LETTER TO THE EDITOR

Descending and Recurrent Branches of Medial Cutaneous Nerve of Forearm

Variations in the pattern of formation and distribution of the brachial plexus are common findings, and of particular interest are the cutaneous nerves of the forearm de facto their implications in anaesthesia and brachial plexus block.1-4 Kasai and Yamamoto5 indicated inconsistencies in the distribution of the medial cutaneous nerve of the fore arm and Horiguchi6,7 reported recurrent branches of the lateral cutaneous nerve of the forearm that hitherto was not mentioned in textbook of human anatomy.

In this study, recurrent and descending branches were identified in the medial cutaneous nerve of the forearm during dissection and these were examined following an intensive dissection of four cadavers. Eighty two cadavers comprising of 68 males and 14 female were inspected during the course of student gross anatomy dissection in the Department of Human Anatomy, Ahmadu Bello University, Zaria between 1991 and 1999. Following the confirmation of these branches and the observed cases and patterns recorded, four cadavers (2 males and 2 females) were randomly chosen and intensive dissection of the nerves performed on the limbs of either side.8,9

Following thorough dissection, two unusual branches were observed: one, a descending branch given off just outside the axilla innervated the skin covering the biceps brachii muscle while anterior and posterior branches were distributed to the skin of the corresponding surfaces of the medial aspect of the forearm; two, a recurrent branch from the anterior branch of the medial cutaneous nerve of the fore arm replaced descending branch and innervated the skin covering the biceps brachii muscle. On each side, 68 males and 14 females arm were inspected. Descending branches were seen in 26 (38%) males and 6 (43%) females; and recurrent branch in 20 (29%) males and 4 (28%) females on the right side, while descending branches were seen in 24 (35%) males and 5 (36%) females and recurrent branches appeared in 22 (32%) males and 5 (36%) females on the left side. There were 5 (7%) and 2 (3%) respective cases of bilateral descending and recurrent branches (Table 1).

The medial cutaneous nerve of fore arm is commonly described outside the axilla as ending in anterior and posterior branches supplying their respective surfaces of the ulna sides of the fore arm.10 The descending and recurrent branches had probably not been recognized perhaps due to oversight or neglect as their location is widely seen as supplied by twigs from medial cutaneous nerve of arm. A times, careful study usually reveal more details of a structure.11 This finding attest to the work of Kasai and Yamamoto5 who alerted a confusion in the dermatome of the medial cutaneous nerve of fore arm; we observed here that in the arms where these branches were absent, twigs from the medial cutaneous nerve of arm compensated for their area of supply, a notable point in local anaesthesia. In 1981, Horiguchi detected 58 (93%) recurrent branches out of 62 lateral
cutaneous nerve of forearm of Japanese cadavers. He reported similar findings in the arms of both sides. This work reports 50 (73%) descending and 42 (61%) recurrent branches out of 136 male arms and 11 (77%) descending and 9 (63%) recurrent branches in 28 female arms.

Table 1: Descending and Recurrent Branches of Medial Cutaneous Nerve of Fore Arm

<table>
<thead>
<tr>
<th></th>
<th>Right Arm</th>
<th></th>
<th>Left Arm</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>(N=68)</td>
<td>(N=14)</td>
<td>(N=68)</td>
<td>(N=14)</td>
</tr>
<tr>
<td>No</td>
<td>No %</td>
<td>No %</td>
<td>No %</td>
<td>No %</td>
</tr>
<tr>
<td>Unilateral:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Descending branch</td>
<td>26 38</td>
<td>6 42</td>
<td>24 35</td>
<td>5 36</td>
</tr>
<tr>
<td>Recurrent branch</td>
<td>20 29</td>
<td>4 28</td>
<td>22 32</td>
<td>5 36</td>
</tr>
<tr>
<td>Bilateral:</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Descending branch</td>
<td>5 8</td>
<td>- -</td>
<td>5 8</td>
<td>- -</td>
</tr>
<tr>
<td>Recurrent branch</td>
<td>2 4</td>
<td>- -</td>
<td>2 4</td>
<td>- -</td>
</tr>
<tr>
<td>Total</td>
<td>53 79</td>
<td>10 72</td>
<td>53 79</td>
<td>10 72</td>
</tr>
</tbody>
</table>

Statistical analysis using $\chi^2$ at $P<0.05$ is non-significant

An intriguing observation however, was that both branches were not simultaneously present in an arm, that is, either one is present in the observed cases. Hence, the alternating occurrence of the branches could possibly be developmental in origin, in which the descending branches sprouted from the corresponding side of the medial cutaneous nerve of the forearm, and their subsequent regression cranially at the point of origin.

Statistical analysis of the results showed that neither was there any prevalence of occurrence on either side of the two patterns nor sex discriminations in the cases noted, though the female samples were relatively few; this investigation is progressive with more samples of males.
and females, however, this report becomes noteworthy and pertinent for reference purpose in anaesthesia and human anatomy.

References


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