respectively cervical to lumbar part of the back muscles, and the caudal half (c) respects to the tail. The medial accessory olivary nucleus from V to I, II and III, IV, projects respectively to the muscles of the ventral side of the trunk, from neck to chest, abdomen and pelvic portion.

The principal olivary nucleus is related to the movement of extremities. The rostral portion of the principal olivary nucleus correlates with upper extremities and the caudal portion correlates with lower extremities.

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2. The Ontogenetic Study on the Thalamic Nuclei in Human Fetus

Takashi YAMADORI

Department of Anatomy, Division I, Kobe Medical College

The ontogenetic study of the thalamic nuclei was performed by using 16 Japanese fetus cerebrums in different developmental stages. The materials were continuously sectioned with 40 micron thickness and stained with Mayer's Hematoxylin or Thionin following necessary procedures. Microscopic study of these nuclei was done and reconstruction models were also made to observe them dynamically.

The division of the thalamic nuclei occurs at about 15th fetal week and these nuclei are divisible into 17 in four groups. The measurement study was done dividing them into seven subgroups, namely reticular nucleus, dorsal, median, medio-dorsal, medio-ventral, lateral and posterior nuclear groups and this study revealed that the dorsal nuclear group increases its percentage of volume to that of the whole thalamus. On the other hand, the posterior nuclear group decreases its percentage parallel to the development of fetus. The lateral nuclear group was the largest through the whole developmental stage.

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3. Electron Microscopic Observation of Astrocyte and Astrocytoma

Takao TAKETOMO AND Kazuki SAKATA

Second Surgical Division, Gifu Medical College

There are two distinctly opposing opinions pertaining to electron microscopic identification of the astrocyte. According to one opinion, a cell with relatively clear cytoplasrn is the astrocyte and according to the other a cell with relatively dense cytoplasm is the astrocyte. On the basis of observation on human
cerebral cortex we identified the former type cell as the protoplasmic astrocyte. On close scrutiny, we often found minute fibrils in relatively clear cytoplasm of such cells. We also found cells in which such fibrils were marked in varying degrees. In a marginal glia cell, one of typical fibrous astrocytes, we observed such fibrils reaching the subpial basement membrane. It appears that similar fibrils are also attaching the capillary basement membrane. Cells in which such fibrils developed abundantly may show similarity to the latter cell type described above. On the other hand, observation of astrocytoma cells also showed presence of similar fibrils, which run in forming, or not forming bundles of various thickness. Electron microscopic observation of gold-sublimate preparation suggests that such fibrils constitute glia fibers.

4. Experimental Histological Studies on the Innervation of Urethra and Penis

Kiichi SUZUKI, Aisuo SUGITA, AND Osamu NATSUME
Urological Clinic, Tohoku University School of Medicine

The macroscopic anatomy of various nerves supplied to the urethra and penis was examined on 30 adult dogs to clarify the site of innervation for these organs, thence, the degeneration of nerve fibers in these nerves following the selective section of the pudendal, pelvic, hypogastric, and sacral nerves was observed.

In an adult dog, the dorsal nerve of penis, a branch of the pudendal nerve, innervates both the anterior and posterior urethra. Then, the pudendal nerve was resected, and degeneration of nearly all of the fibers in the dorsal nerve of penis was found, a few in the pelvic and hypogastric nerve, respectively. These degenerations were found only on the same side as to the section of the nerve, and the one-sided innervation of these nerves was confirmed significantly (Table

<table>
<thead>
<tr>
<th>Nerves Observed</th>
<th>Resected Side</th>
<th>Opposite Side</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal</td>
<td>Degeneration</td>
</tr>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Trunk</td>
<td>69</td>
<td>1484</td>
</tr>
<tr>
<td>Ramus Penis</td>
<td>43</td>
<td>1302</td>
</tr>
<tr>
<td>Ramii urethrae</td>
<td>Aggregated</td>
<td>26</td>
</tr>
<tr>
<td>Peripheral Part</td>
<td>Aggregated</td>
<td>16</td>
</tr>
</tbody>
</table>

Table 1. Degeneration in the dorsal nerves of penis after the section of the left pudendal nerve.