

A MORPHOMETRIC COMPARISON BETWEEN THE SUPERFICIAL AND DEEP FEMORAL ARTERIES AT THEIR LEVEL OF ORIGIN

Irina Prună (Ion)^{1,2*}, Carmen Ciufu, P. Bordei¹

1. Faculty of Medicine, Ovidius University of Constanța

2. “St. Andrew’s” Clinical County Emergency Hospital of Constanța

A MORPHOMETRIC COMPARISON BETWEEN THE SUPERFICIAL AND DEEP FEMORAL ARTERIES AT THEIR LEVEL OF ORIGIN (Abstract): Our results were obtained on a General Electric Voluson 730 Expert ultrasound, on a number of 60 patients, 34 male and 26 female, with ages ranging between 22 and 57 years. The diameters were measured bilaterally, on the superficial and deep femoral arteries, a comparison of the results being made between the two arteries, and regarding sex distribution. The origin diameter of the left superficial femoral artery was found between 4,4-7,5 mm, in women being between 4,4-5,8 mm, and in men, from 4,8 to 7,5 mm. The right superficial femoral artery diameter ranged between 4,3-7,3 mm, in women from 4,4 to 7,2 mm, and in men between 4,3-7,3 mm. The left deep femoral artery diameter had values between 2,5 and 6,6 mm, in women being from 3,0 to 6,7 mm, and in men from 2,5 to 6,6 mm. The right deep femoral artery diameter was found ranging from 2,8 to 5,8 mm, in women being from 2,8 to 5,0 mm, and in men between 3,3 to 5,8 mm. **Key-words:** SUPERFICIAL AND DEEP FEMORAL ARTERIES – DIAMETERS

INTRODUCTION

The femoral artery represents the thigh's main artery (1), having its origin under the inguinal ligament, at the vascular lacunae level, continuing the external iliac artery and finishing at the level of the adductor magnus hiatus, from where it's continued by the popliteal artery (1,2,3,4,5). At approximately 1-1,5 cm under the inguinal ligament (after 6), at 3,5 cm (2), 4 cm (1,4), 4-5 cm (3), or caudal to the inguinal ligament (5), from its posterior side (1,3,4,5), emerges the deep femoral artery (Arteria profunda femoris) of the deep thigh artery, from which the circumflex femoral arteries, medial (A. circumflexa femoris medialis) and lateral (A. circumflexa femoris lateralis), and the perforating arteries (A. perforantes) will emerge.

Caudal to the deep femoral artery point of origin, the femoral artery is also named the superficial femoral artery, from which the descending genicular artery (A. descendens genus) will emerge.

MATERIALS AND METHOD

For the femoral arteries visualization, convex and linear transducers were used, with a frequency between 5 -7,5 MHz, and a General Electric – Voluson 730 Expert ultrasound. The patients were examined in complete rest and dorsal decubitus position. A prospective study was made which included 60 patients, 34 male and 26 female, with ages between 22 and 57 years. The diameters were measured bilaterally, on the superficial and deep femoral arteries, in patients without any known priors of vascular pathology. The obtained results were compared between the two arteries and also regarding gender distribution.

RESULTS

The diameter of the left superficial femoral artery at its point of origin had values between 4,4-7,5 mm, in women being between 4,4-5,8 mm, and in men from 4,8 to 7,5 mm. More frequently, in both genders, in 28 cases (46,67% of cases), the left superficial femoral artery

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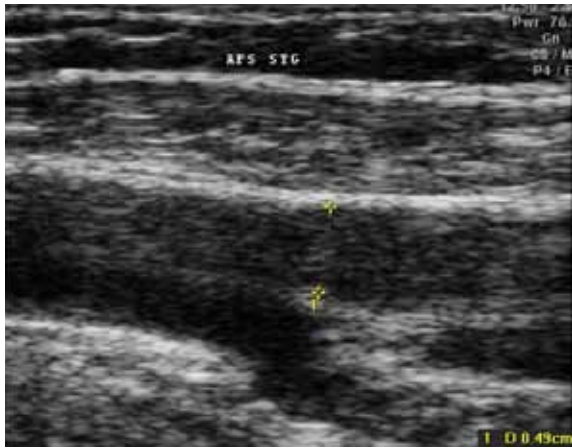


Fig. 1. The left superficial femoral artery has a 4,9 mm diameter (female gender).

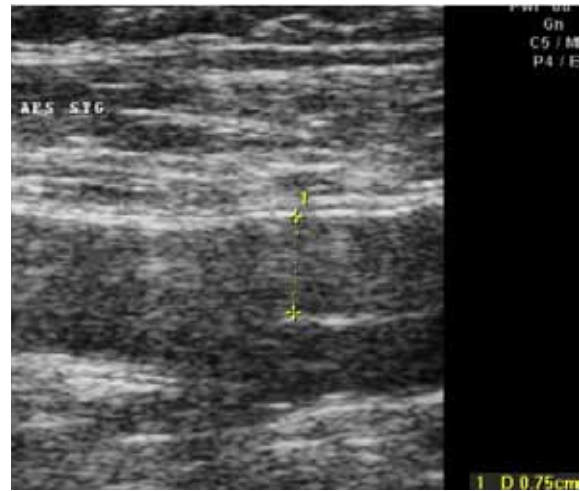


Fig. 2. The left superficial femoral artery has a 7,5 mm diameter (male gender).

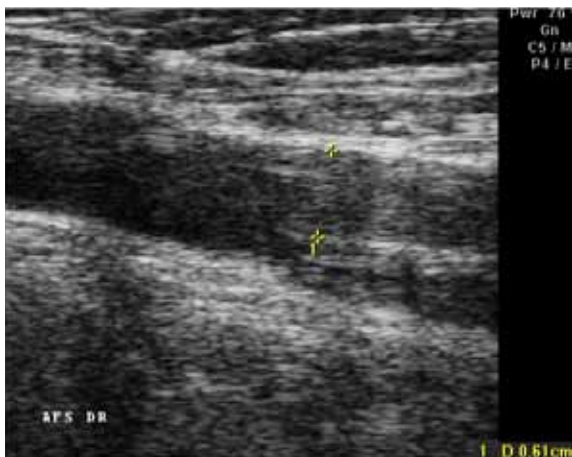


Fig. 3. The right superficial femoral artery has a 6,1 mm diameter (female gender).

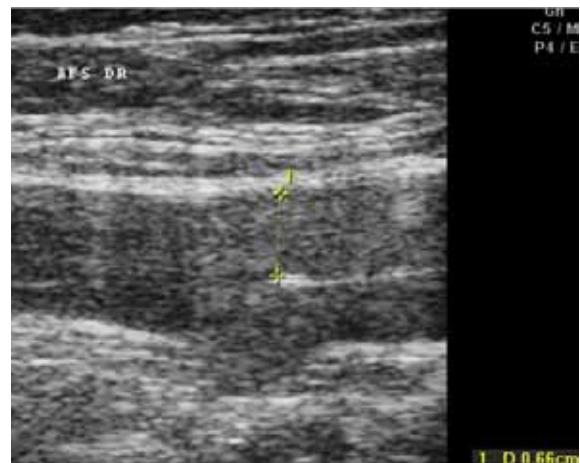


Fig. 4. The right superficial femoral artery has a 6,6 mm diameter (male sex).

diameter had a value between 5,0 -5,9 mm, in women being found in 53,85% cases, and in men in 41,18% cases. (fig. 1, fig. 2)

The right superficial femoral artery diameter had values ranging from 4,3 to 7,3 mm, in women from 4,4 to 7,2 mm, and in men from 4,3 to 7,3 mm. More often, in 27 cases (45% cases), the right superficial femoral artery diameter ranged from 5,0 to 5,9 mm, in 57,69% of female cases being between 5,0 and 5,5 mm, and in 35,29% of male cases being between 5,0 and 5,9 mm. (fig. 3, fig. 4)

(7) finds the minimum value of the superficial femoral artery diameter higher by 1,53 mm than our results, and the maximum value smaller by 1,28 mm than the value found in our study.

The left deep femoral artery diameter was found between 2,5-6,6 mm, in the female gender being between 3,0-6,7 mm, and in the male

gender being between 2,5-6,6 mm. More often, in 38 cases (63,33% cases), the left deep femoral artery diameter had values between 4,0 and 5,9 mm, in 99% of female cases being between 3,0 and 5,6 mm, and in 67,64% of male cases being between 4,0 and 5,9 mm. (fig. 5, fig. 6)

The right deep femoral artery diameter values ranged between 2,8-5,8 mm, in women being from 2,8 to 5,0 mm, and in men from 3,3 to 5,8 mm. From the total of cases, more frequently, in 57 cases (61,67% cases), the diameter was between 4,0 and 4,8 mm, in 21 female cases (80,77%) being from 4,0 to 4,8 mm, and in 33 male cases (99%) from 4,2 to 5,8 mm. (fig. 7, fig. 8)

DISCUSSIONS

Making a comparison between the right and left superficial femoral arteries, in the 60 fol-

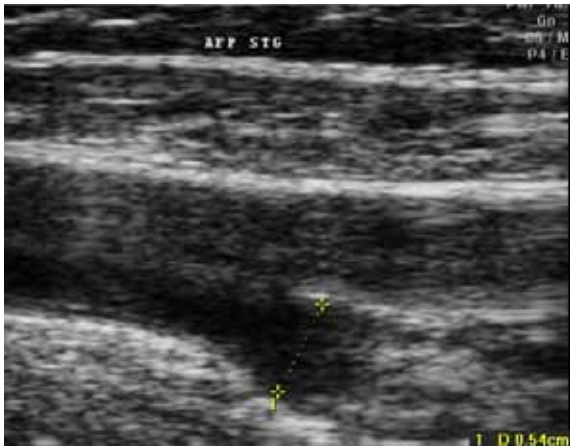


Fig. 5. The left deep femoral artery has a 5,4 mm diameter (female gender).

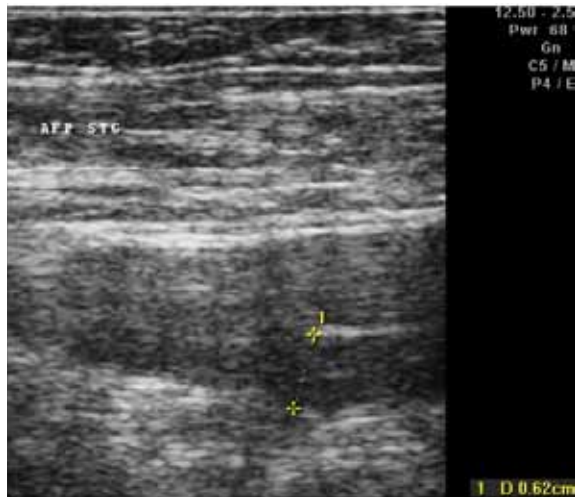


Fig. 6. The left deep femoral artery has a 6,2 mm diameter (male gender).

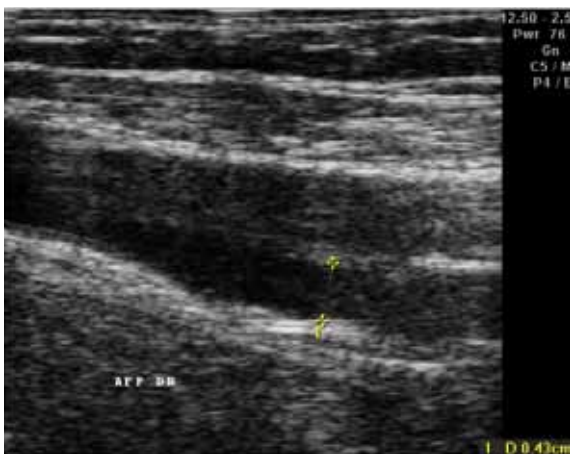


Fig. 7. The right deep femoral artery has a 4,3 mm diameter (female gender).

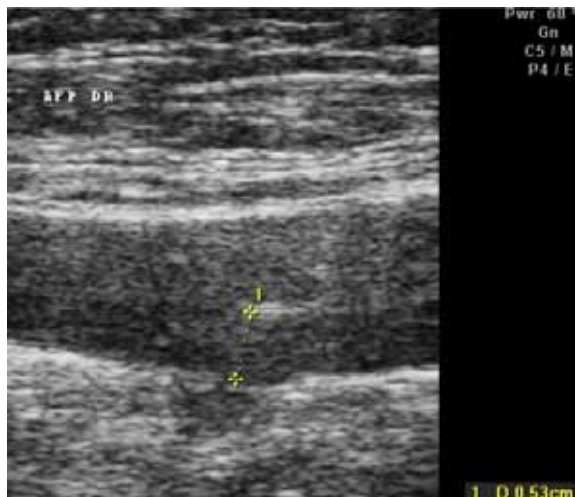


Fig. 8. The right deep femoral artery has a 5,3 mm diameter (male gender).

lowed cases, we found that the right superficial femoral artery had a higher diameter value in 24 cases (40% cases), with differences between 0,2-2,0 mm, in women the percentage being of 43,33% cases, with differences from 0,2 to 2,0 mm, and in 56,67% of male cases, with differences between 0,3-1,8 mm. In 36 cases (60% cases), the left superficial femoral artery had a higher diameter value than its right homologous, with differences between 0,1-1,0 mm, in 38,46% of female cases with differences from 0,1 to 0,4 mm, and in 43,33% of male cases, with differences between 0,1-1,0 mm.

In the case of the deep femoral arteries, we found that the right deep femoral artery was thicker than the left one in 34 cases (56,67% cases), with differences of 0,1-1,8 mm, in women the percentage being of 46,15%, with

differences from 0,1 to 1,4 mm, and in men, in 64,71% cases, with differences between 0,1-1,8 mm. In 26 cases (43,33% cases), the left deep femoral artery diameter was higher than the right deep femoral artery diameter, with differences from 0,1 to 1,9 mm. In the female gender this percentage was of 33,85% cases, with differences of 0,1-1,9 mm, and in the male gender, in 35,29% cases, the values varying by 0,1-0,8 mm.

CONCLUSIONS

The scarceness of international literature data regarding superficial and deep femoral arteries diameters can be observed. From our findings, it can be seen that the deep femoral artery, in both genders, represents the thickest collateral branch of the femoral artery, sometimes being

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wider than the superficial femoral artery, fact which can be seen in 8,33% of right femoral artery cases, and in 11,67% of left femoral artery cases. This occurred more frequently in women, regarding the left femoral artery in 23,08% cases, and the right femoral artery in 15,38% cases.

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* Corresponding author

Irina Prună
e-mail: iryna_ion@yahoo.com