

## PLASTIC OF THE DEEP FEMORAL ARTERY ON THE OCCASION OF 47 OBSERVATIONS

V. Knyazhev, M. Manolova, R. Radev

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Thrombobliterations affecting femoro-popliteal segment present about 60 — 70 per cent of all the cases with occlusions in obliterating arteriopathies. Femoro-popliteal autovenous shunt is considered an alternative reconstructive operation when this kind of obliterations is concerned. The usage of the profound femoral artery for lower limb revascularization was proposed in 1961 (4). The method of profound plastics is predominantly applied in cases of a diffuse lesion of femoral arteries, multilayer obliterations of femoro-popliteal segment, and atherosclerotic invasion of the profound femoral artery (1—6).

### Material and methods

During the period from 1981 till 1987 about 200 arterial reconstructions were carried out in the Clinic of Vascular Surgery of the Department of Surgery, Higher Institute of Medicine in Varna. Of them, in 86 the profound femoral artery was revascularized. We followed-up the results from the application of the isolated profound plastic performed with 47 patients. There were 44 males and 3 females with an average age of 58.9 years. Only severe extremity ischemia was considered an indication for operation. 27 patients had already reached the III<sup>rd</sup> stage of the disease but 20 ones were even in the IV<sup>th</sup> stage with distal gangraena. Diabetes occurred as an accompanying disease (among a series of other diseases) in 6 patients. According to plan, a total of 38 patients were operated. Urgently, on the occasion of acute arterial thromboses and embolisms 9 patients underwent surgical intervention. Arteriography and close Doppler sonography were performed in the course of the clinical examination of the patients.

### Results and discussion

Three main variations of obliterations affecting both profound and superficial femoral arteries were established in our study.

Type 1. There was a total thrombosis of a. femoralis superficialis and a stenosis of a. profunda femoris. There were 18 patients in this group. It occurred almost equally frequently in patients of the III<sup>rd</sup> and of the IV<sup>th</sup> stage of the disease.

Type 2. There was an intact initial segment of the superficial femoral ar-

tery, 5—6 cm long but there were the same lesions of the profound femoral artery as in type 1. It occurred more often (in 45 per cent) with patients in the IV<sup>th</sup> than with patients in the III<sup>rd</sup> stage (in 37.5 per cent of the cases).

Type 3. There was a stenosis of the profound femoral artery and of the initial part of the superficial one in 8 patients. In 6 patients the superficial femoral artery was obliterated in its lower third and in 2 ones it was completely passable but with acute proximal thromboembolism. This type was observed in 20.8 per cent of the cases with pregangraena and with 15 per cent of the cases in the gangraenous stage of the illness.

We used autoartery on pedicle flap after disobliteration of the superficial femoral artery for profound plastic in patients of the first group (6). Martin's method with free patch-plastic was applied in patients of the second group. Auto-vena was used in 19 patients and autoartery in 2 ones. Menendez's method was preferred with the patients of the third group. It consists in simultaneous plastic of both arteries. With a view to the duration of a. profunda femoris stenosis the so-called short profound plastic (up to 2 cm arterial stenosis) was carried out in 20 patients; standard plastic (stenosis length up to 8 cm) — in 19 patients, and extended plastic (stenosis length over 10 cm) — in 8 patients. Profound plastic was combined with endarterectomy from the common and the profound femoral arteries and with transluminal balloon angioplastic of the proximal arterial stenosis in 48.9 per cent of the cases.

The state of tibial arteries was as followed:

Both tibial arteries were free of stenosis in 25 per cent of the cases and stenosed in 35 per cent of the patients in the III<sup>rd</sup> stage of the disease. Both arteries were obliterated in 40 per cent of the cases. Both arteries were stenosed in 50 per cent, completely obliterated — in 36 per cent of the patients in the IV<sup>th</sup> stage of the disease. One artery only was completely obliterated in 14 per cent of these patients. As arteriographic visualization of tibial arteries could not provide sufficiently qualitative evaluation possibilities concerning blood flow pathways in some of the patients a Doppler sonography was additionally used. It proved to be particularly significant for the evaluation of the surgical effect, too. Positive changes of regional systolic pressure were noted to a greater extent in patients in the III<sup>rd</sup> than in those in the IV<sup>th</sup> stage of the disease. For instance, popliteo- and tibiobracheal indexes increased at the average by 0.22 and 0.12 in the patients in the III<sup>rd</sup> stage but by 0.05 and 0.06, respectively, in those in the IV<sup>th</sup> stage of the illness. In order to read a favourable immediate result the index of total pressure in both tibial arteries should be over 0.80 (for patients in the III<sup>rd</sup> stage) and over 0.50 (for patients in the IV<sup>th</sup> stage) showing by all means an increase of about 0.2 — 0.3 when we analyzed patients with improvement and with amputation in the two stages of the illness. Any patients in the two stages of the disease who did not indicate an increase of total tibial pressure index up to 0.40 after profound plastic underwent amputation. During a 5-year period after profound plastic cumulative passability was about 78.5 per cent in patients operated in the III<sup>rd</sup> stage and 50 per cent in those operated in the IV<sup>th</sup> stage of the disease. Autoarterial plastic material proved to be more appropriate, especially in patients in the IV<sup>th</sup> stage than autovenous one (cumulative 5-year passability was 75 per cent and 29.2 per cent, respectively). 8 patients had lethal outcome during this period (17.1 per cent).

On the basis of our results the following conclusions can be made:

1. Profound plastic is an effective method for bringing patients' extremity through in the III<sup>rd</sup> stage of the disease.

2. It should be complemented by other reconstructive operations in patients in the IV<sup>th</sup> stage of the illness.

3. Total tibial pressure index can significantly prognosticate the outcome of profound plastic.

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#### ПЛАСТИКА ГЛУБОКОЙ БЕДРЕННОЙ АРТЕРИИ ПО ПОВОДУ 47 НАБЛЮДЕНИЙ

Князев, М. Манолова, Р. Ридев

#### РЕЗЮМЕ

Из произведенных в клинике около 200 реконструктивных операций на артериях, у 86 реваскуляризована глубокая бедренная артерия, причем у 47 сделана изолированная профундопластика. Для последней в двадцати случаях использована свободная, обычно, аутовенозная пластика с заплатакой, у семнадцати аутоартериальная профундопластика и у 8 пластика глубокой и поверхностной бедренной артерии по Менендезе.

У 38 больных операция выполнена в плановом и у 9 в неотложном порядке. При об- суждении показаний к операции кроме артериографии, использованы и показатели ультра- звуковой доплеросонаграфии.

В непосредственные и отдаленные (около 4 лет) сроки после операции, ампутация была произведена 11 больным (19,1%). Больничная летальность составила 2,1% (1 больной), отдаленная — 16,8% (8 больных).