

Gubochkin N.G., Shapovalov V.M., Zhigalo A.V.

THE FEATURES OF SURGICAL TACTIC IN TREATMENT OF PATIENTS WITH SEVERE STAGES DUPUYTREN CONTRACTURE

From Clinic of Military Traumatology and Orthopedy Military Medical Academy (Russia, St.Petersburg).

Purpose of research. Development of the optimal method and technique of severe stages Dupuytren contracture surgical treatment based on clinical and anatomical investigations for optimizing the treatment outcomes.

Materials and methods. The research consisted of two parts- the first one is a clinical part, the second one is an anatomical part. The anatomical part included 2 trials which were executed on 17 upper limbs of nonfixated corps. In the first trial we've made intra-arterial injection of black latex and macro-micro preparations using optical devises, hand size measurements, vessel measurements (rated diameter and length), photography and monitoring the obtained results. In the second trial the injections was perfomed by using the red ink which enabled the combination of preparation with evaluating the painted areas of palmary surface restricted by the dermal arteries perfusion regions. In the clinical part we estimated the treatment results of 100 patients (107 operations). Control group (the first group) consisted of 45 patients (45 operations) who were operated by general methods (partial fasciectomy) without using optical devises. And the second group consisted of 55 patients (62 operations) who were operated after evaluating palmary skin arterial perfusion by high frequency doplerography (total aponeurectomy). The latest outcomes were estimated in concordance with DASH scale and by using the integral index introduced by professor A.E. Belousov.

Results. Investigation of skin perfusion maintained by anatomically invariable nutrition arteries ranged from 0.2 to 0.6 mm in diameter and from 4.0 to 6.0 by length. These vessels perforated palmary aponeurosis and after that branched to subcutaneous fatty tissue. Two types of branching were revealed: trunk and multibranch. The trunk type was observed in the middle and in distal third of palm and multibranch type was more typical for proximal third.

The quantity of dermal nutrition arteries was significantly more in proximal third of palmary surface than in the middle and distal third ($p>0.05$). Thus there were 47-59 nutrition arteries in proximal third, 10-14 in the middle and only 5-9 vertical arteries which stayed permanent.

Discussion. The peculiarities of vessel architectonics detected in experiment show the high risk of iatrogenic damage in their distal part. This fact allows the separating of two areas- proximal and distal. It is exposed that each artery supplies a certain round from skin area.

Analyzing of treatment results shows that in the second group the complication rate is 26% instead of 57,8% in the control group. Using of microsurgery technique and doplerography allows to reduce the arterial and nerve damage frequency from 28,9% to 5,1%, to reduce postoperative hematoma

formation from 17.8%(in the control group) to 10.2% (in the main group). The recurrence rates in the main group were 6 times less than in the control group (5.1% and 42.2% accordingly). The functional outcomes in the main group were significantly better than in the control group that were illustrated in diagram.

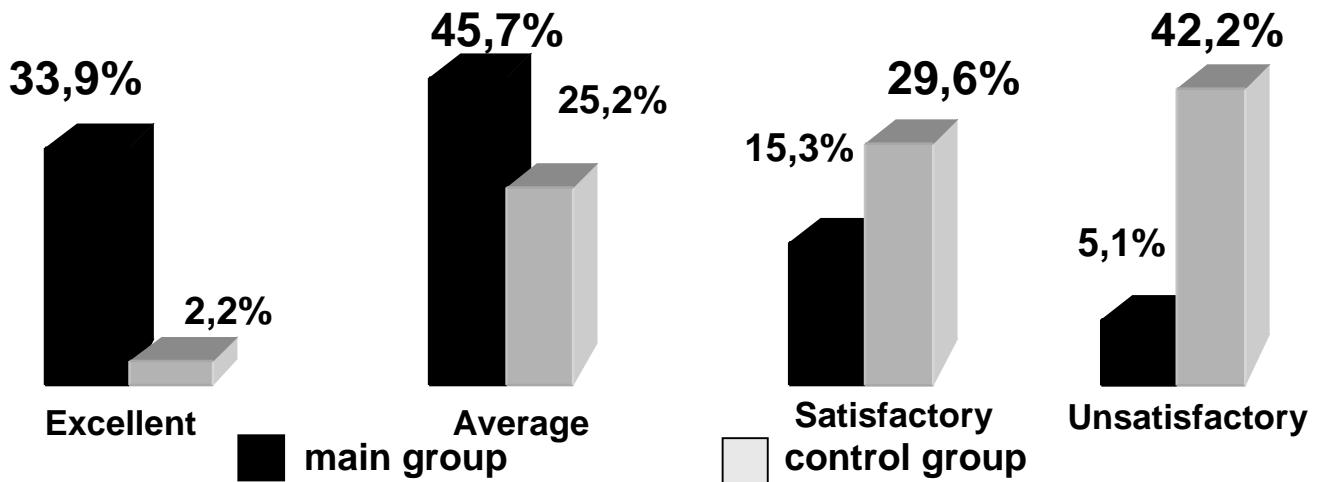


Diagram 1. functional outcomes

The average DASH-score in first group was 3.85 (range 0-45.4).

Summary. In conclusion we can say that appliance of microsurgery technique and taking into consideration the peculiarities of palmary surface perfusion allows to reduce significantly complication rates and to improve greatly the functional results of severe stages Dupuytren contracture surgical treatment. We suggest that total aponeurectomy is a promising alternative to partial fasciectomy with a low risk for a recurrence.