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Dear readers,

Acta chirurgiae plasticae, the journal of the Czech Society of Plastic Surgery, which you hold in your hand, or which you are reading on the Internet, has existed without interruption since 1959. Since the beginning, our leading specialists in the field of plastic surgery, such as prof. Burian or prof. Karfík, were those who contributed with their articles to our journal. During its existence the journal has become a traditional and important platform for scientific presentations in the field of plastic surgery in the Czech or Czechoslovak region as well as within the European level. The journal has always strived for the presentation of current state of the art knowledge in the field of plastic surgery as well as in other surgical disciplines, especially burns medicine, oral and maxillofacial surgery, aesthetic surgery and hand surgery.

The journal experienced its good and worse years. During the last decade, the situation and the conditions, in which the journal existed, had significantly changed, more strongly than in all previous decades together. The number of specialized journals with a similar content continues to grow and the competition in the "fight" for readers as well as authors is much harder. Other important factors, that play currently a major role and make it difficult to keep the journal on the market among the other journals, is especially the wide availability of medical resources on the Internet, the "open access" purely Internet titles, providing full text articles in the moment of their acceptance for publication, and understandable effort of professional public and educational institutions to publish articles mainly in journals with impact factor. Of course we cannot ignore also the economic and organizational demands associated with the management of the journal. All these factors put the journal in front of the major challenges such as the conditions under which it is possible to manage the journal and which direction should be chosen for the journal in the future.

In 2015 the team of people who have the future of the journal in their hands significantly changed. A new editor-in-chief and his deputy were appointed and the Editorial Board was also modified. New editorial team wants to keep the journal in printed form, but also to try to increase the "attractiveness" of the journal by other means, e.g. expansion of focus of the journal, publication of medical educative articles and news. We want to achieve formal standards common in the contemporary scientific literature and we plan to establish a possibility of online article submission and online administration of the review process. We are also considering enabling free online access to full texts of published articles and the editorial team constantly wants to obtain impact factor in the future.

The main effort of current editors and editorial board is to stabilize the journal for a longer period of time and adapt its image into new, dynamically changing times, while preserving the best of its history and continue this history with dignity. Today we are proud of the history of the journal and we also want to be proud of the history of the journal in the future, at the moment when we will be passing on the journal to our successors. We hope that with your submitted papers it certainly will go much easier. So please do not be afraid to send us your articles. We always strive to do our best to help you to solve all the problems and questions during the review process.
Keep your fingers crossed!

Aleš Fibír, M.D., PhD.
Editor-in-chief
Acta chirurgiae plasticae

VASOSPASM OF THE FLAP PEDICLE – MAGNESIUM SULPHATE RELIEVES VASOSPASM OF AXIAL FLAP PEDICLE IN PORCINE MODEL

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ABSTRACT

Background: The effect of magnesium sulphate on mechanically provoked vasospasm of the flap pedicle on porcine model was not studied yet. Positive effect of magnesium sulphate on vasospasm was proved in previous studies on rat.
Methods: The bilateral pedicled flaps based on the caudal superficial epigastric arteries were raised on 8 pigs. Flaps on the right side were the treatment group; flaps on the left side were the control group. The vasospasm was provoked by the tension applied on the pedicle in the axial direction using 160g weight. The blood perfusion of the flap was monitored using laser-Doppler. The duration of the vasospasm was defined as the time from the release of the tension until the blood flow began to rise. These times were detected using an automated computerized detection. In the treatment group, magnesium sulphate was given topically on the vessel; saline was used in the control group.
Results: The duration of the vasospasm in the treatment group was significantly shorter than in the control group (P= 0.024).
Conclusion: Magnesium sulphate 10% shortened significantly the mechanically provoked vasospasm on caudal superficial epigastric flap in a porcine model. Further clinical studies are needed to prove the effect in humans.

KEYWORDS

Vasospasm, pig, magnesium sulphate, groin flap, laser-Doppler

INTRODUCTION

Vasospasm is a common problem in microvascular surgery. It is a localized contraction of the vascular smooth muscle in contrast to a generalized vasoconstriction, which is caused by influences of central nervous system. Vasospasm usually develops as a result of surgical manipulation of small vessels of the vascular pedicle during free flap elevation. Often, it causes only temporary and incomplete obstruction of the vessels. In some cases, however, a prolonged vasospasm may result in formation of a thrombus and cause a complete obstruction of the vessel.[1-5] Definition of vasospasm, its pathogenesis and clinical consequences is mentioned in the first part of our vasospasm study, which is published as a separate article (Vasospasm of the Flap Pedicle: The New Experimental Model on Rat).

Surgical treatment of acute vasospasm is rarely effective, therefore pharmacologic therapy should be administered. The ideal chemical agent is still being sought.[6-16] The effects of different vasodilating drugs were compared in the second part of our study, which is also published as a separate article (Vasospasm of the Flap Pedicle – The Effect of 11 Most Often Used Vasodilating Drugs-Comparative Study in a Rat Motel). Vasospasm was provoked by tension applied on the pedicle of a groin flap on rat, magnesium sulphate 10% was the most efficient chemical agent among a number of studied drugs. According to our knowledge, the effect of magnesium on the pedicle of the flap in porcine model has not been studied yet.

The purpose of this experimental study was to evaluate the effect of magnesium sulphate on vasospasm provoked by surgical manipulation (axial tension) on the flap pedicle in a pig. Tension on the flap pedicle commonly appears during surgical manipulation of the vessel in clinical practice and this stimulus was evaluated as the most appropriate for drug testing in our previous experiments on rat. This stimulus is well defined and easily repeatable.

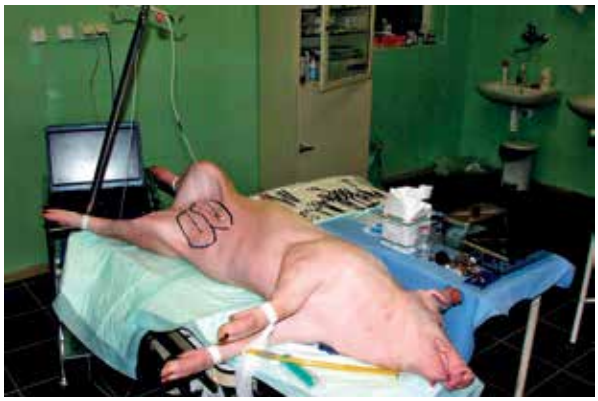

Fig. 1. Two caudal superficial epigastric flaps were designed and raised on the abdomen and the peripheral blood perfusion was measured using laser-Doppler flowmeter

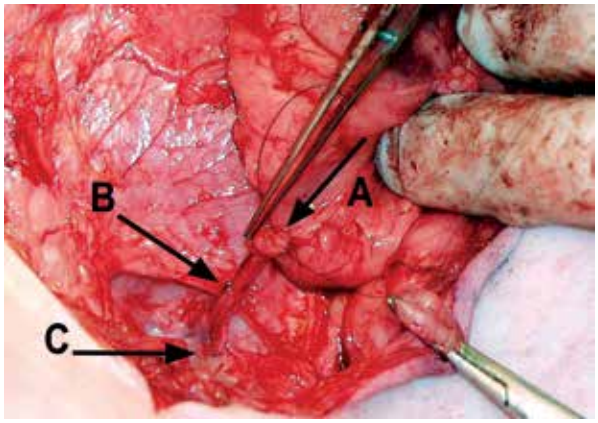

Fig. 2. The caudal superficial epigastric vessels, a pedicle of the cutaneous flap, were dissected, a part of the pedicle was denuded and the thread was sutured to the adventitia. Then the thread was attached to the weight of 160g and the pedicle was pulled to provoke vasospasm

MATERIAL AND METHODS

The study was done at Veterinary Research Institute (Brno, Czech Republic), and it was approved by the Ethics Committee of the Ministry of Agriculture of the Czech Republic for the animal studies.

This experiment was done on a porcine model; and it was based on laser-Doppler measurement of the peripheral blood perfusion of the bilateral axial flaps based on the arteria and vena epigastrica caudalis superficialis. The flap on the left side served as the study group (A) and the flap on the right side served as the control group (B). Vasospasm was provoked in both groups by pulling the pedicle in the longitudinal axis of the pedicle vessels. This kind of stimulus could not be studied in a clinical environment without putting flap viability into risk. From this point of view, the animal experimental model was necessary.

Eight pigs, crossbreeds of White Noble (50%) and Landrace (50%), were operated on under general anaesthesia. The average weight of the pigs was 57 kg (SD 7.2 kg). The surgery was conducted under standard temperature conditions (23°C) in general anaesthesia using TKX (tiletamin-zolazepam + xylazin + ketamin). The laser-Doppler probe holders were placed in the right and left groin. The island flaps based on arteria and vena epigastrica caudalis superficialis were elevated on both sides of the abdomen as shown on Fig 1. The vascular pedicle of the flap was exposed in the extent of 3 cm from its branching from the femoral artery and the 3-0 Polysorb suture was placed in the adventitia (Fig 2). Then, the flap was left resting for 20 minutes before the laser-Doppler probe (PeriFlux system 5000, small straight probe 407-1, Perimed, Jarfalla, Sweden) was attached and continuous recording of the perfusion signal began. After another 5 minutes of leaving the flap resting (this time point was assigned as t=0), the weight was attached to the suture and hanged on the block for 5 minutes. The weight of 160g placed in the direction of the vessel course produced consistent tension on the pedicle. In the treatment group A, the vessels were sprinkled with magnesium sulphate (Magnesium Sulphuricum Biotika 10%, Biotika, Slovenska Lupca, Slovak Republic), for the period of duration of the tension on the flap pedicle (t= +5 minutes) and continued for the next 2 minutes after the tension was released (t= +7 minutes). In the control group B, saline was applied in a similar way. Doppler signal recording continued for another 30 minutes.

The perfusion recording signals were exported from the control software package of the laser-Doppler flowmeter into ASCII format files. Graphic representations of blood flow were created from these files. Because the signals were corrupted by impulse noise, it made it impossible to clearly detect the important time points and signal amplitudes. Therefore, a Savitzky-Golay polynomial filter was employed to smooth the signals. Then, two important time periods "t_B" *and* "t_C" were extracted from the signals with the use of Matlab (The MathWorks, Inc) scripts. The time period "t_B" represented the period between t=+5[s] and the time point on the curve when perfusion began to rise after a period of poor perfusion secondary to the exposure of the pedicle to tension. This time was considered as the duration of the vasospasm. The time "t_C" represented the period between t=+5[s] and that point on the curve when the re-perfusion reached its maximal level (Fig 3).

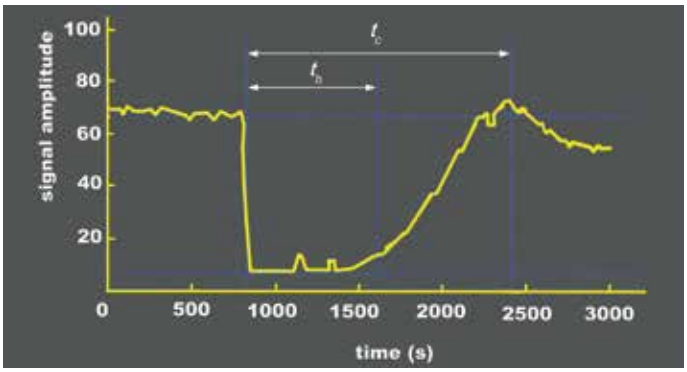

Fig. 3. Schematic drawing of the quantities, which were extracted, from each signal of blood perfusion obtained by the laser-Doppler flowmeter. The signal amplitude represents the level of flap perfusion in "PU" (perfusion units). The thin grey line represents the original signal values; the thick black line represents the values of the signal after the pre--processing procedure. The important time points "t=0", "tB" and "tC" are marked with the dashed lines and the signal amplitudes are marked with dotted lines

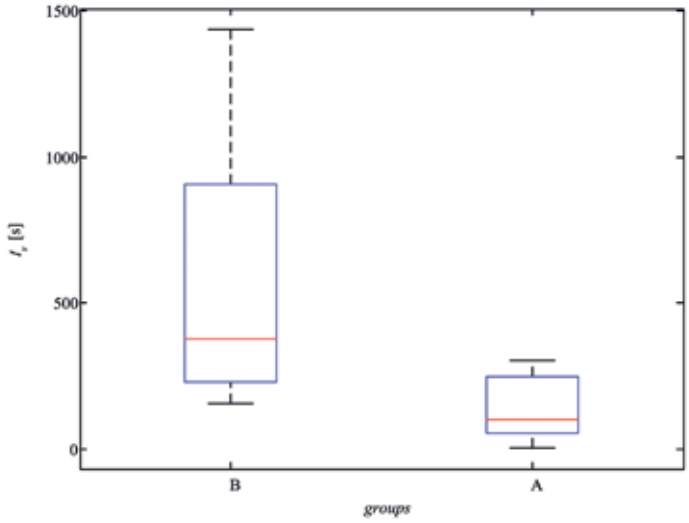

Fig.4. Box and whisker plots comparing variables tB in the Treatment Group (A) and the Control Group (B)

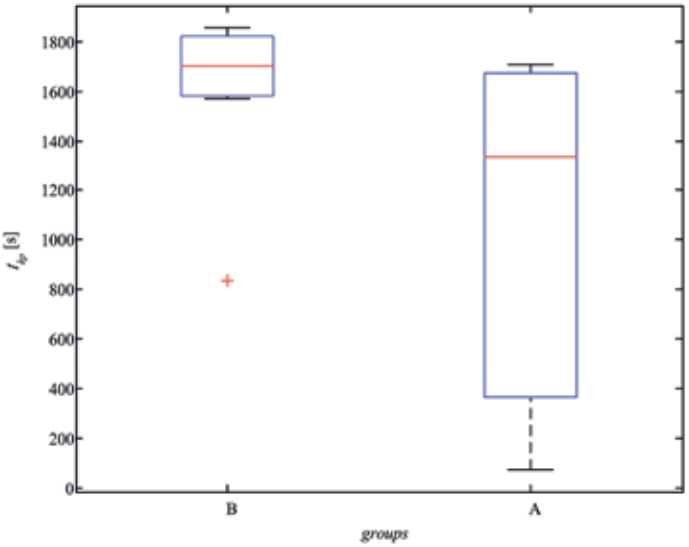

Fig. 5. Box and whisker plots comparing variables tC in the Treatment Group (A) and the Control Group (B)

The above-mentioned signal characteristics "t_B" and "t_C" were compared between the treatment group A and the control group B using the paired Student t-test. Values at the 5% probability level were considered statistically significant. Suitability of the paired t-test for the analysis was supported by the fact that the control and the treatment groups were on the same animals and by the high values of the Pearson's correlation coefficients: $Ro(tB_A, tB_B)=0.79$ and $Ro(tC_A, tC_B)=0,47$. According to these findings, the two groups were supposed to be dependent samples.

RESULTS

Normality of distributions of the signal characteristics *tB* and *tC* was verified by visual inspection in the histograms of the measured values of *tB* and *tC*. Table 1 and Fig. 4, 5 show mean values and standard deviations of the variables *tB* and *tC* in the two analysed groups. The means of signal characteristics were compared with the use of the paired t-test and the results were as follows: the time *tB*, that represented duration of the vasospasm, was significantly shorter ($P= 0.0236018$) in the treatment group A than in the control group B and the time *tC*, that represented speed of flap re-perfusion, was not significantly shorter ($P= 0.10087$) in the treatment group A than in the control group B.

DISCUSSION

Several studies were dedicated to an investigation of the vasospasm on a porcine model[17-23]. We used new experimental model that was influenced by previous studies on a rodent model (Vasospasm of the Flap Pedicle – The New Experimental Model on Rat). Our new experimental model was based on the axial pattern free flap. The vasospasm was repeatedly induced using exactly defined axial tension that was applied on the flap pedicle. The weight of the weight, that consistently and safely produced vasospasm, was determined on two pigs operated before this study by gradually adding the weights on the pulling thread. The weight of 160g consistently stimulated vasospasm in all subjects and vasospasm lasted long enough to allow the tested drug to show its effect. By removing adventitia in some extent, the tissue wrapped around vessels was insignificant and the force was applied straight on the vessel wall. Also, magnesium infiltrated the vascular wall easier.

The laser Doppler measure was chosen for flap perfusion monitoring, because of its accuracy and reliability. Also, monitoring of blood perfusion on the periphery of the flap encompassed any possible change in the blood flow inside the flap.[24, 25] The laser Doppler in connection with computer as a recording device allows continuous recording of the signal amplitude. The signals were afterwards subjected to Savitzky –Golay filter to remove artificial peaks coming mostly from movements of the probe. Automated detection of the time values on the signal curves ensured maximum objectivity and accuracy in obtaining measured values.

The pathogenesis of vasospasm resulting from pulling the pedicle is still not clear. One of the possible explanations is direct myogenic response of the smooth vascular wall muscle. Stretching arterial smooth muscle to 1.2 times of its resting length results in maximal phosphorylation of myosin light chains and smooth muscle contraction.[26]

Although the vasodilator properties of magnesium ions were well documented both in vitro[27-30] and in vivo[31-34], the exact mode of action of this drug on vasospasm is still not fully understood. The best explaining theory of mechanism of action is likely to be related to competitive inhibition between magnesium and calcium ions for binding sites on the myosin light chain kinase regulatory protein, Calmodulin. Calcium is unable to activate myosin light chain kinase when Mg^{2+} ion is bound to Calmodulin. This results in Mg^{2+} induced relaxation of smooth muscle fibrils due to conformational changes in the actomyosin ATP-ase, rendering it less active in a dose dependent manner.[35-37] Other explanation of magnesium ions action is inhibition of the release of excitatory amino acids and blockade of the N-methyl-D-aspartate-glutamate receptor.[38, 39]

Group	N	Mean t_v [s]	Mean t_{hp} [s]
A – $MgSO_4$ 10%	8	137.5; SD 114.9	1103.4; SD 722.1
B – Control group (saline)	8	584.8; SD 476.8	1595.9; SD 352.5

Table 1. Mean values and standard deviations of the times tB and tC in the Treatment Group (A) and the Control Group (B)

Altura et al. compared effect of Mg^{2+} ions with calcium blockers on the vessels. Data obtained from this study of different calcium channels (verapamil, nimodipine, nitredipine and nisoldipine) point at considerable heterogeneity of its active sites. Magnesium sulphate probably acted in all types of calcium channels of the vessels in different organs. Conversely, effect of calcium channels blockers is strongly organ dependent.[40]

In vitro, Kimura et al. studied effect of magnesium on the vascular ring segments from human coronary arteries obtained by autopsy within 5 hours. Magnesium significantly inhibited the tonic contraction at concentrations of 1mM and 2mM, but increased the amplitude of periodic contraction. At concentration of 8mM reduced the amplitude of periodic contraction and tonic contraction of the rings.[29]

Ram et al found that intravenous magnesium sulphate dilated the spastic basilar artery (provoked by the blood in the subarachnoid space) in the rat from 50% of the baseline diameter to 75% and topical application of magnesium sulphate dilated the spastic basilar artery to 150% of the baseline diameter.[41]

In clinical studies, Chia et al. proved positive effect on relieving cerebral vasospasm when plasma concentration was maintained at 1–1.5 mmol/l[42] and magnesium was also efficient when the concentration was twice higher [43]. Van den Bergh et al.[44] and Wong et al.[45] confirmed these findings on cerebral vasospasm in pilot prospective randomized controlled studies. Magnesium therapy may be more effective if magnesium is administered as a preventive measure to protect against vasospasm rather than to treat a completely developed vasospasm.[46]

We have been using perivascular (intra-adventitial) injection of magnesium sulphate empirically in microsurgical procedures from the 1990s – its effectiveness appears to be reliable despite the fact that no evidence has been provided yet.

Magnesium sulphate is a readily available, inexpensive substance that proved its efficacy in several experimental and clinical studies. This study confirmed our findings based on experimental study on a rodent model as well as our clinical observations. According to our knowledge, this is the first report that proved magnesium efficacy on relieving mechanically produced vasospasm of the flap pedicle on a porcine model.

CONCLUSION

Magnesium sulphate 10% shortened significantly the mechanically provoked vasospasm on superficial inferior epigastric flap in a porcine model. Further clinical studies are needed to prove the effect in humans.

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A NOVEL MODEL TO EVALUATE THE LEARNING CURVE IN MICROSURGERY: SERIAL ANASTOMOSIS OF THE RAT FEMORAL ARTERY

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ACTA CHIRURGIAE PLASTICAE, 57, 1–2, pp. 9–12

SUMMARY

The rat's femoral artery is definitely the most frequently used model in microsurgical training for its easy dissection. Our model, consisting in the creation of several anastomoses in a row, helps the novice surgeon to assess his microsurgical level and to improve his capacity. Indeed, this leads to an amplification of the trainee surgeon's mistakes, which add up to each other as the anastomoses are performed. We propose a simple method to evaluate the surgeon microsurgical skills during the training.

KEYWORDS

Rat, femoral artery, microsurgery training, anastomosis, learning curve

INTRODUCTION

Microsurgery training is an essential component of the plastic surgery residency program.

Although many non-living animal models have been proposed as a suitable alternative to the living model [1–4], they don't allow to reproduce many of the factors that normally occur during a microsurgical dissection and anastomosis, such as bleeding and vessel spasm, as well as they prevent the surgeon to check the anastomosis by performing a patency test. Therefore the live rat animal model is still indispensable. In bibliography, many living rat animal models have been reported, consisting in the performance of several exercises, such as flaps or transplants, but all of them imply the use of a high number of animals allowing the use of one vessel only for one exercise. We propose a simple method to evaluate the surgeon's microsurgical skills during the training, consisting in the performance of 4 anastomosis in a row. This allows to exploit as much as possible the same vessel and it leads to an amplification of the trainee surgeon's mistakes, helping the novice surgeon to assess his microsurgical level and to improve his capacity.

MATERIALS AND METHODS/SURGICAL TECHNIQUE

The experiment was approved by the Ethics Committee at St. Anne University hospital in Brno and performed under standard conditions (i.e., temperature 24°C to 25°C, light conditions, sterility).

A total number of 30 Wistar-albino Rats, weighting approximately between 300–350 g, were used in this study. The rats were intraperitoneally anesthetized using ketamine (75–95 mg/kg) and xylazine (5–8 mg/kg) solution. Euthanasia was performed with intracardiac phenobarbital administration. Both femoral arteries of each rat were used, giving a total of 60 vessels with a diameter ranging from 0.9 to 1.1 mm.

In order to obtain as much space as possible, it is mandatory to completely expose the femoral artery, from the inguinal ligament up to the ending of the vessel in the saphenous artery, through an accurate ligature of every vessel that branches off from the femoral artery up to the genicular descending artery.

The microvascular technique used was the simple-interrupted suture in 10-0 nylon, according to the standard method of Acland[5], and anastomoses were performed in a proximal-distal fashion.

After each procedure, the surgical field was irrigated with a topical 10% magnesium sulphate solution to reduce the risk of vessel spasm[8].

Once the femoral artery was completely prepared, the first author performed serial anastomoses to a maximum of 4 (Fig. 1).

This model has been used on 60 femoral arteries by a single surgeon who had no previous microsurgical experience (G. L.).

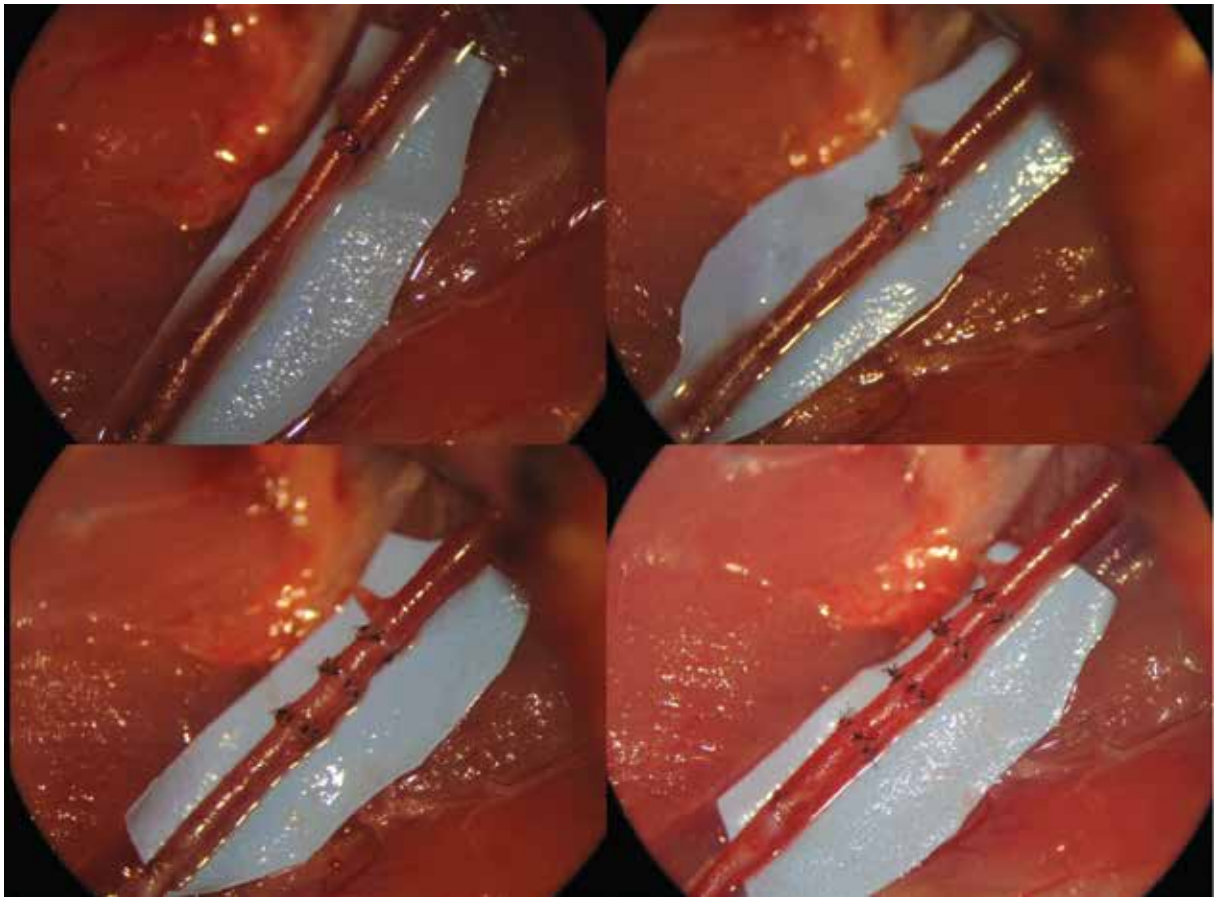


Fig. 1. Series of anastomoses in a row accomplished on one single femoral artery in a rat. The optimal length and caliber of the vessel is crucial in order to properly perform the training model

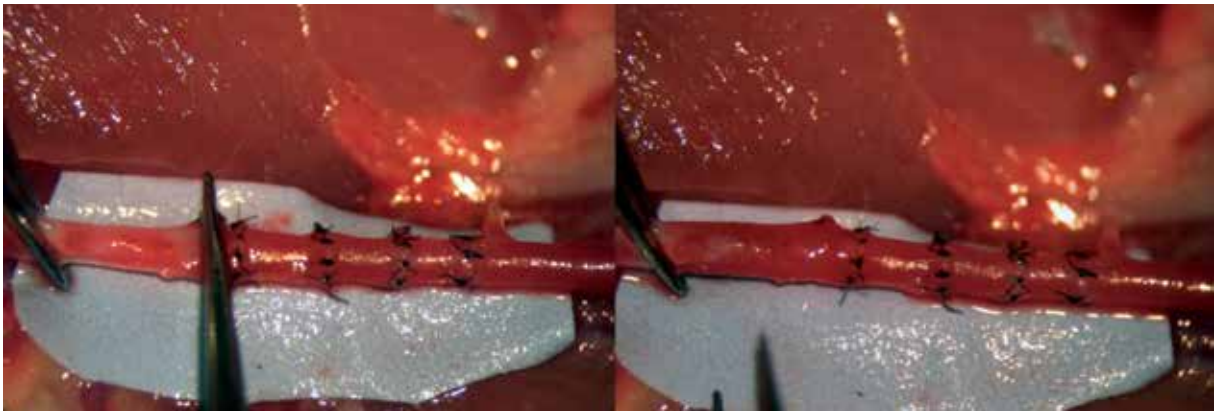


Fig. 2. Positive patency test performed in 4 serial anastomosis: clinical assessment of vessel patency can be demonstrated by occluding the vessel with two forceps distal to the anastomoses, then sliding one forceps for several millimeters over the vascular wall to empty the vessel. Finally the release of the proximal forceps should show a rapid filling from proximal to distal, demonstrating the flow through the anastomoses. In this case the patency test is positive

Following accomplishment of each anastomosis, patency was checked by a standard patency test after 10 minutes (Fig. 2). Each microsurgical session was concluded every time the surgeon achieved a negative patency test, indicating the vessel's occlusion. The test results were then collected in relation to the number of anastomoses in a row in a table, calculating the patency rate. The higher was the number of patent anastomoses, the greater was the patency rate.

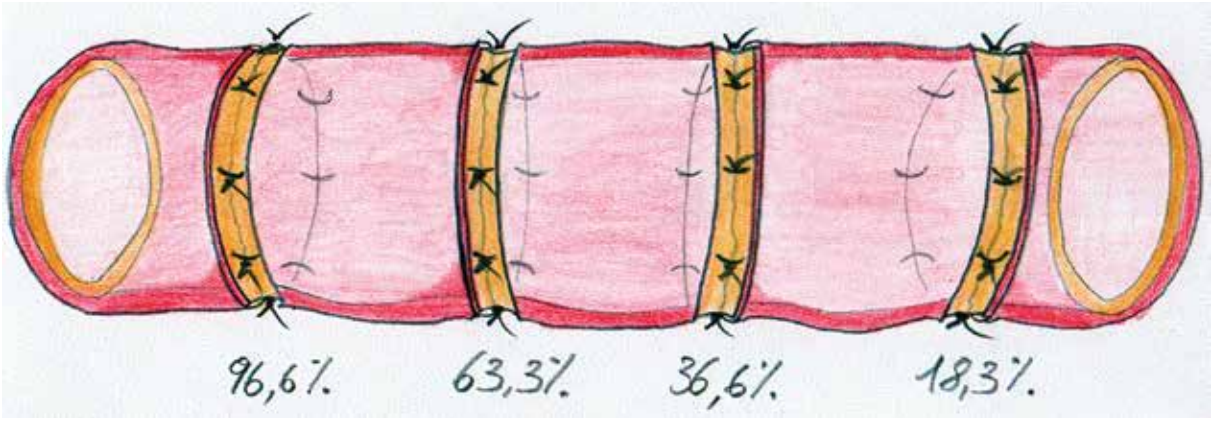


Fig. 3. Summary of the correlation between the increasing number of the anastomosis in a row and the percentage of positive patency test

RESULTS

Patency rate was 96.6% (n=58) for a single anastomosis; 63.3% (n=38) for 2 anastomoses in a row; 36.6% (n=22) for three anastomoses in a row and 18.3% (n=11) for 4 anastomoses in a row (Fig. 3)

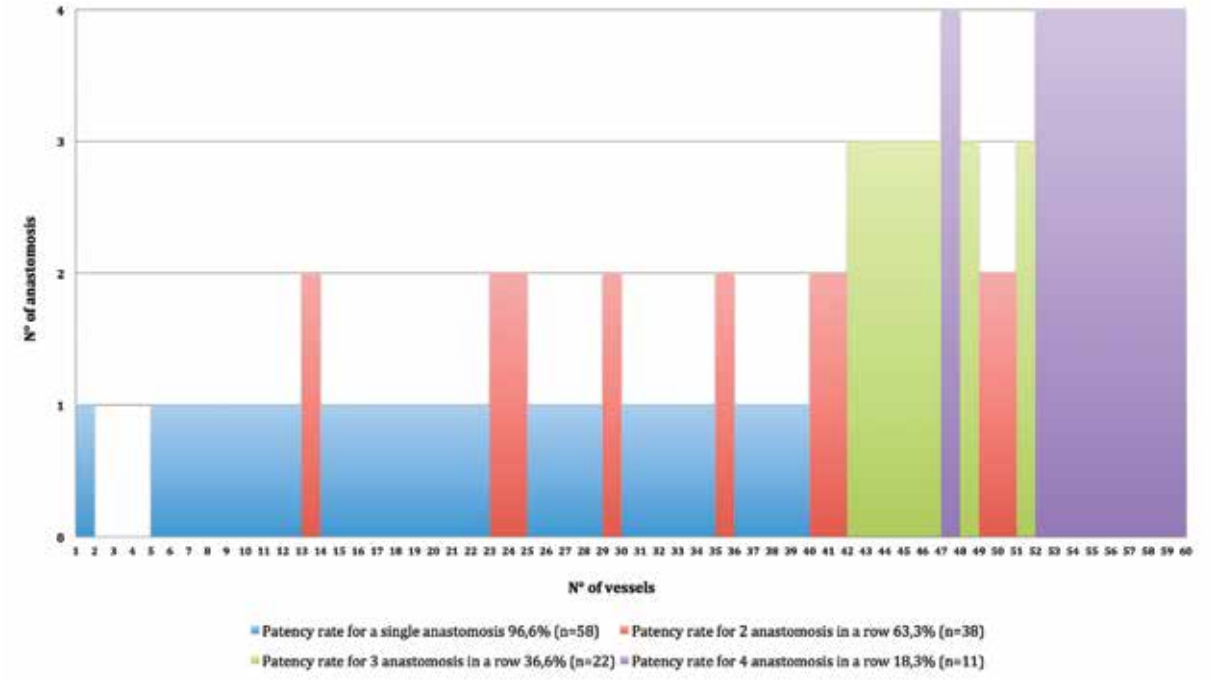
The results of each femoral artery procedure are summarized in Table 1.

DISCUSSION

The use of a rat model in microsurgery training dates back to the early 1960's, when pioneers, such as Lee[7], identified the necessity of low cost surgical models that could meet the clinical needs of the day. The rat model, but in particular the rat femoral artery, is definitely the most frequently used in microsurgical training for its easy dissection, for the optimal exposure of the vessel and for its dimensions (0.7–1.1 mm). This is essential in order to learn to tackle every possible difficult situation in surgical practice.

Various factors contribute to the difficulty of performing several anastomoses in series:

1. Incorrect stitches distribution along the margins, instead of parallel arrangement with regards to the blood flow direction;
2. Twisting of the vessel between each anastomosis;



Tab. 1. Summary of the progressive improvement of microsurgical skills related to the patency test performed on each accomplished anastomosis

3. Repeated traumatic pinching of vessel's margins;
4. Increase of the platelet deposit downstream of each anastomosis;
5. Limitation of the clamping space;
6. Awkward surgical field;
7. Gradually increasing stress to the surgeon.

All these factors are the typical mistakes performed by the novice surgeon, who doesn't realize, at the beginning of its training, the importance of avoiding them during a microsurgical suture. This exercise shows the errors amplification, this way leading the surgeon to correct himself.

We have found that patency test was resulted positive after achieving four anastomoses in a row only during the latest microsurgical sessions. These results show how the surgeon gradually improved his skills, reaching a *plateau* in the learning curve at the end of his microsurgical training, in which the risk of errors is much lower.

The training of a novice microsurgeon is a step-by-step process. Starting from simple exercises such as end-to-end suture of the femoral artery, the trainee will be able to perform a more advanced practice like the rat kidney autotransplantation or the epigastric free flap[7]. All the living models for microsurgical training reported in bibliography improve the microsurgical skills increasing the difficulty in the vessel dissection or decreasing the vessel's size but none of them highlights the typical mistakes that a novice surgeon does at the beginning of its training.

In our opinion, this model helps the novice surgeon to assess his microsurgical level and to improve his capacity in performing an anastomosis through an exercise consisting in creating 4 anastomoses in a row. Indeed, this leads to an amplification of the trainee surgeon's mistakes, which add up to each other as the anastomoses are performed. However, further studies need to be conducted in order to increase the sample.

Moreover lately many studies focus on the research of suitable non-living models, this leading to the costs reduction and the animal preservation. The performance of serial anastomoses on the same artery avoids the animal waste, working on the same vessel as much as possible.

The surgeon's technique and the accuracy in placing the stitches are the most important factors in determining the patency of serial anastomoses, as demonstrated by the learning curve effect observed in Table 1. Thus, this model can be used to evaluate the progress of a plastic surgery resident in his microsurgical training.

CONCLUSION

Considering the most common mistakes performed by the microsurgeon at the beginning of his microsurgical training, we believe that this model helps the novice surgeon to assess his microsurgical level and to improve his capacity in performing an anastomosis through an exercise consisting in placing 4 anastomoses in a row.

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TWISTED DISTAL LATERAL ARM FLAP FOR IMMEDIATE RECONSTRUCTION OF THUMB AVULSION INJURY

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ABSTRACT

Background: Replantation is a complicated procedure in avulsion injuries in majority of the cases. When replantation of an avulsed thumb is not feasible, it is mandatory to find an appropriate reconstruction choice as soon as possible due to the importance of the thumb function in the dynamics of the handgrip.
Materials and methods: Three patients with skin avulsion injury underwent immediate reconstruction by twisted lateral arm flap in our department since 2004.
Results: No infection, hematoma, partial or complete flap necrosis were observed after the procedure. All of the flaps healed without complications.
Conclusion: Although the gold standard in reconstruction of these trauma defects is the use of local skin flaps or distant inguinal flap, these reconstructive choices have multiple drawbacks such as the loss of sensibility and they are thicker.In this paper we propose a modification of distally planned lateral arm flap design and a new technique of its spiral shaping for immediate thumb reconstruction.

KEYWORDS

Lateral arm flap, distally planned, avulsion injury, thumbreconstruction, twisted shape

INTRODUCTION

The gold standard approach to the thumb skin avulsion injuries is the immediate reconstruction using one of the available local skin flaps or using a distant inguinal flap[1–3]. A valid alternative is to resort to a free flap. However, most of the free flaps are too thick for this purpose. Free dorsalis pedis flap is quite thin, but it has the drawback of rather big donor site morbidity. Similarly, the donor site defect after a free lateral arm flap harvested in a common fashion can hardly be closed without the use of a skin graft[4–5].

The authors describe a new technique of harvesting the distal lateral arm flap on a series of three patients. Our modification allows primary closure of the donor site defect with good aesthetic outcomes.

MATERIAL AND METHODS

Patients

Three patients underwent immediate thumb reconstructions using twisted lateral arm flap in our department from July 2004 to January 2014. All of the procedures were performed under general anaesthesia, within 8 hours after the injury. Intravenous antibiotics were administered. At first, the wounds were treated by thorough washout and careful debridement. The flap was harvested on the same extremity as the injured thumb.

Surgical technique

After a careful debridement of the wound, the recipient vessels are exposed on the dorsum of the hand. Usually we expose the branch of the cephalic vein with an appropriate calibre and the radial artery in the snuffbox. We use the dorsal branch of the radial nerve as the recipient nerve.

Furthermore, on the dorsolateral side of the ipsilateral forearm the long distally planned lateral arm flap is drawn along the course of the posterior antebrachial cutaneous nerve. The flap width, which can reach up to 5–6 cm, is measured so that it is possible to safely close the donor site with primary suture. The flap must be thin and long enough, i.e. 13–15 cm below the lateral epicondylus of the humerus.

The anatomic landmarks are summarized in Fig. 1.

The vascular anatomy of the pedicle is well known and defined.

The flap is designed ideally on the perforator, which is usually about 4–7 cm above the lateral epicondyle. The perforators reach the skin running into a septum between the Triceps brachii muscle and the Brachialis muscle (septum lateralisbrachii) (see Fig 1.). The pedicle of the lateral arm flap is dissected for the required length. The nervus cutaneus antebrachii posterior is harvested as a sensitive nerve of the flap.

Distally, the flap is wrapped around the thumb where it is not simply folded, as usual, but it is loosely coiled into a spiral running upwards towards the tip of the finger. The

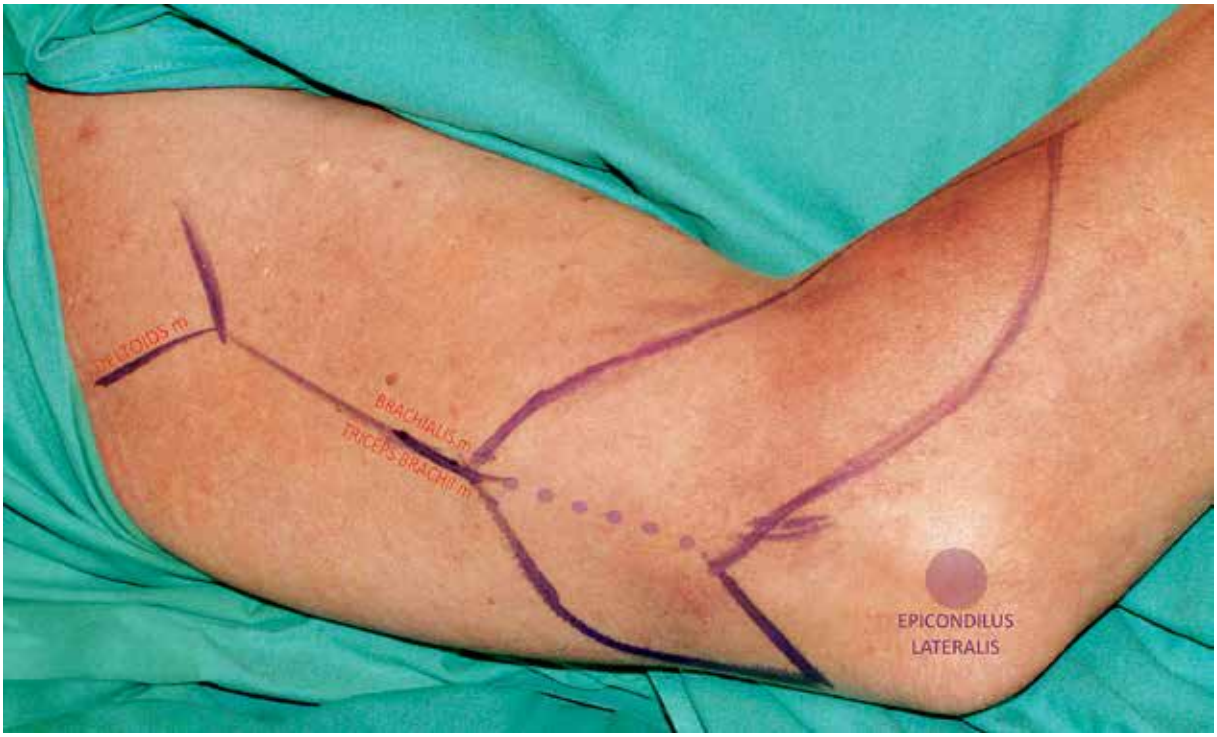

Fig. 1. The Lateral arm flap (LAF) is a septocutaneous flap. The cutaneous branches of the flap rise to the skin within the lateral intermuscular septum, which separates the brachialis from the triceps muscles. The septum is represented by the interconnection of the lateral epicondyle and the insertion of the deltoid muscle. In the dashed line there is a constant presence of the perforators from the posterior radial collateral artery (PRCA), a branch of the profunda brachii artery

spin (helix) will be over 360 degrees. In this manner, the flap conveniently covered the defect of the thumb.

RESULTS

No infection, hematoma, partial or complete flap necrosis were observed after the procedure. All the flaps healed without complications. The handgrip was restored in all cases.

CASE SERIES

Case I

A 42-year-old patient sustained an avulsion injury of the dominant right hand thumb in a belt machine. The lesion had the typical appearance and the skin, including the nail and the distal half of the distal phalanx, was amputated at the dorsum of the hand. The remaining skeleton of the thumb was intact. Digital arteries were damaged in such an

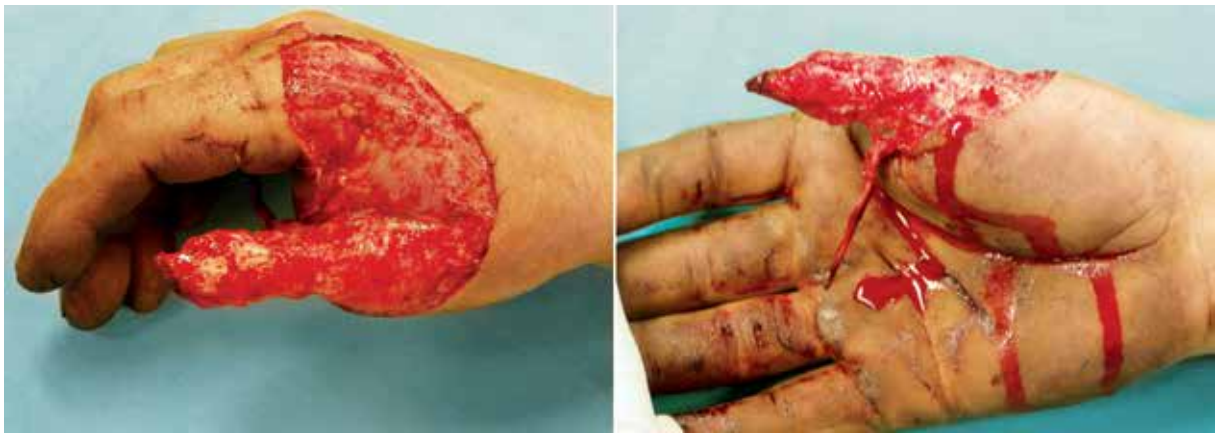

Fig. 2. Preoperative view of a complete lydegloved right thumb. The amputated part contained the nail and the distal half of the distal phalanx

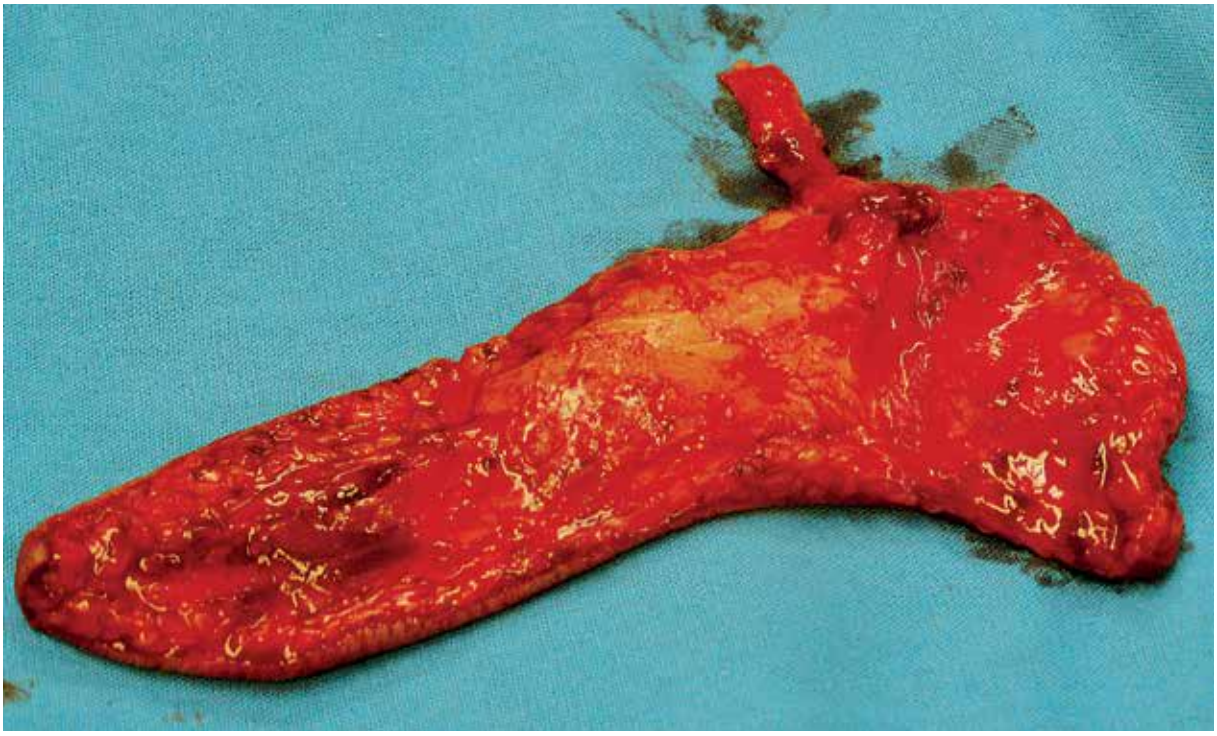

Fig. 3. The flap raised. The shape of the flap allows us to achieve a direct closure without tension

extent that replantation of the avulsed part was impossible (Fig 2). The lateral arm flap based on two distal perforators, with a maximum width of 6 cm and a length of 15 cm distally to the epicondyle, was used to reconstruct the defect and the flap was wrapped around the thumb in a spiral fashion (Fig. 3). The flap's vessels were anastomosed in the "snuffbox". Secondarily, the distal phalanx of the thumb was elongated using a graft from the iliac bone and subsequently the flap was reshaped on the dorsum of the hand by small liposuction. In this case the spin was of 720 degrees. The aesthetic outcome and the handgrip after the reconstruction were optimal (Fig. 4). Two sessions of complementary flap liposuction were performed to reduce thickness of its subcutaneous tissue

Case II

A 35 years old man sustained an occupational injury of his non-dominant left hand in a grinding machine. Avulsion injury included a loss of skin on the entire dorsal side of the thumb and the palmar region of half of its distal phalanx. Replantation was not possible due to the devastation of the vessels on the stump. Skin flap had dimensions of 5 x 16 cm and was transferred based on the most distal perforator. The vessels were anastomosed in the "snuffbox". The spin was 630 degrees in this case. Small defect on the dorsum of the thumb was covered with a skin graft. After 12 months, a slight correction of the excess of the flap and the scars was performed.

Case III

A 62-year-old man sustained amputation of the right dominant thumb caused by a drilling machine. The skeleton of the thumb was avulsed at the level of the IP joint and skin avulsion reached up to the base of the first metacarpal bone. The amputated part was not available. The defect was covered using the lateral arm flap based on the two distal

Fig. 4. Three months follow up before the two sessions of complementary flap liposuction. No infection, hematoma, partial or complete flap necrosis was observed after the procedure. The handgrip was restored

perforators. Rotation of the helix in this case was only 380 degrees. The distal part of the thumb was covered with a skin graft of the size of 3 x 5 cm. There was excess of the flap after it healed and therefore it was further reduced by secondary operations.

DISCUSSION

The ideal method of immediate reconstruction in avulsion injuries is replantation of avulsed skin. In cases where replantation is not possible, it is mandatory to maintain the function and to reconstruct the skeleton of the thumb. The optimal solution is immediate reconstruction of the thumb using great toe transfer, fillet free flap or wrap-around flap [6–10].

Some patients, however, are not willing to accept the donor site morbidity on the foot and therefore we resorted to another option.

The local flaps come into consideration; especially reverse radial forearm flap or posterior interosseous flap. Concerning the distant flaps, the standard method is the reconstruction using the direct inguinal flap[11–12]. The advantage of a free flap reconstruction is a one-stage procedure and the possibility of flap sensitivity. If flaps harvested from the leg (e.g. dorsalis pedis flap) are not considered, due to their donor site morbidity, thin perforator flaps come into consideration. These flaps, however, have less sensitivity due to the reduction of the subcutaneous tissue with resection of cutaneous nerve.

The size of the flap required to cover the defect of the thumb is at least 8 x 9 cm. Harvesting a flap of such size in the classical fashion imply the use of a skin graft to cover the donor site defect [4–5]. When the flap is set up in a spiral manner, the maximum width required is reduced to 4–6 cm provided that the flap length is extended. Ideally a flap for this kind of reconstruction should be thin, sensitive and longitudinally oriented. These requirements are best met in a variant of a distally planned lateral arm flap or lateral forearm flap[13–18]. Both of these variants are based on the distal septocutaneous perforators of the posterior radial collateral artery. The advantage of both mentioned flaps is a long pedicle and a thin subcutaneous tissue.

The sensory nerve and the vessel, which provide sensory innervation and good blood circulation, pass through the central longitudinal axis of the flap.

CONCLUSION

Spiral placement of the distally planned lateral arm flap or the lateral forearm flap allows the reconstruction of the entire skin of the thumb, including a part of the hand dorsum. The flap has a potentially higher sensitivity than a groin flap and a single-stage microsurgical reconstruction is possible. Besides this, such reconstructive technique leads to low donor site morbidity, due to the possibility of direct closure.

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PIP IMPLANTS - CURRENT KNOWLEDGE AND LITERATURE REVIEW

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ACTA CHIRURGIAE PLASTICAE, 57, 1–2, pp. 17-23

SUMMARY

Non-compliance with the production process and use of non-certified materials during production of PIP implants opened an extensive debate regarding regulation and control mechanisms during their production, but the question of health safety of breast implants in general was also reopened. Production of breast implants is subject to various control mechanisms in each country and it is necessary to unify and coordinate such mechanisms. PIP implants were on the market for more than 15 years and in this period the production process and used materials were being changed purposely and without control, which resulted in production of implants with poor quality capsule filled with non-certified silicon gel. There were around 600,000 of these erroneous implants produced. Despite demonstrable harmfulness of the PIP implants, the current studies were not able to reliably confirm health hazard of these implants. Financial costs together with the inability to demonstrate health risk of PIP implants is the reason why the question to widely replace these implants was not solved and each state has a different opinion on this issue.

KEYWORDS

Breast PIP implants, risk of breast implants, regulation process of breast implants

INTRODUCTION

Non-compliance with the production process during the production of PIP implants revived an extensive debate regarding regulation and control mechanisms during production of breast implants and other medical devices, but reopened also the question of health safety of breast implants in general. Despite breast implants are classified in EU and USA as very risky medical device (class III) and they are therefore subject to more strict rules, regulation mechanisms are completely different.

In the US, the manufacturer must demonstrate safety and efficacy of implants by extensive and long term clinical studies in order to obtain approval from Food and Drug Administration (FDA). FDA is blamed, however, that it was not sufficiently controlling that performed studies were of good quality and were correctly evaluated and interpreted. In relation with the PIP implants is the agency blamed that it was not able to prevent illegal sale of PIP implants several years after they were prohibited in the US. In the European Union (EU) the manufacturer must obtain CE (Conformité Européenne) certification and for that the manufacturer must only demonstrate that the manufacturing process is in compliance with prescribed directives and norms. Competent authorities must control compliance with these norms. According to the current regulations in force, the product may be distributed and sold in all countries of the European Union, if it obtains CE certification in any of the EU countries [1,2]. The medical safety of breast implants is controlled by EQUAM (European Committee on Quality Assurance & Medical Devices in Plastic Surgery), which issues opinion regarding safety of implants in general, but it has no right related to the control of the manufacturing process of the implants, etc.[3–5].

Although the question of general safety of breast implants was already concluded mainly based on the report of the IOM (Institute of Medicine) in the US in 1999, it reappeared again with regards to the new risk factor of Anaplastic Large Cell Lymphoma – ALCL)[6,7]. This very rare lymphoma repeatedly occurred in the patients with breast implants. There were so far 130 cases of this disease in women with breast implants, from which four had a PIP implant. The disease had a fatal end in one patient with ALCL and PIP implant. The problem was immediately investigated by FDA with the conclusion that according to the current knowledge there is a minimal, but still a higher risk to develop ALCL in women with breast implants, however use of breast implants in accordance with instructions is safe [4,8].

HISTORY OF PIP IMPLANTS

The company Poly Implant Prothéses (PIP) obtained approval for production and distribution of breast implants in 1997. PIP implants were produced in the current design since 2001 as smooth and textured. The manufacture process, which obtained CE certification, declared quality at the level of third generation implants. The company obtained the certification via German authorized body TUV Rheinland. However, the implants became characteristic soon of high incidence of ruptures and leakage and behaved rather as implants of second generation[3,8].

It has been estimated that the company produced approx. 600,000 implants, in which it did not follow the certified manufacture process and materials. From that follows that there is around 300,000 women from 65 countries of the world who might have faulty PIP implants. Most of them come form the countries of South America. Between the years 2001–2009, there were approx. 80,000 of these implants sold in the United Kingdom and around 60,000 in France, which represents approx. 40,000 and 30,000 women, respectively. In the United States, however, with regards to more strict regulations, there were only few of these implants used[3,5,8].

PIP implants were manufactured by the French company Poly Implant Prothéses, later also under the names M-Implants, Rofil Implants and TiBreeze. Since 2006 there were references from aesthetic surgeons that these implants have a higher risk of rupture and the British Medicines and Healthcare Products Regulatory Agency – MHRA warned the manufacturer about this and also the appropriate control authority. Nevertheless, the warning was put aside with the explanation that the rise of rupture rate is a natural feature due to higher distribution of the product and a more precise reporting of complications. MRHA notified again in 2009 when the UK Health Department published a research, which compared the incidence of PIP implants ruptures of 15–30% with the incidence of 10–14% in implants of other brands. In March 2010 the French agency Agence Francaise de Securite Sanitaire des Produits de Sante (AFSSAPS) found that during the production of PIP implants was not used the approved medicinal grade silicon gel, but an industrial gel and production and distribution of implants was prohibited. MHRA responded on 31st of March 2010 by the issue of Medical Device Alert-MDA/2010/025 in which it prohibited the usage of PIP implants in the UK[3,5,8,9].

In the United States were the PIP implants excluded from legal use several years before that due to the doubts about their safety. As early as in 2000, the FDA scientific board stated that published documents of PIP Company are not valid and FDA prohibited usage of PIP Implants in the USA. Based on this decision, the PIP Company requested the possibility to perform studies in the USA. FDA inspection therefore performed check of manufacture process in the production facility of PIP, where it found eleven significant deviations from certified production process and did not recommend even any studies with PIP implants in the country[3,5,8,10–12].

THE PIP ISSUE

Uncovering of production and material deviations related to PIP implants resulted in extensive investigation process in the manufacturer and responsible health authorities in individual countries in which PIP implants were distributed, and they had to take an adequate stand and declare measures for doctors and patients. This all took place under a great pressure of media.

In December 2011 and January 2012 French medical authorities published recommendations for women with PIP implants. Each woman, who had PIP implants, should visit her doctor and if there was a suspicion or demonstrated rupture of the implant, the implant should have been immediately removed. PIP implants should however be preventively removed in all women also in case that they were all right and in women who had no clinical problems and finally, early regular checks were needed in women who refused removal of the implant[13,14].

On the other hand, MHRA, based on its studies, declared that in women with PIP implants was not demonstrated any significant health risk and it is not needed to remove the implants routinely[15–18].

In December 2011 experts from Great Britain, France, Italy, Austria and Denmark initiated a conference concerning the risks of PIP implants and determination of further procedure. After this conference the health authorities in France, Netherlands, Germany, Czech Republic and Venezuela issued a statement that PIP implants should be preventively removed in women.

In January 2012 the Medical Director of the National Health Trust UK made a definite statement based on a thorough analysis by a group of specialists. The conclusion of the analysis stated that there is no demonstrated health risk of technical silicon that is used in PIP implants (genotoxicity, cytotoxicity, cancerogenity, ...), however these implants have a greater tendency of failure and local symptoms then implants of other brands[19]. Therefore, MHRA in Great Britain, in contrast to the decision in other states, declared that implants need not to be preventively removed. This resulted in great wave of protests of the public and MHRA soon issued a corrective statement that the National Health System – NHS will pay for removal and exchange of PIP implants to women in whom the primary procedure was paid by the NHS and the doctor and the patient declare that the exchange is the best solution for the patient. Simultaneously was the same procedure offered also by the private clinics that performed aesthetic augmentation of the breasts[20–23].

Expert panel of Australian Board for Therapeutic Goods Administration (TGA) repeatedly declared that based on current knowledge, there is no need for routine removal of PIP implants in case that they are not ruptured, however women with these implants should undergo complex examination including MRI[24].

The International Confederation of Plastic, Reconstructive and Aesthetic Surgery Societies also joined the discussion in early 2012 and stated that: "There is no further space for discussion, our obligation is to recommend removal of PIP implants"[25]. However, for the whole duration of this scandal, each country worldwide or within Europe did not agree upon a uniform procedure.

QUALITY OF PIP IMPLANTS

In 2010, French health authorities performed investigations and tests of PIP implants with regards to the chemical composition of silicon, quality of silicon capsule and toxicological point of view. Implants were produced with three surface finishes, as smooth, microtextured and textured. In 2007 was eliminated barrier layer from the capsule. A detailed analysis demonstrated that during the production there was no certified medicinal gel used for a long time but an industrial gel of lower purity with high content of small particles and with lower stability. Exact type of gel cannot be found in literature; however the company states usage of PIP1 gel until 2008 and then PIP2 gel. Media report usage of three various gels including Baysilone and Silopren (Bayer AG, Germany) and Rhodorsil (Bluestar Silicones, France). Some of these gels are declared by the manufacturers as possibly suitable for medical use, but without further speci-

fications [8,26,27]. Australian Therapeutic Goods Administration (TGA) confirmed that gel in PIP implants contains significant quantity of small cyclic siloxanes: D4 (0–261 ppm), D5 (0–710 ppm) and D6 (0–1005 ppm), which are not present in the implants of other brands [24].

For the testing of mechanical properties of implants were used 12 implants, from which 6 were smooth and 6 were textured. Implants with smooth surface complied with more parameters than the textured implants. Textured implants did not comply with the norm for elongation at break and ruptured earlier, both types of implants did not comply with the norm for mechanical elongation tear test. Cytotoxic "in vitro" test did not demonstrate cytotoxicity of gel in the implants. Genotoxic testing ruled out genotoxic effects of gel; development of mutations and gene aberrations on bacteria and lymphocytes was not demonstrated. However, intradermal irritation test on rabbits demonstrated that silicon gel in PIP implants has a certain irritation potential, which did not manifest in gels of other implants [3]. Irritation potential of silicon gel used during production of PIP implants was not confirmed by other studies [8].

SCIENTIFIC VERIFICATION OF PIP IMPLANTS SAFETY

European Union shortly appointed an international group called Scientific Committee on Emerging and Newly Identified Health Risks – SCENIHR to deal with this issue. The commission performed an extensive literature review regarding breast implants, mainly those dealing with PIP implants since 1998. There were more than 1,000 articles identified that dealt with complications of breast implants, their medical risks such as carcinomas, connective tissue disorders, neurological diseases, toxicological aspects, adverse effects of implantation and explantation, etc. Another branch reviewed in detail the articles regarding the production process of implants, composition of each part of the implants, the extent of silicon impurity, etc.[3]. The commission issued a report on 1st February 2012 with the conclusion that PIP implants could be significantly different with regards to the quality of processing and used materials and therefore could demonstrate significantly different properties and behaviour after implantation. Published cases suggest that PIP implants have a higher risk of rupture within the early postoperative period and in case of rupture have a greater risk of local symptoms and higher risk of inflammatory lymph nodes. Limited data therefore suggest that women with PIP implants have a higher risk of medical problems than women with implants from another manufacturer. To confirm these suspicions it is however necessary to collect a maximal amount of data about physical, chemical and biological properties of PIP implants and implants of other brands. In September 2013, SCENIHR updated the conclusion from 2012 saying that there is no clear medical, toxicological or other data to explain preventive removal of undamaged PIP implants[12]. Another detailed update from May 2014 confirms that despite repeated references about increased rupture rate of PIP implants it is not possible to demonstrate this clearly, since the ruptures of PIP implants as well as other implants are not sufficiently documented. In case of PIP implants there is however a very high variability in quality and thickness of silicon shell of the implant between various implants as well as in one particular implant, which indicates poor control of the production process and its variability. This could explain high incidence of ruptures in some studies. In some cases is the rupture or leakage of implants associated with inflammatory reaction, in some cases not, and the reason of such difference in each patient is not clear. Rupture of the implant or inflammatory reaction is not associated with higher risk of breast cancer or ALCL. Implants contain more specific small cyclic siloxanes (D4, D5, D6) then implants of other brands, they are however present also in women without breast implants and do not show any toxic or irritation properties in standard tests. There were no other foreign organic or inorganic substances demonstrated in the implants, not even in trace quantities. The commission concludes that there is no valid data to support preventive removal of undamaged PIP implants. It is however suitable to consider removal in women who show significant psychological stress to have these implants in their body[8].

RISK OF COMPLICATIONS OF SILICON BREAST IMPLANTS IN GENERAL

To find out whether PIP implants have a higher risk of ruptures and other complications, it is naturally needed to know the level of risk in implants of other brands. In the world market there is a great number of implants of various brands and manufacturers from various countries. Nevertheless, literary resources, which dealt specifically with complications in individual implant brands, are virtually missing and most references deal with complications of implants in general. There is however a valuable FDA study, which deals with safety of Allergan and Mentor implants and it is related to extensive studies, which were needed to grant approval of FDA for distribution and use of silicon filled implants of these manufacturers for aesthetic goals in the United States. The study was first introduced in 2006 and was updated in 2012.

The report from 2012 evaluates the results after ten years from implantation of Allergan implants and after 8 years from implantation of Mentor implants. Evaluated studies had variably large files and they were performed totally on 39,390 patients with Allergan implants and 41,900 with Mentor implants.

The rate of Allergan implant rupture risk was 10.1% in primary augmentation, 6.3% in revision augmentation, 27.2% in primary reconstruction and 6.7% in revision reconstruction. The rate of Mentor implant ruptures in the same categories was 13.6%, 15.5%, 14.0% and 21.3%, respectively. Connective tissue disorder occurred during the aforementioned period in 6 patients with Allergan implants and in 28 patients with Mentor implants[4]. The following complications were reported in patients with Allergan implants: breast pain in 6.8–11.7%, capsular contracture Baker 3–4 in 6.7–27.5%, infection in 0–3.2% and seroma in 1.8–6.7%. In the recipients of Mentor implants were reported the following complications: breast pain in 2.5–5.2%, capsular contracture Baker 3–4 in 10.9–24.1%, infection in 0–6.2% and seroma in 1.1–4.8%. The most frequent reason for implant exchange in both brands was the request of the patients for a change of size and type of implant and also capsular contracture, infection and implant rupture. Complications in both types of implants occurred more frequently during reconstruction of breasts after mastectomy, and then in aesthetic augmentations[4].

The results of this FDA report evaluating valid studies in more than 80,000 implant holders of the two manufacturers could basically serve as a reference data for evaluation of implants of other brands including PIP implants.

SCIENTIFIC PUBLICATIONS ON PIP IMPLANTS

At the time when the issue with the PIP implants was revealed, there were no studies to investigate these implants separately. Confirmation of non-compliance with the certified manufacture process and use of industrial silicon resulted in recommendation of national and international societies about collection of maximal quantity of information regarding behaviour of these implants and shortly started to occur case reports and cohort studies describing the occurrence of ruptures, complications and complaints or individual severe complications.

As early as in 2011 was published a case of a patient with a rupture of PIP implants with axillary lymphadenopathy and with multiple foci of granulomatous giant cell inflammation in the skin of the limbs, which only gradually subsided after removal of implants and capsulectomy[28]. Another case report describes unilateral chronic abacterial inflammation of areolomamilary complex in a PIP implant, which quickly subsided after removal of the implant and capsulectomy [29]. Similar case reports were reported also later[30]. Limited number of only six patients, who attended for medical examination due to complaints, is published by Malata. The prostheses were implanted for 2–11 years. All women had some type of a problem – chest and axillary discomfort, swelling of the breast or palpable granulomas in axilla. In five women was ruptured one implant, in one were ruptured both implants, purulent discharge around implant was present in five women, thicker capsule was also present in five women. Based on the experience, the author proposes a complex algorithm of care for women with PIP implants [31]. One of the articles reports interesting data regarding silicon lymphadenopathy. The author reports a group of 14 patients in his practice in whom this complication was clinically demonstrated. The patients were divided to two time periods. In the first group – until the year 2000, there were 4 patients who had various types of implants, age of implants was 12–34 years. In the second group – period from 2006–2009, there were ten patients and all had PIP implants, age of implants was 2–6 years. The weak point of this reference is the fact that the file includes selectively patients who attended for examination due to the complaints or in whom there was pathology diagnosed during screening[32].

Carillon in 2012 found three ruptured implants in eight patients after removal of PIP implants; the rupture was symptomatic in two of them[33]. Other publications report 11.9% of patients with a rupture of implants that was verified surgically on a file of 453 patients. The duration of implantation was 7–12 years. In this file, 10.4% of women refused any intervention including preventive examination, because they had no complaints[34]. Chummun in his article reports a group of 44 patients with totally 78 PIP implants with duration of implantation of 5–13 years. In his group there were 17 (21.8%) implants with a rupture, from which 15 were completely disintegrated. Most patients in the aforementioned group (70.5%) had no problems; symptomatic patients had most often capsular contracture and axillary lymphadenopathy[35]. Another article reports a cohort of 455 patients from one clinical site with totally 828 PIP implants. Time from implantation to removal was 2–11 years. Rupture was confirmed in 7.7% of patients, presence of silicon in capsule was demonstrated in 26% and inflammatory reaction of the capsule in 13% of implants. In 23.5% of implants was demonstrated capsular contracture Baker 2–3, grade 4 was not present and in 2.9% of implants was demonstrated swelling of the breast gland. Fluid around the implants was demonstrated in 5.2% of cases[36]. Publications from the United Kingdom describe a group of 338 patients with 676 PIP implants who underwent surgery by one surgeon. The incidence of rupture was totally 21.3%, there was significantly higher number of ruptured implants that were implanted after the year 2003 (24.1%) then before this year (11.3%). In 29.4% of patients there was spread of silicon demonstrated in the axillary lymph nodes. Interesting finding of the authors is a significantly higher number of ruptures in implants placed below the muscle (26.1%) then below the gland[14,8,37]. Maijers confirms rupture of PIP implants in his group of patients in 21% of cases[38]. Based on three larger studies of patients with PIP implants, Berry warns about the fact that whereas before the year 2000 the PIP implants had approximately the same life time than implants of other brands, after 2005 the life time shortened to almost half (the time to rupture from 10.5 to 5.8 years). The author also notes how much media influence the interest of patients about dealing with the problems with PIP implants. After maximal media attention about PIP implants in December 2012, the author was contacted during the months of January to March 2013 by almost 90% of patients, whereas during the next period the interest rapidly declined[39, 40]. Another study from the United Kingdom demonstrates that in 143 patients of comparable age, comparable size and age of implants was not significantly different in the incidence of capsular contracture between PIP implants and implants of other brands. Ruptures of PIP implants were however significantly more frequent (27.7% versus 7.6%) (41).

Attention was paid also to materials used for production of PIP implants. Beretta et al. published an article where they compared chemical properties of highly cohesive gel of PIP implants after explantation, gel from the new McGhan 410 MX implant and technical non-cohesive silicon. The results have shown that in comparison with the new McGhan implants, the PIP lost part of the bonds needed for high cohesivity gel, there was high level of lipophilic particles such as squalene, cholesterol and its precursors, which penetrated from the breast gland and the implant capsule had insufficient barrier layer. The weak point of the study is that only two implants were examined [42]. Another article dealt with mechanical properties of silicon capsule of breast PIP implants in comparison with implants of other brands. There were 14 used PIP implants examined and 4 implants of other brands that were explanted in patients at Royal Free Hospital in London and the results were compared with new PIP implants. The study demonstrated significant differences. The capsule of PIP implants, new and explanted ones, was more susceptible to rupture, it was more sensitive to degradation processes that influence the implant in vivo and implants were significantly heterogeneous in its properties[43].

Since there was a high pressure of the public regarding general exchange of PIP implants and health authorities in some countries recommended it, there was also a debate about medical risks of removing implants in general, un-

damaged and also ruptured ones. The goal of this discussion was to evaluate the risk of explantation, and to find out whether this risk exceeds the benefits of the procedure. The risk of explantation includes the risk of anaesthesia and risk of actual operation. As far as concerns anaesthesia, it should be considered that most women, who have PIP implants, are younger and healthy women, they underwent general anaesthesia during implantation and therefore the risk of anaesthesia is expectable. In the modern anaesthesia is the risk of serious complications very low, it is commonly accepted as a part of breast augmentation complications or in women with unsatisfactory result and independently on the implant manufacturer. Therefore this risk plays no significant role. It was estimated in a study that the risk of death during general anaesthesia in healthy individuals has an incidence of 1:250,000[44]. General anaesthesia may be however complicated with anaphylaxis or aspiration and the risk of these complications is estimated to 1:6000–7000; it is however lower in healthy people[45]. The risk of the surgical procedure in simple explantation is comparable with other procedures on the breast and in general apply the same rules as for the risk of anaesthesia. In case of PIP implants should be however considered a bit higher risk. With regards to the defectiveness of implants there is a higher probability of gel leakage and local irritation and inflammatory reactions. Therefore it is suitable to remove the implant and also the capsule, so that the effect of explantation was the highest. Removal of the implant with capsulectomy is a procedure that is more demanding and longer, there is a higher risk of bleeding, longer hospitalization is usually required and for the patient means greater invasivity and pain. In case of larger lymph nodes with clinical symptoms, it is suitable to remove also these with additional risk for the patient[3].

The advocates of general removal of all PIP implants logically use two main arguments. First argument is that implants are produced from materials, which do not fulfil the norms for medically harmless medical device and represent a potential medical risk for the patient despite there were no significant negative effects of technical silicon demonstrated. The second argument is that from the medical and financial point of view, it is clearly more advantageous to remove the intact implant, which is relatively simple and less risky procedure than removal of ruptured implant or even an implant already with local and distant complications[46].

Increase in the number of examinations in women with breast implants after recommendation of the national agencies resulted also in publishing of articles with revisions and updates of findings from ultrasound examinations of the breast with similar description of images of implant ruptures and possible variations in the findings[47] and comparison of ultrasound, mammography and MRI findings of breast implant ruptures[48]. These and other studies again confirmed MRI as the most reliable method for examination of implant ruptures[8].

Nevertheless, there are also publications, which inform about the presence of inappropriate publicity up to sensational nature of PIP implants and possibility of inadequate and non-scientific decision or statement under pressure of media and opinion of public. Freshwater in his article compares the situation with PIP implants with the situation when FDA prohibited the use of silicon filled implants in the USA for aesthetic surgery. This prohibition was due to the pressure of media and public and was based on insufficient scientific basis. Prohibition was then cancelled after further investigation; in the meantime it however resulted in a great number of lawsuits, bankruptcy of companies and mainly in panic and fear in thousands of women. This is similar situation as in PIP implants. The author warns that all objections against safety of PIP implants are based on presumptions or sporadic cases. Even the statement that PIP implants rupture more frequently is slightly doubtful. How is it possible to demonstrate more frequent ruptures, when it is not possible to find what quantity of these implants was actually implanted to women. The author also has the same objections against possible toxicity of used gel, etc.[49].

PRECAUTIONS FOR PREVENTION OF REPEATED BREACH OF IMPLANT PRODUCTION PROCESS

Solution of problems with PIP implants resulted in Europe, apart from questions how to solve the medical risks of these implants, also to discussion of medical and legislation specialists and authorities regarding more strict conditions to market new implants. In the year 2012, European commission suggested more strict regulatory mechanisms and provisions of the commission, which would control and review the evaluation and granting of CE certification to medical devices, which may now be granted by more than 80 national agencies[50–53].

CONCLUSION

The founder and owner of Poly Implant Prothéses Jean-Claude Mas was sentenced to 4 years in jail in December 2013 and a fine of 75,000 Euro. He lodged an appeal against the sentence. There are currently two judicial proceedings in association with the case of PIP implants. The first lawsuit deals with inadvertent harm and killing and the other concerns tracking of the supposed millions of profit of the company achieved by fraud during the production process. In the same time the German authority TÜV, which granted the PIP Company the CE certification, was sentenced by the court in Toulon to a financial compensation of 5.8 million Euros to six companies, which distributed PIP implants to the whole world[54].

The scandal of breast implants manufactured by PIP Company has shown that virtually in no medical device the doctor can guarantee 100% medical safety. This harmlessness is stipulated by the rules and regulations, however it depends on two factors, which the doctor, or medical facility cannot influence by any way. The first factor is the actual manufacturer, who must observe the production process according to prescribed norms as well as the use of certified materials. The second factor is adequate primary and subsequent control activity of responsible authority, which granted the certification to the manufacturer of the medical devices.

The PIP case is not a scandal of breast implants. It is a scandal of a group of fraudulent businessmen. In PIP implants there was a purpose-built and intentional violation of the manufacture process by the manufacturer and change of used materials for cheaper and non-certified materials. Subsequently there was a fatal failure of authorities, who granted the certificate to the manufacturer and for several years did not notice the change of manufacture process and change of materials. Defectiveness of the implants was

confirmed only after repeated notifications of the doctor to non-standard behaviour of these implants. Doctors were paradoxically significantly affected by this scandal financially and legally.

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DELAY PROCEDURE IN THE PERFORASOME ERA: A CASE IN A DIEAP FLAP

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ACTA CHIRURGIAE PLASTICAE, 57, 1–2, 2015, pp. 24-26

SUMMARY

The deep inferior epigastric artery perforator (DIEAp) flap is becoming a widely used method of autologous breast reconstruction. Despite the huge use of the DIEAp flap in reconstructive field, an evidenced based approach in perforator selection has not yet been developed. Unfortunately there is no clear evidence about the relation between the number and dimension of the perforator vessel and the prediction of flap survival in a living model.
An old technique like the vascular delay could be extremely useful as a lifeboat procedure when the vascularization of the flap after the dissection is inadequate.

KEYWORDS

Delay procedure, DIEAp, Perforasome

INTRODUCTION

The deep inferior epigastric artery perforator (DIEAp) flap has become an increasingly popular choice since its introduction in 1989[1] and it is one of the most commonly used perforator flaps for breast reconstruction.

Despite the huge use of the DIEAp flap in the reconstructive field, an evidence based approach in perforator selection has not yet been developed[2]. Unfortunately there is no clear evidence about the relation between the number and dimension of the perforator vessel and the prediction of flap survival.

Vascular delay, also known as the delay phenomenon, is the rendering of a tissue ischemic to increase vascularity before transfer. This improves flap survival, increases the length-to-breadth ratio in random pattern flaps, and allows for the reliable transfer of greater volumes of tissue in axial pattern flaps[8].

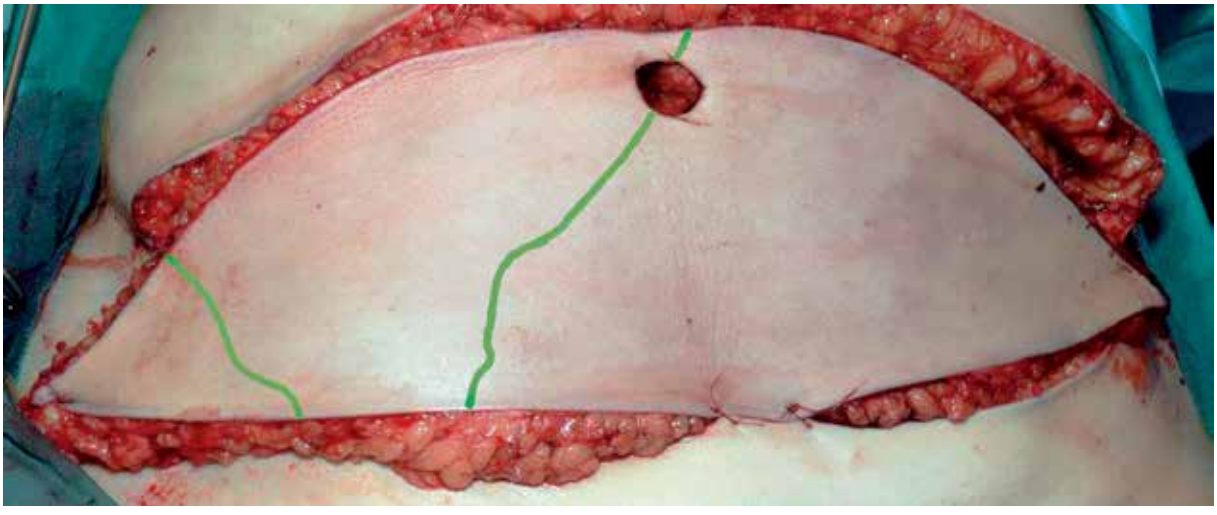

Fig. 1. The post-operative aspect of the flap. After the elevation, the flap appeared right away not well perfused especially in the zone II-IV. In the zone I-III the flap appeared jeopardized especially in the caudal part and only the cranial zone was well perfused

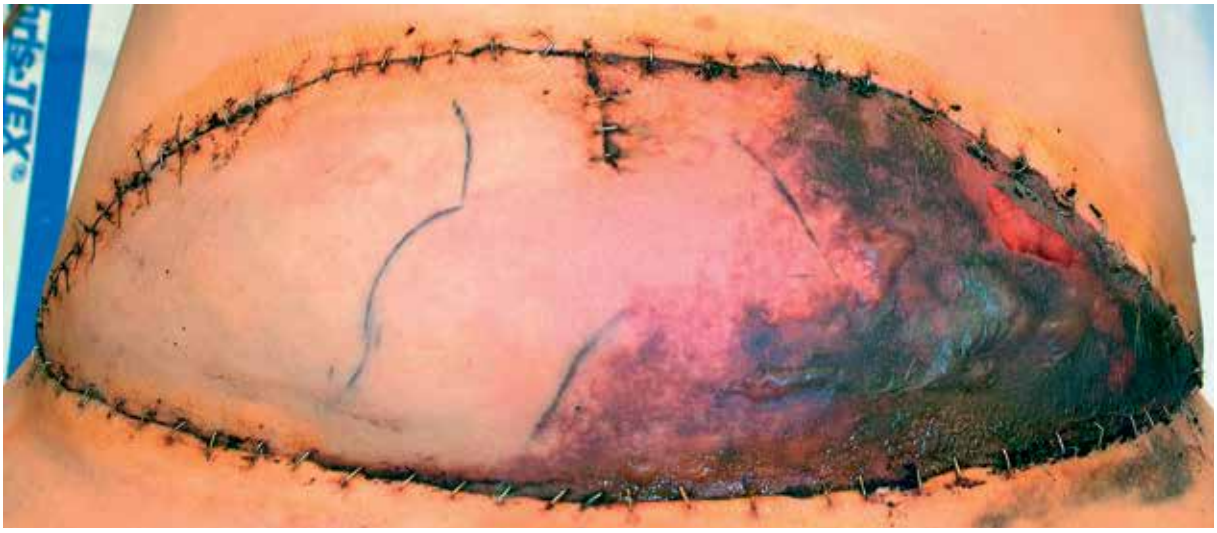

Fig. 2. The aspect of the flap after 96 hours. An enlargement of the perforasome occured, overcoming the midline

It is unusual to talk about delay in the perforasome era but this procedure could be extremely useful in the cases where the vascularity of the perforasome is precarious[6].

In this paper we report the use of a delay procedure after the dissection of a DIEAp flap and we show the perforasome changes in the early time.

CASE REPORT

A 40-years-old woman underwent delayed breast reconstruction with a DIEAp flap. The flap was based on three perforators of the lateral row (1.5–2 mm). During the dissection of a DIEAp flap the choice of the perforator is a crucial step and we prefer, when it is possible and when there is not a dominant perforator (≥ 4 mm), to include more than one perforator in the same row, and thereby increasing the blood supply to the flap.

After the elevation, the flap appeared poorly perfused right away, especially in the zone II-IV[3] (Fig. 1). In the zone I–III the flap appeared jeopardized especially in the caudal part and only the cranial zone was well perfused.

We decided to wait 45 minutes to see if there were any changes in the appearance of the flap. Unfortunately no change occurred and we decided to resort to the delay procedure. The flap was maintained in situ and we performed a primary tension-free suture of the fascia with a running non-absorbable 1/0 suture, as well as a skin suture of the flap and of the breast pocket prepared at the same time with the recipient vessels (IMA/IMV).

After 96 hours the perfusion of the flap improved (Fig. 2). An enlargement of the perforasome occurred, overcoming the midline. We decided to transfer the flap after 4 days when the dimension of the surviving flap was enough to restore the mastectomized breast.

The inset of the flap was more difficult than usually due to edema and stiffness. No infection, hematoma, or partial or complete flap necrosis were observed after the procedure. The patient was discharged home on the ninth post-operative day.

DISCUSSION

The studies on perfusion territory show a discrepancy in findings between vascular mapping studies and clinical observation because they do not take into account the physiological changes in the vasculature that occur in a living patient[4–5]; The perforasome theory explains how the skin areas are linked among them by direct vessels and indirect vessels (recurrent flow from *subdermal plexus*)[6].

Unfortunately there is no clear evidence about the relation between the number and dimension of the perforator vessel and the prediction of flap survival.

In cadaveric studies on comparison of the perfusion of the commonly used abdominal flap in breast reconstruction[4–5], the lateral row perforator DIEAp flaps crossed the midline only in certain cases, underestimating the consistent perfusion across the midline seen *in vivo*. Actual vascularity may be quite different in a physiological situation, where nervous, hormonal, and local controls of the vessels come into play.

Our case is demonstrating these changes and an enlargement of the perforasome that crosses the midline that occurred in the flap.

Delay procedures, previously used especially for pedicled TRAM flap[3,7], have not been widely studied in free flaps, probably because of the inherent complexity and the robust vascularity of free tissue transfer [8] although previously a "delay modified" procedure in DIEAp flap was used, maintaining a skin bridge to increase the vascular supply from *subdermal plexus* (indirect vessels)[10].

Usually the delay lasts one week or more [9] but in the first few days (24–72h) the early effect of the delay occurs with a reduction of the hyperadrenergic state post-elevation and a dilation of the choke vessels connecting the skin areas[8–9].

Our flap was based on three perforators from the lateral branch of the DIEA. Usually the lateral row ensures a good perfusion, especially in zone I and III. Surprisingly in this case the perfusion was poor also in the zone I and III.

Although we waited about 45 minutes after the dissection of the flap to solve the deficiency in blood supply,

probably due to a vasospasm, the perfusion did not improve. For this reason we think that the shortfall in blood supply was more likely due to a small perforasome, rather then to a vasospasm.

We believed that transferring the flap directly, despite a precarious vascularization, was risky.

Therefore we chose to delay the transfer waiting for an enlargement of the perforasome *in situ*, exploiting especially the early effects of the delay phenomenon.

The most of partial flap loss and fat necrosis in DIEAp flap could be caused by a lack of knowledge about the perforasome after the dissection and how it changes during the time, especially in the first 24–72 hours.

Although the DIEAp perfusion territory on cadaver has already been studied, further speculations are necessary to investigate the changes of the perforasome *in vivo*.

CONCLUSION

In conclusion we believe that vascular delay should be part of the armamentarium of any reconstructive microsurgeon; it could be used as lifeboat procedure when the vascular supply is inadequate and the surgeons do not feel confident about the flap's perforasome.

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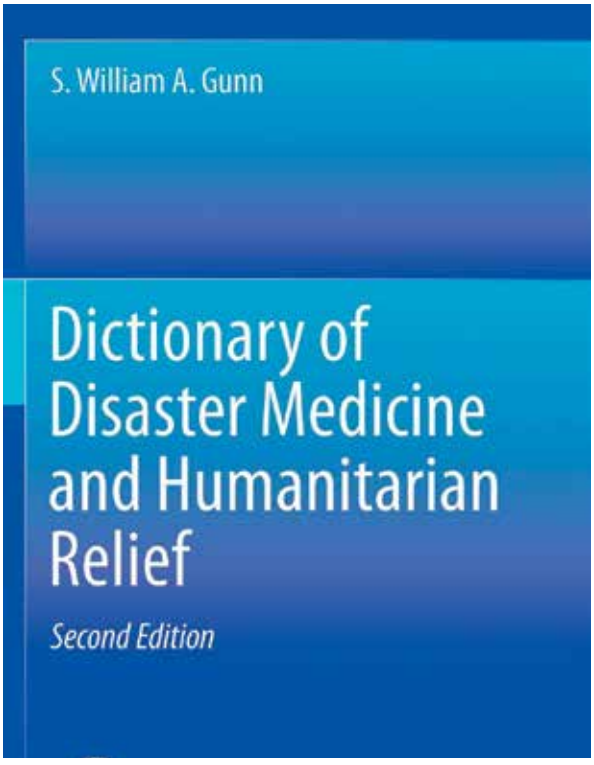
S. WILLIAM A. GUNN: DICTIONARY OF DISASTER MEDICINE AND HUMANITARIAN RELIEF *(SECOND EDITION)*

Springer Science+Business Media New York Heidelberg Dordrecht London 2013, 208 pp. ISBN 978-1-4614-4444-2; ISBN 978-1-4614-4445-9 (eBook)

ACTA CHIRURGIAE PLASTICAE, 57, 1–2, pp. 27-28.

Mass disasters, whether caused by natural, industrial or other man-made events, require rapid mitigation of the resultant consequences, for which equally rapid, simple and proper communication is an essential prerequisite for multidisciplinary rescue teams from various fields. Such communication is the only means by which lives can be saved and further damages prevented. In today's globalized world, wherein international co-operation in cases of mass disaster has become quite typical and necessary, the issue of inter-communication and understanding among teams has become all the more urgent. This also applies to prevention.

The Gunn *Dictionary of Disaster Medicine and Humanitarian Relief* is an invaluable tool for all those involved in mitigating the effects of mass disasters, including rescue workers, paramedics, physicians, technicians, engineers and meteorologists, law enforcement as well as organizers of national and international authorities, politicians, journalists and functionaries of governmental and non-governmental organizations. This is the second, revised and expanded edition of this dictionary, originally published by the same author in 1990 (1); it has also been translated into French, Japanese and German languages. The author is highly regarded as one of the most competent, renowned experts in the field of mass casualty management and disaster medicine, having served as longtime Director of the World Health Organization's (WHO) Emergency Humanitarian Operations; a United Nations (UN) consultant in the field of disaster medicine; a founder and former President of the World Association for Disaster and Emergency Medicine (WADEM); and former President of the International Federation of Surgical Colleges (IFSC).



Currently, Dr. Gunn serves as President of the International Association for Humanitarian Medicine (IAHM). In addition to his contributions to medical science, organizational work and international engagements, the author has dedicated a considerable amount of time to defining and compiling lexical terminology for major catastrophes and disaster medicine, which stemmed from his tremendous amount of experience and understanding of the field. These efforts during his tenure at WHO resulted in a lexicon for use in the creation of documents, tools, and dictionaries such as this, which not only facilitate communication among domestic or international teams on the ground, but also among those participating in consultations, communications and planning at organizational centers. Until publication of this new edition, Dr. Gunn´s dictionary remains the only and definitive work in this particular field.

It is certainly worthwhile to peruse the beautifully written preface by Dr. Halfdan Mahler, a former director-general of the WHO in Geneva, Switzerland. The dictionary is divided into two parts. Part one comprises a custom dictionary with alphabetically sorted entries, which are followed by a clear definition and simultaneous cross references pertaining to similar, or semantically, related complementary informa-

tion with entries and synonyms. For example, among its vast coverage it contains an extensive array of definitions concerning essential surgery, humanitarian surgery, surgical conditions, rural health or many terms relevant to burns and fires. Part two contains a rich representation of the most frequently used acronyms and abbreviations used in the field of catastrophes, disaster medicine and humanitarian relief. Overall, this new edition contains more than 3,000 entries with up-to-date supplementation of terms related to climate change, cyberwar and bioterrorism. It is highly readable, well-organized, and easy to understand, which facilitates quick orientation to pertinent issues. Every worker involved in disciplines dealing with natural or industrial mass disasters, whether in domestic or international environments, should have this invaluable tool close at hand. It can also serve as an excellent teaching tool and it is, therefore, not surprising that it has been recommended as the official teaching aid in numerous courses organized by the UN and others. Numerous authorities and institutions dealing with, for example, issues related to refugees, migration, conflicts or terrorism would benefit from having this tool available when dealing with current global challenges.

The book and its author have also received international awards: For his lifelong contributions, Dr. Gunn received the A. Meneghetti Award for Science and Humanism in 2014 (2). The *Dictionary of Disaster Medicine and Humanitarian Relief* is heartily recommended; not only for use among workers of integrated rescue systems, but also other professionals from various disciplines in our country.

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IN MEMORY OF KAREL DLABAL

Karel Dlabal was born on 13.9.1927 in Štolmíř in a family of a technical officer. He was studying the grammar school in Český Brod in 1938–1946. At the end of 1944 he was involved in Technische Nothilfe (Technical Emergency Help), from where he left in April 1945. After a tragic death of his father he obtained civil scholarship at the Medical Faculty of the Charles University in Prague with a subsequent obligation to participate in the army for 1 year for every semester at the university. After the graduation of 1952, he started as a soldier working at the Army Medical Academy at the faculty in Hradec Králové at the Anatomy Department. He stayed there for four years and then he moved to the Training Institute in Ružomberok to the Surgery Department. There he passed his first level exam from surgery in 1954 and subsequently also the second level exam in 1958. After the termination of the contract with the Ministry of National Defence, he moved already as a civil person to the Surgery Department in Hradec Králové.

Based on the recommendation of professor Procházka, he was chosen to deal with the plastic surgery within the unit. Therefore he proceeded with training in the Department of Plastic Surgery in Prague from 1964–1967 under professor Burian. There he completed the training in 1967 and worked as a chief physician of the region for plastic surgery for the Eastern Bohemian Region. The defence of his postgraduate thesis in 1969 was not allowed due to his political attitude in 1968. However, he actively spoke in the regional and national meetings. He cooperated with the Institute of Macromolecular Chemistry to improve hydrophilic breast implants and on the development of active artificial tendons.

The main interest was however hand surgery. Based on the recommendation of professor Karfík, he started to work as the head of department at the Institute for Plastic and Reconstructive Hand Surgery in Vysoké nad Jizerou. There he worked for 15 years and treated thousands of patients from the whole country. He was improving the methods of transferring fingers to a lost thumb, he was interested in muscle transfers after nerve palsies in the forearm and hand, he extended the spectrum of operations with the procedures from general plastic surgery. In 1990 he was appointed Associate Professor by his thesis defence related to the "Oponnens plasty for the thumb". Since 1995 until 2003 he lived in Chotoviny by Tábor where he worked as a head of a Sanatorium for Plastic and Aesthetic Surgery. Long time while retired he still performed hand surgery at the Policlinics in Tábor.

He was a good teacher and within the Institute of Doctors and Pharmacists he was training surgeons and orthopaedists from the Czech and Slovak Republic and he had been in a friendly contact with many of them for a long time. Four

years ago he published a book related to tendon transfers during palsies in the forearm and hand.

He obtained great awards during his life: In 1987, he obtained the title Meritorious Head of Department, Silver Medal of the Slovak Society of Hand Surgery for credit in the development of hand surgery during the separation of the countries, Honorary Citizenship of Vysoké nad Jizerou, Honorary Membership of the Czech Society for Surgery of the Hand in 2005. The last award was a Honorary Medal for credit in the development of Plastic Surgery on the congress in České Budějovice in November 2014, which he could not receive personally due to his illness. Dr. Karel Dlabal died on 1.12.2014.

Dr. Dlabal was a great surgeon, with great surgical skills and deep anatomical knowledge. He was able to proceed with new approaches within the plastic and reconstructive surgery, he was able to propose and accomplish new solutions. He was a brave surgeon and experienced doctor. Those who had the luck and could accompany him during his professional carrier and learn from him still value this possibility very much.

Alena Schmoranzová, M.D.

Chairman of the Czech Society for Surgery of the Hand
Hand and Plastic Surgery Institute,
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Dr. KAREL FAHOUN, D.Sc.

Major Czech plastic and aesthetic surgeon

It is very sad information that there is no more with us our friend and great plastic surgeon and one of our most important aesthetic surgeons, Dr. Karel Fahoun. I had the unrepeatable luck that I could get to know, as a medical student, his exceptional talent and extraordinary skills almost four decades ago at the Department of Plastic Surgery in Prague, Vinohrady.

Even later, after his arrival from fellowships in Scotland and England, he became the Head of Plastic Surgery Unit at the Cosmetic Institute in Prague in 1971, and I had a great possibility to obtain valuable advices and experience in aesthetic surgery, which was not possible anywhere in this country or abroad. As the first in the Institute, he introduced the concept of "same-day surgery", which is now a common practice. He also introduced several new surgical techniques, which were included in his postgraduate thesis and later doctor thesis, which he defended in 1987 and as the first and yet as the only he obtained the title of Doctor of Medical Sciences in Aesthetic Surgery.

As a consultant, he operated in major state and private clinics in London, Berlin, Frankfurt, Budapest, Moscow and Vienna. During his publication activities, he published around 50 specialized and popular papers and he was a member of editorial boards of several specialized popular journals. Since 1995, he worked as a consultant and surgeon in Thomayer hospital in Prague.

The great credit and honour of Dr. Karel Fahoun, D.Sc. among the specialists is also well documented by the situation during his lecture about aesthetic surgery that took place within the XVIII. Educational Symposium in Plastic and Aesthetic Surgery with International participation in Prague in 2013 when the whole congress hall at the ILF Hotel was applauding standing.

Dr. Karel Fahoun, D.Sc., was the holder of Honorary membership of the Czech Society of Plastic Surgery and in 2013 he obtained a honorary medal of the Czech Medical Association of Jan Evangelista Purkyně for credit in the development of plastic and aesthetic surgery. Dr. Karel Fahoun, D.Sc. died after a severe disease on 29. 1. 2015. Let´s honour his memory.

Assoc. Prof. Jan Měšťák, M.D.
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ČESKÉ SOUHRNY

ACTA CHIRURGIAE PLASTICAE, 57, 1–2, pp. 32

VASOSPASMUS CÉVNÍ STOPKY LALOKU – MAGNESIUM SULFURICUM SNIŽUJE VASOSPASMUS CÉVNÍ STOPKY AXIÁLNÍHO LALOKU NA PRASEČÍM MODELU

Hýža P., Streit L., Gopfert E., Dvořák Z., Stupka I., Schwarz D., Kubek T., Lombardo G.A.G., Veselý J.

Úvod: Účinek magnesium sulfuricum na vasospazmus cévní stopky vyvolaný fyzikální příčinou na prasečím modelu nebyl dosud studován. Studie na potkanech prokázaly pozitivní vliv tohoto léku. **Metodika:** Oboustranně byl vypreparován kožní lalok na a. epigastrica superficialis u osmi prasat. Laloky na levé straně sloužily jako terapeutická skupina, na pravé straně jako skupina kontrolní. Vazospazmus byl vyvolán tahem za cévní stopku v ose závažím o hmotnosti 160 g. Prokrvení laloku bylo sledováno a zaznamenáváno pomocí laser-Doppleru. Trvání vazospazmu bylo definováno jako doba od uvolnění tahu na stopce laloku do doby, kdy prokrvení začalo opět narůstat. Tyto časy byly extrahovány automatickou detekcí ze záznamů dat. V terapeutické skupině bylo podáváno magnesium sulfuricum lokálně na cévu. V kontrolní skupině byl použit fyziologický roztok. **Výsledky:** Trvání vazospazmu v terapeutické skupině bylo signifikantně kratší než ve skupině kontrolní (P=0,024). **Závěr:** Magnesium sulfuricum 10% signifikantně zkrátilo vazospazmus vyvolaný mechanickým podnětem (tahem za stopku) na prasečím modelu. K prokázání účinku v humánní medicíně jsou zapotřebí další studie.

NOVÝ MODEL PRO HODNOCENÍ KŘIVKY UČENÍ V MIKROCHIRURGII: SÉRIOVÉ ANASTOMÓZY NA FEMORÁLNÍ ARTERII POTKANA

Lombardo G. A. G., Hýža P., Stivala A., Tamburino S., Veselý J., Perrotta R. E.

Femorální arterie potkana je zcela jistě nejužívanějším modelem pro učení v mikrochirurgii vzhledem možnosti jejího snadného oddělení. Vytvoření několika anastomóz v řadě může vést ke kumulativní technické chybě, která se prokáže negativním testem průchodnosti. Navrhujeme jednoduchou metodu hodnocení operatérovy mikrochirurgické zručnosti během výuky.

SPIRÁLNĚ ZATOČENÝ DISTÁLNÍ LATERÁLNÍ PAŽNÍ LALOK PRO OKAMŽITOU REKONSTRUKCI AVULZNÍHO PORANĚNÍ PALCE

Hýža P., Streit L., Dvořák Z., Lombardo G. A. G., Mrázek T., Veselý J.

Úvod: Replantace není u většiny avulzních poranění jednoduchá. Pokud nelze provést replantaci avulzního poranění palce, je nezbytné nalézt jinou vhodnou volbu rekonstrukce tak, aby byla co nejdříve obnovena úchopová schopnost ruky. **Materiál a metodika:** U tří pacientů s avulzí kožního krytu od roku 2004 byla okamžitě provedena rekonstrukce pomocí spirálně zatočeného LAF laloku. **Výsledky:** Nebyla pozorována žádná infekce, hematom ani úplná ztráta laloku. Všechny laloky se zhojily bez výraznějších komplikací. **Závěr:** Ačkoliv zlatým standardem v sekundární rekonstrukci těchto traumat je využívání stopkovaných kožních laloků, místních nebo vzdálených, tyto rekonstrukční postupy mají více nevýhod, jako je ztráta citlivosti a silnější vrstva tkáně. V tomto článku jsme navrhli nový způsob designu laterálního pažního laloku pro rekonstrukci palce, který je umístěn ve tvaru spirály. Tím je výrazně snížena morbidita donorského místa.

PIP IMPLANTÁTY – SOUČASNÉ ZNALOSTI A PŘEHLED LITERATURY

Molitor M., Měšťák O., Popelka P., Vítová L., Matějovská J., Kalinová L., Hromádková V., Měšťák J.

Nedodržování výrobního procesu a používání necertifikovaných materiálů při výrobě implantátů PIP otevřelo rozsáhlou debatu ohledně regulačních a kontrolních mechanizmů při jejich výrobě, ale opětovně se otevřela i otázka zdravotní bezpečnosti prsních implantátů celkově. Výroba prsních implantátů podléhá v různých zemích různým kontrolním mechanizmům a je potřebné tyto mechanizmy sjednotit nebo koordinovat. Implantáty PIP byly na trhu více než 15 let a v tomto období se výrobní proces i použité materiály účelově, ale nekontrolovaně měnily, až vyústily do výroby implantátů s nekvalitním obalem plněným necertifikovaným silikonovým gelem. Těchto závadných implantátů bylo vyrobeno kolem 600 000. I přes prokazatelnou závadnost implantátů PIP dosavadní studie nedokázaly spolehlivě potvrdit zdravotní riziko těchto implantátů. Finanční náročnost, spolu s neprůkazností medicínského rizika implantátů PIP, jsou příčinou toho, že doposud není jednoznačně vyřešena otázka plošné výměny těchto implantátů a jednotlivé státy zaujímají různá stanoviska.

TECHNIKA CÉVNÍHO DELAY FENOMÉNU V OBLASTI PERFORASOMU: KAZUISTIKA U PERFORÁTOROVÉHO DIEAP LALOKU

Hýža P., Lombardo G.A.G., Kubek T., Jelínková Z., Veselý J.

Perforátorový DIEAp lalok se stává široce používanou operační technikou k rekonstrukci prsů. Přestože je lalok běžně používán v rekonstrukční chirurgii, postup preprace není dosud zcela založen na důkazech a je více či méně intuitivní. Stále neexistuje dostatek důkazů o vztahu mezi počtem a rozměrem perforátorů a predikcí přežívání laloku. Dobře známá technika cévního delay fenoménu může být velmi užitečná jako záchranný postup, pokud je zhoršená vaskularizace laloku.

INSTRUCTIONS TO THE AUTHORS

ACTA CHIRURGIAE PLASTICAE, 57, 1–2, pp. 33-39

The journal *Acta Chirurgiae Plasticae* is an international journal of plastic surgery. It is published in English with Czech/Slovak structured abstracts four times a year. There are articles dealing with problems of plastic, reconstructive and aesthetic surgery, craniofacial surgery, hand surgery, microsurgery, burns and allied and cooperating fields of medicine. The journal accepts the following types of articles for publication: original scientific papers including experimental studies, case reports, review articles, discussions, reviews of domestic and foreign publications, news (invitations to specialized meetings, reports from congresses and meetings, letters to the editors, etc.) and other important information from the specialty. All articles are subject to a peer review procedure, whereas bilateral anonymity is maintained. The editorial board accepts articles in English, or possibly after a previous agreement also in Czech and Slovak languages. Only articles that have not been previously published elsewhere can be accepted.

REQUIREMENTS FOR FORMAL STRUCTURE OF THE MANUSCRIPT

The whole manuscript including the attachments must be made available in electronic form. The article should be written in one of commonly used text editors (best is MS Word), recommended font size is 12, Times New Roman, spacing 1.5, width of text 15 cm, no underlying, with switched off automatic functions. The text file must be named so that it could not be mistaken (name of the file without diacritic marks, e.g. surname of main author, key word of the paper and the word text, for example: "Smith_reconstruction_text.docx"). Recommended extent is maximally 10 normalized pages (counted without title page, abstract and literature, 1 normalized page = 1800 characters without spaces). Each section should be started on a new page. In the manuscript text, please observe the following order: title page, summary, key words, actual text of the paper and summary of used literature.

Tables, charts and images to the articles should be marked in the actual text (for better orientation) and attached in a separate file. Tables and charts must be sent in a form of individual files (or individual excel sheets), which can be edited (best is MS Excel, MS Word). Tables and charts should be prepared appropriately simple and comprehensive, numbered according to the order of occurrence within the text. There should be a brief description to each table and chart. You should also explain all abbreviations, which were used. You should also verify, whether all tables and texts are really referenced in the text. Name the file should be made the same way as in the text (e.g. "*Smith_reconstruction_text.xlsx*"). Imaging documents should be sent in an electronic form as JPG, BMP, TIFF with resolution at least 300 dpi. If the image is printed in the size of one third of a page, it must have a minimal width of 700 pixels, in the size of two thirds of a page it must have a minimal width of 1500 pixels and in the size of the whole page it must have a minimal width of 2200 pixels. If there is imaging docu-

Časopis *Acta chirurgiae plasticae* je mezinárodní odborný časopis zaměřený na obor plastické chirurgie. Vychází v angličtině s českými/slovenskými souhrny čtyřikrát ročně. Hlavnínáplní časopisu je publikování prací a ostatních informací z oblasti plastické, rekonstrukční a estetické chirurgie, kraniofaciální chirurgie, chirurgie ruky, mikrochirurgie, popáleninové medicíny včetně všech příbuzných a spolupracujících oborů. Časopis přijímá k publikaci následující typy článků: původní vědecké práce včetně experimentálních, kazuistiky, přehledové články, diskusní příspěvky, recenze tuzemských i zahraničních publikací, aktuality (pozvánky na odborné akce, zprávy ze sjezdů a kongresů, dopisy redakci atd.) a ostatní důležité informace z oboru. Všechny publikované články procházejí recenzním řízením (peer review), přičemž se zachovává oboustranná anonymita. Redakce přijímá příspěvky v anglickém jazyce, popř. po předchozí domluvě i v českém či slovenském jazyce. K publikaci mohou být přijaty pouze články, které dosud nebyly publikovány.

POŽADAVKY NA FORMÁLNÍ STRUKTURU RUKOPISU

Celý rukopis včetně příloh musí být k dispozici v elektronické podobě. Příspěvek pište v některém z běžných textových editorů (nejlépe MS Word), doporučená velikost písma je 12, nejlépe Times New Roman, řádkování 1,5, šířka textu 15cm, bez podtrhávání, s vypnutými automatickými funkcemi. Textový soubor musí být pojmenován tak, aby nemohlo dojít k záměně (název souboru bez diakritiky, např. příjmení hlavního autora, klíčové slovo práce a označení text: „*Smith_reconstruction_text.docx*"). Doporučený rozsah maximálně 10 normostran (počítáno bez titulní strany, abstraktu a literatury, 1 normostrana = 1 800 znaků včetně mezer). Každý oddíl začínejte na nové straně. V textu rukopisu respektujte pořadí titulní strana, souhrn, klíčová slova, vlastní text práce a přehled použité literatury.

Tabulky, grafy a obrázky k článkům vyznačte ve vlastním textu (kvůli orientaci) a předejte je v samostatných souborech. Tabulky a grafy musí být zasílány ve formě jednotlivých souborů (nebo jednotlivých listů excelu), které lze editovat (nejlépe MS Excel, MS Word). Tabulky i grafy by měly být přiměřeně jednoduché a srozumitelné, číslované v pořadí podle výskytu v textu. Ke každé tabulce a grafu doplňte stručný popisek. Vysvětlete i všechny zkratky, které byly použity. Ověřte také, zda jsou všechny tabulky a texty opravdu citovány v textu. Soubor pojmenujte stejným způsobem jako text (např. „*Smith_reconstruction_tabs.xlsx*").

Obrazovou dokumentaci zasílejte v elektronické podobě ve formátu JPG, BMP, TIFF v tiskovém rozlišení min. 300 dpi. Pokud bude obrázek tištěn ve velikostijedné třetiny strany, musí mít minimální šířku 700 pixelů, ve velikosti dvou třetin strany musí mít minimální šířku 1 500 pixelů a v šíři celé strany musí být minimální šířka obrázku 2 200 pixelů. Přetiskuje-li se obrazová dokumentace uveřejněná jinde, je nutno uvést původní pramen a doložit písemný souhlas držitele výhradního práva. Obrazová dokumentace nemůže být přijímána v programu MS PowerPoint. Obrazové přílohy

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TITLE PAGE

Title page must contain brief and clear name of the article (maximum 10 words), in the case reports this should be included in the name.

It must also contain full name and surname of all authors, in the order reflecting their participation on the manuscript, name of workplaces of all authors (in case of more workplaces, name the first where the manuscript was created mostly), address of the main author, telephone and email address, where should be sent the correspondence related to the manuscript.

In case there was financial support or non-financial support used during the preparation of the article (grants, equipment, medication, etc.), it is necessary to provide in sufficient extent the source of this support. Possible acknowledgement may be located before the literature section.

STRUCTURE OF ORIGINAL PAPER

In the original paper the author works with his/her own file and provides his/her own ideas related to the particular problem based on the analysis of his/her own results and using appropriate statistical methods. The text must be written at appropriate scientific level and comprehensively. The conclusions must be formed clearly and so that any different interpretation was ruled out. The text of the original article must follow a prescribed structure.

Abstract – structured abstract represents summary of article content into a brief form. Characteristic information is required from the article. Structure of the abstract of the original paper copies the structure of the whole paper, i.e. it contains the following chapters “Introduction, Material and methods, Results, Discussion and Conclusion”. The abstract should have an extent of a maximum of one normalized page (maximum of 1800 characters).

Key words – 3-8 words or short phrases that enable characterizing the paper with regards to its content. It is recommended to use terms that originate from the recommended terms of the National Library of Medicine: Medical Subject Headings (MeSH).

Introduction – brief and clear description of the problem including reference to the basic literature and formulation of the goal of the patient or working hypothesis, brief introduction about the origin of the article.

Material and methods – a basic description of the file, summary of used methods, description of the hypothesis and methods within the study, including the method of evaluation and used statistical method.

Results – obtained data and their evaluation.

číslujte podle pořadí výskytu v textu a ukládejte je jednotlivě jako samostatné soubory, pojmenované analogicky jako ostatní soubory (např. „*Smith_reconstruction_pict1.jpg*“). Legendu k obrazové dokumentaci dodejte jako samostatný soubor MS Word pojmenovaný analogicky jako ostatní soubory (např. „*Smith_reconstruction_legends.docx*“), případné symboly nebo zkratky vysvětlete.

TITULNÍ STRANA

Titulní strana musí obsahovat stručný a výstižný název článku v českém a anglickém jazyce (maximálně 10 slov), u kazuistik je vhodné toto uvést v názvu. Dále musí obsahovatplná jména a příjmení všech autorů v pořadí, odrážejícím jejich podíl na vzniku rukopisu, názvy pracovišť všech autorů (v případě více pracovišť uvést na prvním místě pracoviště, kde práce převážně vznikala), adresu hlavního autora, telefon a e-mailovou adresu, kam má být zasílána korespondence týkající se rukopisu. Byla-li při přípravě příspěvku čerpána finanční nebo nefinanční podpora (granty, přístrojové vybavení, léky apod.), je nutno uvést v dostatečném rozsahu zdroje této podpory.Případná poděkování lze umístit před seznam literatury.

STRUKTURA PŮVODNÍ PRÁCE

V původní práci autor zpracuje vlastní soubor a vyjadřuje svůj názor na dané téma na základě analýzy vlastních výsledků s použitím vhodných statistických metod. Text musí být sepsán přiměřeně odborně a srozumitelně. Závěry musí být formulovány jasně a tak, aby byl vyloučen jakýkoliv jiný výklad. V textu původní práce musí autor dodržet předepsanou strukturu.

Abstrakt – strukturovaný abstrakt představuje shrnutí obsahu článku do stručné formy. Nutné jsou charakteristické údaje z článku. Vše v anglickém a případně i v českém/slovenském jazyce. Struktura abstraktu původní práce kopíruje strukturu celé práce, tedy obsahuje kapitoly „Úvod, Materiál a metody, Výsledky, Diskuse a Závěr“. Abstrakt by měl mít rozsah maximálně jedné normostrany (maximálně 1800 znaků).

Klíčová slova – v počtu 3–8 slov nebo krátkých obratů umožňujících dokumentační podchycení práce z hlediska jejího obsahu. Doporučuje se užít hesla vycházející z doporučených termínů v anglickém jazyce National Library of Medicine: Medical Subject Headings (MeSH). České/slovenské znění klíčových slov pak odvodit z jejich anglických ekvivalentů.

Úvod – stručné a jasné pojmenování problému včetně odvolání se na základní recentní literaturu a formulování cíle práce či pracovní hypotézy, stručný důvod vzniku článku.

Materiál a metody – základní popis souboru, přehled použitých metod, popis hypotézy a postupu studie, včetně postupu hodnocenía použité statistické metody.

Výsledky – získaná data a jejich hodnocení.

Diskuse – stručná konfrontace s obdobnými studiemi a pracemi v posledních dvou a více letech. Hodnocení dosažení cílů studie.

Discussion – brief confrontation with similar studies and papers from the last two or more years. Evaluation of achieved study goals.

Conclusion – brief and clear summary with clearly formulated outputs for practice.

Literature – citation according to the instructions for authors, organized according to the occurrence in the text, only relevant citations.

STRUCTURE OF REVIEW ARTICLE

Review article should summarize the current knowledge about aetiology, pathogenesis, diagnostics and therapy of a disease or group of diseases, or complex review of the issues related with the topic of the journal. After reading the article the reader should obtain a sufficient and current idea about the particular topic. The article should be written with a maximum emphasis on its practical use. Instructive imaging documentation is welcome.

The contribution of the author to the particular problem should be based on extensive study of literature, provided in the list of used literature but also on the own work of the author. In case of processing a more extensive topic, it is possible to divide the article into several parts after an agreement with the editorial board.

Summary – brief summary of the content of the article in the extent of a maximum of 1000 characters.

Key words – 3-8 words or short phrases enabling documentation of the content of the paper with regards to its content; it is recommended to use the terms from the recommended terms of the National Library of Medicine: Medical Subject Headings (MeSH).

Introduction – brief explanation of the origin of the article, proposal of the theme and its limitations.

Evaluation of the topic – brief basic thoughts of the paper, own approach of the author, review of current knowledge.

Conclusion – brief message of the paper.

Literature – citation according to the instructions for the authors, organized according to the occurrence in the text.

STRUCTURE OF CASE REPORT

Case report is a description of one or several similar cases and their solution. The case reports should be in some extent unique and their solution should be innovative, or possibly it should supplement or confirm current knowledge.

Summary – brief summary of the content of the article in the extent of a maximum of 200 characters.

Key words – 3-8 words or short phrases enabling documentation of the content of the paper with regards to its content; it is recommended to use the terms from the recommended terms of the National Library of Medicine: Medical Subject Headings (MeSH).

Introduction – brief explanation of the origin of the article, description of the topics.

Description of the case – there are all important data related to the described case including history, clinical picture, possibly results of laboratory examination, description of the finding of imaging techniques, therapeutic procedure and result.

Závěr – Krátké a výstižné shrnutí s jasně formulovanými výstupy pro praxi.

Literatura – citovaná dle pokynů pro autory, řazená dle výskytu v textu.

STRUKTURA PŘEHLEDOVÉHO ČLÁNKU

Přehledový článek by měl shrnovat aktuální stav poznání o etiologii, patogenezi, diagnostice a terapii nemoci nebo skupiny onemocnění, nebo komplexní pojednání o problematice tematicky související se zaměřením časopisu. Po přečtení článku by měl čtenář získat dostatečný a aktuální přehled o dané problematice. Článek by měl být psán s maximálním důrazem na jeho praktické využití. Vítaná je instruktivní obrazová dokumentace.

Příspěvek autora k řešení daného problému by měl být dán nejen rozsáhlým studiem odborné literatury, uváděné v seznamu použité literatury, ale i vlastní prací autora. V případě zpracovávání obsáhlejší tématiky je možné po dohodě s redakcí rozdělit příspěvek do několika částí.

Souhrn – stručné shrnutí obsahu příspěvku v rozsahu maximálně 1000 znaků v anglickém a případně i v českém/slovenském jazyce.

Klíčová slova – v počtu 3–8 slov nebo krátkých obratů umožňujících dokumentační podchycení práce z hlediska jejího obsahu; doporučuje se užít hesla vycházející z doporučených termínů v anglickém jazyce National Library of Medicine: Medical Subject Headings (MeSH). České/slovenské znění klíčových slov pak odvodit z jejich anglických ekvivalentů.

Úvod – stručný důvod vzniku článku, nastínění a vymezení problematiky.

Zhodnocení problematiky – stručné základní myšlenky sdělení, vlastní přístup autora, přehled současného stavu vědění.

Závěr – stručné poselství sdělení.

Literatura – citovaná dle pokynů pro autory, řazená dle výskytu v textu.

STRUKTURA KAZUISTIKY

Kazuistické sdělení je popis jednoho nebo několika podobných případů a jejich řešení. Kazuistiky by měly být v jistém smyslu neobvyklé nebo jejich řešení by mělo být inovativní, popř. by mělo doplňovat nebo potvrzovat dosavadní poznatky.

Souhrn – stručné shrnutí obsahu příspěvku v rozsahu maximálně 200 slov v anglickém, popř. i v českém/slovenském jazyce.

Klíčová slova – v počtu 3–8 slov nebo krátkých obratů umožňujících dokumentační podchycení práce z hlediska jejího obsahu; doporučuje se užít hesla vycházející z doporučených termínů v anglickém jazyce National Library of Medicine: Medical Subject Headings (MeSH). České/slovenské znění klíčových slov pak odvodit z jejich anglických ekvivalentů.

Úvod – stručný důvod vzniku článku, nastínění problematiky.

Popis případu– Jsou uvedeny všechny zásadní údaje týkající se popisovaného případu od anamnézy, přes klinický

Discussion – it should be brief and it discusses the actual case report with regards to similar case reports or papers of other authors, which are cited.

Conclusion – brief summary of the most important aspects of the paper.

Literature – citation according to the instructions for the authors, organized according to the occurrence in the text. Only relevant citations.

Use metric units and SI units. Use only established abbreviations, do not use any abbreviations in the header and summary, in case of the first use of the abbreviation in the text, provide expanded version in brackets. List of abbreviations in alphabet order with explanation may be provided before the list of used literature. In case of medication it is necessary to provide a generic name and producer in the product name.

LITERATURE

The manuscript may contain only the actual sources, i.e. publication referenced by the authors in the text or papers that are really important (no papers may be provided only from formal reasons). Literature may be arranged according to the occurrence in the text, not in alphabet order, it is marked with a number of appropriate reference number written as upper index and it is cited according to Uniform Requirements for Manuscripts Submitted to Biomedical Journals" according to "Vancouver citation format".

In case of references to the papers that were not published yet, however already accepted for publication, please provide the name of the journal with the note "in print". References within the text, tables or descriptions of images should be marked with Arabic numbers in hard brackets. Several sources should separated by a comma, without spaces.

EXAMPLES OF CORRECT FORMS OF CITATIONS:

Article in a journal:

Provide full surname of the authors, initials of the name without a full stop, put comma between the authors, after the last name is a full stop. If the number of authors is more than 6, put first three authors and an abbreviation "et al.". Name of the article should be terminated with a full stop. Then is written the official abbreviation of the article (name of the journals is abbreviated according to a style used in Index Medicus) and year (possibly even month) of issue, do not separate with a comma, after the year put a semicolon. Year of the journal and possibly number of issue in parenthesis, colon, pages completed with a full stop.

Examples:

Petitti DB, Crooks VC, Buckwalter JG, Chiu V. Blood pressure levels before dementia. *Arch Neurol.* 2005 Jan;62(1):112-6.

Chapter in a book:

In the authors write their full surname, initials of the name without a full stop, between the authors put comma, after the last name put full stop. The name of the book is separated with a comma, number of issue is terminated with a full stop. City of issue and in round bracket country of issue and colon, publisher, semi-colon, year of issue, full

nález, příp. výsledky laboratorního vyšetření, popisy nálezů zobrazovacích technik, terapeutický postup, výsledek.

Diskuse – stručná, konfrontuje vlastní kazuistiku s podobnými kazuistikami nebo pracemi jiných autorů, které jsou citovány.

Závěr – stručné shrnutí nejdůležitějších aspektů práce.

Literatura – citovaná dle pokynů pro autory, řazená dle výskytu v textu.

Používejte metrické jednotky a jednotky soustavy SI. Používejte výhradně ustálené zkratky, nepoužívejte zkratky v nadpisu a souhrnu, při prvním použitím zkratky v textu uveďte v závorce plný název. Seznam zkratek v abecedním pořádku s vysvětlením lze uvést před seznamem použité literatury. U léčiv je třeba vedle výrobního názvu uvést i generický název a výrobce.

LITERATURA

Rukopis smí obsahovat jen skutečné prameny, tj. publikace, na něž se autor v textu odvolává, nebo práce skutečně významné (nesmějí se uvádět práce jen z důvodů formálních). Literatura je řazena podle výskytu v textu, nikoli abecedně, označuje se číslem příslušné reference zapsané ve formě horního indexu a cituje se podle „Uniform Requirements for Manuscripts Submitted to Biomedical Journals" podle "Vancouver citation format".

U odkazů na práce dosud nepublikované, avšak přijaté k uveřejnění uveďte název časopisu s poznámkou „v tisku". Literární odkazy v textu, tabulkách nebo popisech obrázků číslujte arabskými číslicemi v hranatých závorkách. Více zdrojů oddělte čárkou, bez mezer.

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U autorů uvádějte příjmení celé, iniciály jména bez tečky, mezi autory se píše čárka, za posledním tečka.Pokud je počet autorů vyšší než 6, uveďte první tři autory a zkratku et al. Název článku ukončit tečkou. Poté oficiální zkratka časopisu (názvy časopisů se zkracují podle stylu použitého v Index Medicus) a rok (ev. i měsíc) vydání, neodděluje se čárkou, za rokem středník.Ročník časopisu a ev. v kulaté závorce číslo vydání dvojtečka, stránky ukončené tečkou.

Příklad:

Petitti DB, Crooks VC, Buckwalter JG, Chiu V. Blood pressure levels before dementia. *Arch Neurol.* 2005 Jan;62(1):112–6.

Kapitola v knize:

U autorů uvádějte příjmení celé, iniciály jména bez tečky, mezi autory se píše čárka, za posledním tečka. Název knihy oddělený čárkou, číslo vydání ukončené tečkou. Město vydání a v kulaté závorce země vydání a dvojtečka, vydavatel středník, rok vydání tečka, název kapitoly středník a stránky ukončené tečkou.

stop, name of chapter, semi-colon and pages terminated with a full stop.

Examples:

Riffenburgh RH. *Statistics in medicine*. 2nd ed. Amsterdam (Netherlands): Elsevier Academic Press; c2006. Chapter 24, Regression and correlation methods; p. 447-86.

Book, monograph:

In the authors put full surname, initials of the name without a full stop, between authors put comma, after the last name put full stop. Name of the book is terminated with a full stop and number of issue is terminated with a full stop. City, colon, publisher, semi-colon, year of issue, full stop and total number of pages terminated with a full stop.

Examples:

Eyre HJ, Lange DP, Morris LB. *Informed decisions: the complete book of cancer diagnosis, treatment, and recovery*. 2nd ed. Atlanta: American Cancer Society; c2002. 768 p.

EXAMPLES OF OTHER CITATIONS:

Article in electronic serial publication:

Polgreen PM, Diekema DJ, Vandeberg J, Wiblin RT, Chen YY, David S, Rasmus D, Gerdts N, Ross A, Katz L, Herwaldt LA. Risk factors for groin wound infection after femoral artery catheterization: a case-control study. Infect Control Hosp Epidemiol [Internet]. 2006 Jan [cited 2007 Jan 5];27(1):34-7. Available from: http://www.journals.uchicago.edu/ICHE/journal/issues/v27n1/2004069/2004069.web.pdf

Electronic publication:

Richardson ML. Approaches to differential diagnosis in musculoskeletal imaging [Internet]. Version 2.0. Seattle (WA): University of Washington School of Medicine; c2000 [revised 2001 Oct 1; cited 2006 Nov 1]. Available from: http://www.rad.washington.edu/mskbook/index.html

Article from web pages:

Complementary/Integrative Medicine [Internet]. Houston: University of Texas, M. D. Anderson Cancer Center; c2007 [cited 2007 Feb 21]. Available from: http://www.mdanderson.org/departments/CIMER/.

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MeSH Browser (2011 MeSH) [Internet]. Bethesda (MD): National Library of Medicine (US), Medical Subject Headings Section; [1999] – [updated 2010 Aug 28; cited 2011 Jul 8]. Available from: http://www.nlm.nih.gov/mesh/MBrowser.html Files are updated every week on Sunday.

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Článek v elektronické seriálové publikaci:

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Elektronická publikace:

Richardson ML. Approaches to differential diagnosis in musculoskeletal imaging [Internet]. Version 2.0. Seattle (WA): University of Washington School of Medicine; c2000 [revised 2001 Oct 1; cited 2006 Nov 1]. Available from: http://www.rad.washington.edu/mskbook/index.html

Článek z webových stránek:

Complementary/Integrative Medicine [Internet]. Houston: University of Texas, M. D. Anderson Cancer Center; c2007 [cited 2007 Feb 21]. Available from: http://www.mdanderson.org/departments/CIMER/.

Článek z online databáze:

MeSH Browser (2011 MeSH) [Internet]. Bethesda (MD): National Library of Medicine (US), Medical Subject Headings Section; [1999] – [updated 2010 Aug 28; cited 2011 Jul 8]. Available from: http://www.nlm.nih.gov/mesh/MBrowser.html Files are updated every week on Sunday.

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Updated on 1.9.2015

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Aktualizováno 1. 9. 2015

Event: IBRA International conference – **All around the scaphoid**
Organizer: IBRA (International Bone Research Association)

IBRA International Bone Research Association

www.ibra.ch

Official language: English (with simultaneous translation into Czech)
Date: 15.–16. 4. 2016
Venue: Congress center of Czech National Bank, Prague

Faculty:
Hermann Krimmer *(Ravensburg, Germany)*
Wolfgang Hintringer *(Vienna, Austria)*
Christoph Pezzei *(Vienna, Austria)*
Rohit Arora *(Innsbruck, Austria)*
Frederik Verstreken *(Antwerpen, Belgium)*
Radek Kebrle *(Vysoké nad Jizerou, Czech Republic)*
Pavel Dráč *(Olomouc, Czech Republic)*
and others.

Dear Colleagues and Friends,

Some wrist injuries and wrist diseases could lead to very serious sequelae for the patients and they could be also very difficult to cure even for experienced hand surgeons. Especially complicated injuries of the scaphoid bone could have huge negative health consequences for the patients. Scaphoid bone seems to be only a small wrist bone, one of the eight from which all carpus is composed. However, its influence for the overall function of the wrist is crucial. Surgical treatment of primary injuries and subsequent complications of scaphoid bone injuries is still very demanding as to the proper indication as well as to the correct execution of the surgery. Indications and surgical procedures are not yet clearly defined and are still the subject of medical research. For these reasons, the main topics of our symposium are injuries and consequential problems of scaphoid bone, their diagnostics and surgical treatment.

So we would like to invite you to first IBRA meeting in Prague, heart of the Europe. Prague is one from the nicest cities in Central Europe and will host this event to discuss one of the most interesting topics in wrist surgery – Fractures and Non-unions of Scaphoid bone. Although closely observed, studied and described in the literature still it is a topic that attracts many all around the world. New information appearing in basic science, osteosynthesis development, arthroscopic approaches and microvascular surgery are changing our strategy in its treatment.

Our meeting is intended not only to describe basic procedures with evidence based support but also to show and discuss much larger range of problems arising in front everyone treating scaphoid. Factors like scaphoid anatomy, type of fracture, delay from injury, age, location of pathology and different treatment options will be presented and discussed. Complications and failures will be presented and discussed too. A two-day course of hand surgery is planed. All invited speakers are very experienced specialists for this specific topic. This event is intended for all specialists over the world who are engaged to scaphoid injuries treatment, especially for orthopaedists and traumatologists or other surgeons.

Prague is nice and historical city but you will see that it is also home of up-to-date science and treatment.

See you in spring Prague

Radek Kebrle *(Vysoké nad Jizerou)*
Aleš Fibír *(Hradec Králové)*