脳をホルマリン固定したものを横断面で10段階，水平断面で4段階のスライスとし染色をほどこしたもののマクロ写真をとった。これに併せ下半，およそその縮尺をつけて図示した。染色は Mulligan の方法により，その概略は，石炭酸40g，硫酸酸5g，濃塩酸1.2mlを1ℓの水にとかか第1液と，2％のタンニン酸液（第2液）と，第3液の2％鉄ミョウバンに各々1分，1分，10～15秒，浸漬するもので，各液の染色の間に約1分ずつ水洗する。第3液後はよく水洗して肉眼的に観察した。