Anatomic survey of the common fibular nerve and its branching pattern with regard to the intermuscular septa of the leg

F Aigner, Stefano Longato, A Gardetto, M Deibl, H Fritsch & H Piza-Katzer

Compression syndromes of the common fibular nerve and its branches frequently occur primarily as well as secondarily to trauma and surgery. A keen knowledge of the course and the relationship of the deep fibular nerve to adjacent anatomical structures in the proximal leg is mandatory. Previous literature often lacks detailed information on the course of the deep fibular nerve and is based on a limited number of observations. The aim of this study was to investigate the common fibular nerve and its branching pattern with special regard to the relationship between the deep fibular nerve and the anterior intermuscular septum of the leg. Variations in the course of the fibular nerve were demonstrated. The fibular compartments of the leg (n = 111) were dissected in 57 embalmed cadavers and included: 1) investigation of the number of muscular branches; 2) entering passages to the respective compartments of the leg; and 3) the relationship between the fibularis longus muscle and the deep fibular nerve. The most proximal muscular branch of the deep fibular nerve directly "pierced" the anterior intermuscular septum of the leg. Narrow passages within the fibular compartment and, in consequence, areas of possible higher incidence of nerve compression were suggested at the level of the intermuscular septa of the leg, between the two distinct portions of the fibularis longus muscle and the crossing of the supplying vessels. There were hardly ever statistically significant differences between the two sides or male and female gender. According to our results, the anterior intermuscular septum of the leg may be regarded as an important landmark for the surgeon when dissecting the muscular branches of the deep fibular nerve. The variable branching pattern of the deep fibular nerve within the fibular compartment of the leg should be taken into account.