



The Medial Cutaneous Nerve Of Fore Arm And Its Descending And Recurrent Branches In Nigerians.

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ABSTRACT

A study of the patterns of distribution of the medial cutaneous nerve of the forearm was done on 100 Nigerian cadavers comprising of 80 males and 20 females. Two additional branches: descending and recurrent branches were seen in 50(62%), 11(55%) and 42(53%), 9(45%) respectively in 80 males and 20 females. Knowledge of such branches is useful in anaesthesia and human anatomy.

Keywords: Medial cutaneous nerve; Fore arm; Descending branch; Recurrent branch; Anaesthesia.

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 fore arm de facto their implications in anaesthesia and brachial plexus block (Adebisi *et al.*, 1991; Olson, 1969; Bosomworth *et al.*, 1961; De Jong, 1965; Adebisi *et al.*, 2001). Kasai and Yamanoto (1966) indicated inconsistencies in the distribution of the medial cutaneous nerve of the forearm and Horiguchi (1980; 1981) reported recurrent branches of the lateral cutaneous nerve of the forearm that hitherto was not mentioned in textbooks 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.

MATERIALS AND METHODS

100 cadavers comprising of 80 males and 20 females were inspected during the course of student gross anatomy dissection in the Department of Human Anatomy, Ahmadu Bello University, Zaria between 1991 and 2001. 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 using the methods of Romanes (1981) and McMinn (1985).

RESULTS

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 fore arm (Fig 1); 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 (Fig 2).

On both sides, 80 males and 20 females arm were inspected. Descending branches were seen in 26(32%) males and 6(30%) females; and recurrent branch in 20(25%) males and 4(20%) females on the right side, while descending branches were seen in 24(30%) males and 5(25%) females and recurrent branches appeared in 22(28%) males and 5(25%) females on the left side. There were 5(6%) and 2(3%) cases of bilateral descending and recurrent branches respectively (Table 1).

DISCUSSION

The medial cutaneous nerve of fore arm is commonly described outside the axilla as ending in anterior and posterior branches

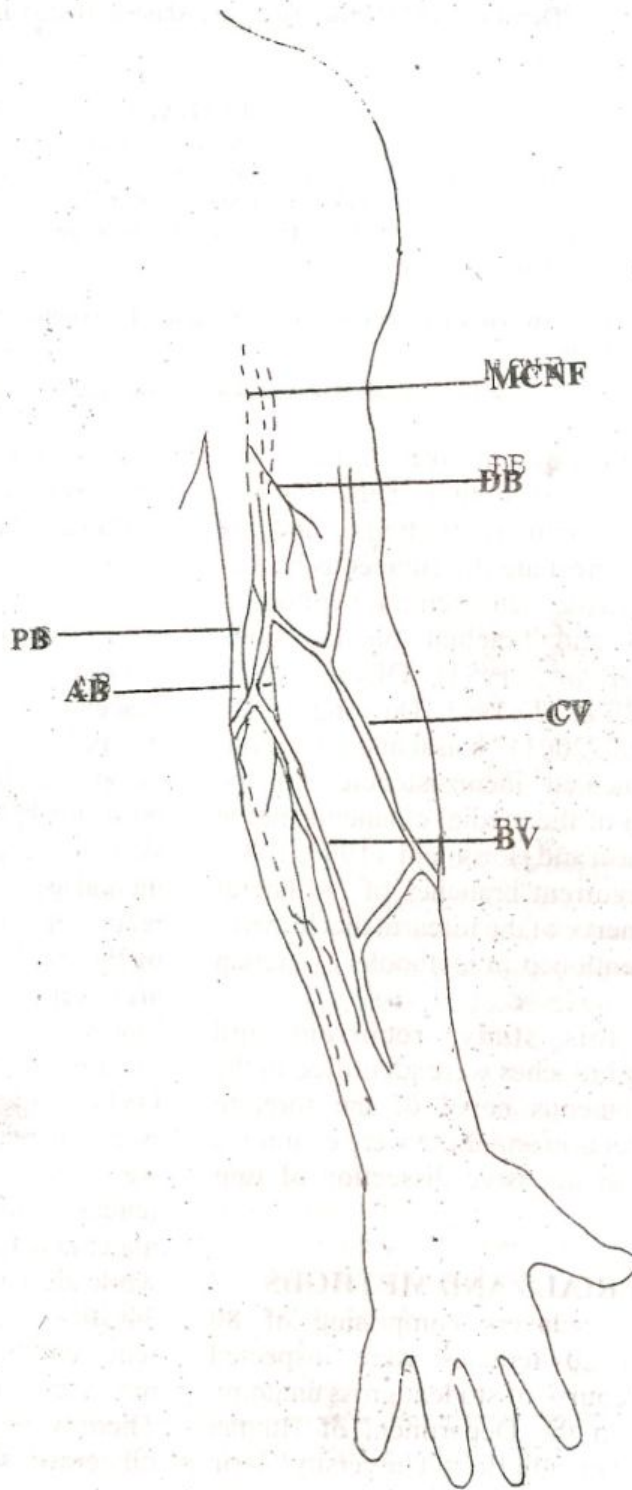


Fig. 1: Diagrammatic sketch of the Descending branches of the medial cutaneous nerve of forearm:

MCNF = medial cutaneous nerve of forearm; **DB** = descending branch;
AB = anterior branch; **PB** = posterior branch; **CV** = cubital vein;
BV = basilic vein.

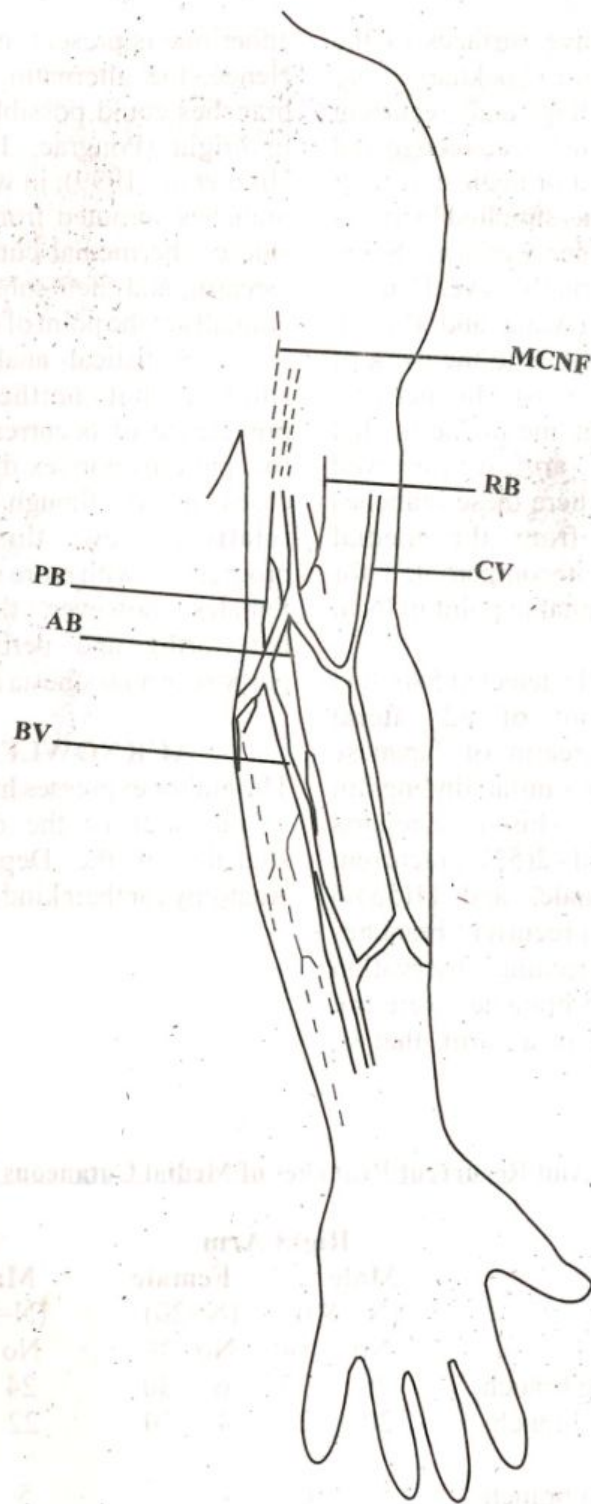


Fig. 2. Diagrammatic sketch of Recurrent branches of the medial cutaneous nerve of forearm

**MCNF = medial cutaneous nerve of fore arm; RB = recurrent branch;
 AB = anterior branch; PB = posterior branch; CV = cubital vein;
 BV = basilic vein**

supplying their respective surfaces of the ulna sides of the forearm (Lockhart *et al.*, 1974). 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. Some times, careful study usually reveals more details of a structure (Asala and Bower, 1984). This finding affirms to the work of Kasai and Yamamoto (1966) 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 of the arm.

Horiguchi (1981) 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(63%) descending and 42(53%) recurrent branches out of 80 males and 11(55%) descending and 9(45%) recurrent branches in 20 females. 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 (Pongrac, 1996; Mayes, 1999; Hirai *et al.*, 1999), in which the descending branches sprouted from the corresponding side of the medial cutaneous nerve of the forearm, and their subsequently regression cranially at the point of origin.

Statistical analysis of the results showed that neither was there any prevalence of occurrence on their side of two patterns nor sex discriminations in the cases noted, though the females 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.

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

	Right Arm				Left Arm			
	Male		Female		Male		Female	
	(N=80)		(N=20)		(N=80)		(N=20)	
	No	%	No	%	No	%	No	%
Unilateral: Descending branch	26	33	6	30	24	30	5	25
Recurrent branch	20	25	4	20	22	28	5	25
Bilateral: Descending branch	5	6	-	-	5	6	-	-
Recurrent branch	2	3	-	-	2	3	-	-
Total	53	67	10	50	53	67	10	50

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

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