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The Anatomical Course of the Lateral Femoral Cutaneous Nerve with Special Attention to the Anterior Approach to the Hip Joint

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BACKGROUND
Injury to the lateral femoral cutaneous nerve (LFCN) is a risk during the operative anterior approach to the hip joint. Although several anatomical studies have described the proximal course of the nerve in relation to the anterior superior iliac spine (ASIS) and the inguinal ligament, the distal course of the LFCN in the proximal aspect of the thigh has not been sufficiently studied. The aim of this cadaveric study was to examine the branching pattern of the nerve, with special consideration to the anterior approach to the hip joint.

METHODS
Twenty-eight cadaveric hemipelves from 18 donors (10 paired and 8 unpaired specimens) were dissected. The LFCN branches were localized proximal to the inguinal ligament and traced distally into the area of the proximal aspect of the thigh. Distribution patterns of the nerve with respect to its relationship to the ASIS and the internervous plane of the anterior approach to the hip joint were recorded.

RESULTS
We found 3 different branching patterns of the LFCN: sartorius-type (in 36% of the specimens), characterized by a dominant anterior nerve branch coursing along the lateral border of the sartorius muscle with no, or only a thin, posterior branch; posterior-type (in 32%), characterized by a strong posterior nerve branch; and fan-type (in 32%), characterized by multiple spreading nerve branches of equal thickness. In 50% of the specimens, the LFCN divided into ≥2 branches superior to the inguinal ligament. Sixty-two percent of the LFCN branches entered the proximal aspect of the thigh medial to the ASIS; 27%, above; and 11%, lateral to the ASIS. The LFCN consistently coursed within the deep layer of the subcutaneous fat tissue.

CONCLUSIONS
Injury to branches of the LFCN cannot be avoided in approximately one-third of surgical dissections that use the anterior approach to the hip joint. To protect the anterior branch of the LFCN, the skin incision should be as lateral as

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possible. The posterior branch of the LFCN is most vulnerable in the proximal aspect of the anterior approach to the hip joint, where it can be expected to course within the deep layer of the subcutaneous tissue.

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