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No. 2, 2001

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BREAST RECONSTRUCTION USING FREE TRAM FLAP TRANSFER – TEN YEARS EXPERIENCE

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SUMMARY

Over the course of ten years, 119 breast reconstruction procedures using a free TRAM flap transfer were performed in our department. In the present review, the authors explain the indication pattern for breast reconstruction. The age of patients undergoing breast reconstruction is given, as well as a description of the time interval between mastectomy and breast reconstruction, which recipient vessels were used, the general and local complications and the complications relating to the anastomosis. The review of the group of patients is supplemented by information on the time interval between breast reconstruction and reconstruction of the nipple areolar complex as well as summarized data on the results of breast reconstruction that were achieved using a free TRAM flap transfer.

ZUSAMMENFASSUNG

Die Brustrekonstruktion mithilfe der freien Übertragung des TRAM Lappens aus dem Sicht der zehnjährigen Erfahrungen

Nejedlý A., Tvrdek M., Kletenský J.

In zehn Jahren wurden an unserer Arbeitsstätte 119 Brustrekonstruktionen mithilfe der freien Übertragung des TRAM Lappens durchgeführt. Ein Indikationsschema für die Brustrekonstruktion wird im übersichtlichen Beitrag entworfen. Das Alter der Patientinen, denen die Brustrekonstruktion durchgeführt wurde, die Zeitspanne zwischen der Mastektomie und der Brustrekonstruktion, verwendete Empfangsgefäße, die Gesamt- und Lokalkomplikationen und die Komplikationen, die die Anastomose angehen, werden angeführt. Der Gesamtüberblick unserer Patientinengruppe ergänzen die Angaben, did die Zeitspanne zwischen der Brustrekonstruktion und der Rekonstruktion des areolomamillaren Komplexes und die Ergebnise der Brustrekonstruktion durch der freien Übertragung des TRAM Lappens betreffen.

Key words: breast reconstruction, free TRAM flap transfer, internal mammary vessels

Breast reconstruction after a mastectomy due to carcinoma holds its firm place in the spectrum of operations in the field of plastic and reconstructive surgery. Quite rightly it is considered a part of the surgical treatment of breast cancer. Breast reconstruction can be implemented by a number of surgical procedures. Indications for which procedure to use are individual, and it is not possible to prefer one procedure unequivocally. By free transfer of a TRAM flap it is possible to achieve a very credible, permanent breast reconstruction by well-perfused living tissue without the use of a mammary implant. It is an operation that is very demanding from the technical aspect and stressful for the patient, contrary to other types of reconstruction. The first breast reconstruction by a free TRAM transfer was implemented at our department on December 5, 1989. Over the course of subsequent years, experience with this surgical procedure was reported twice (2, 3).

Now, after almost ten years, the authors wish to present their findings, achievements and failures, results, and, in the conclusion, also their reflections on the position and validity of this operation. We cannot omit mention of Carl R. Hartrampf and others, due to whom this operation was developed, achieved its present position as a routine operation and is one of the most perfect procedures of breast reconstruction.

SUMMARIZED DATA AND THEIR INTERPRETATION

The group comprises 119 patients operated on at our department in 1990–2000. At our depart-

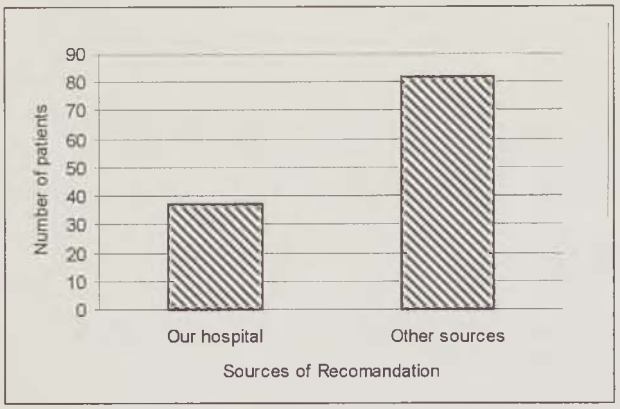

Fig. 1. Patients referred by our and other hospitals.

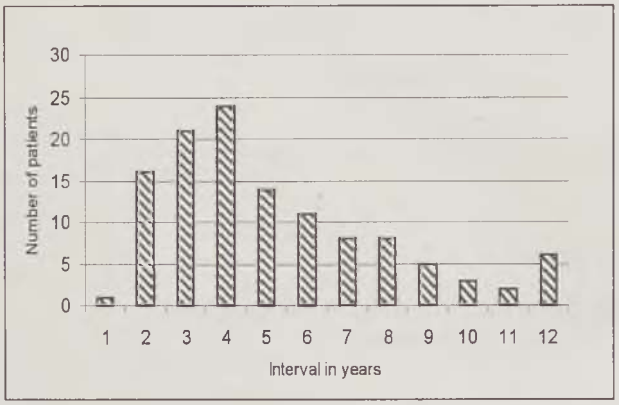

Fig. 2. Time interval between mastectomy and breast reconstruction.

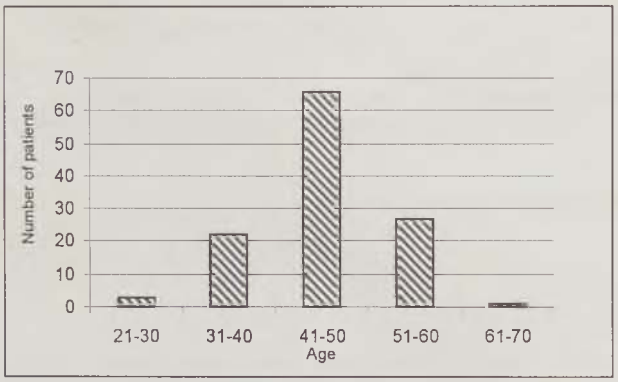

Fig. 3. Patients ages at time of reconstruction.

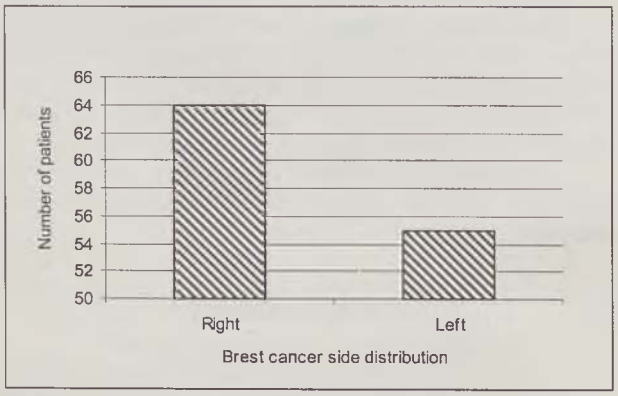

Fig. 4. Breast cancer, right- or left-sided, in our patients.

ment, a general and stable indication pattern for breast reconstruction was gradually introduced for patients after mastectomy. The breast reconstruction is indicated by the oncologist. The plastic surgeon indicates the suitable type of reconstruction. It is expected as a rule that at the time of reconstruction the patients has – based on available routine examination methods – no signs of a progression of her breast cancer disease, i.e. metastases. This procedure ensures that the plastic surgeon does not interfere adversely in the relationship between the patient and her oncologist.

Figure 1 indicates the ratio of the number of indications in the oncology department of our hospital and the number in other departments in the Czech Republic. The number of patients referred by other hospitals predominates.

The interval between mastectomy and breast reconstruction is apparent from Figure 2. Patients are indicated after completed oncological treatment. This implies that the maximum number of breast reconstruction procedures was performed after a 1- to 5-year interval following mastectomy. Immediate breast reconstruction was performed once. The higher number of breast reconstruction implemented after more than 10 years following mastectomy pertains to the initial period of this procedure.

The greatest proportion of patients was operated on between 40 and 50 years of age. The adjacent decades are represented almost symmetrically. In the group, more patients suffered from dextrolateral breast cancer (Figs 3, 4).

As regards the surgical procedure proper:

As recipient vessels, in the great majority – 115x – the internal mammary vessels were used. In four instances we used the thoracodorsal vessels; however, only in one instance was this planned. The ratio between the arterial and venous anastomosis was 1:1 in 113 patients, in 6 patients 1:2. Depending on the location of the deep epigastric vessels, the lateral portion of the rectus abdominis muscle was preserved, incl. its segmental innervation, in 20 flaps (Fig. 5).

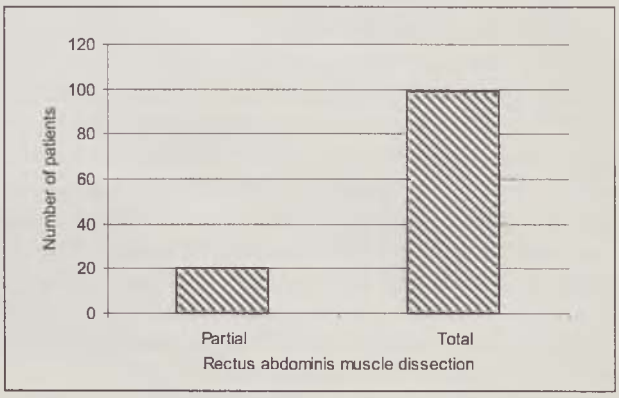

Fig. 5. Partial or complete harvesting of TRAM flap.

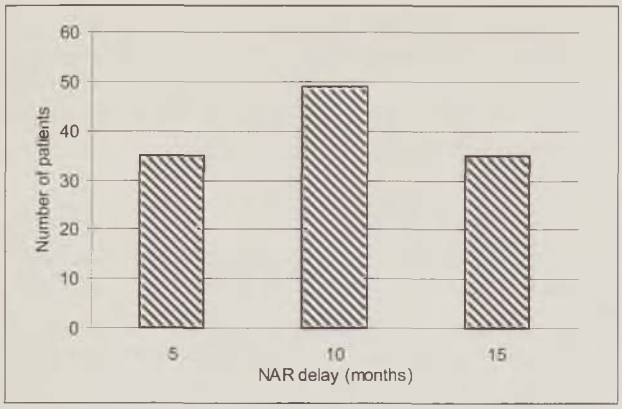

Fig. 6. Time interval between breast reconstruction and reconstruction of the nipple areolar complex.

Reconstruction of the nipple areolar complex was implemented at different time intervals, after complete consolidation of the scars and flap tissue and after the final descent of the flap, not sooner than 5 months after reconstruction (Fig. 6).

As regards complications:

Traces on the arterial and venous anastomosis were recorded in a total of 16 patients for different reasons, the ratio being 4:12. As a result of this, 7 flaps became completely ischaemic (5.9 %) and 5 patients developed marginal necroses. In one instance haemorrhage beneath the flap occurred, haemorrhage into the donor site and infection of the secondary defect.

None of the patients died as a result of the operation. One patient developed a massive pulmonary embolism on the 3rd day after surgery with subsequent complete consolidation of the patient's health status. A hernia in the scar at the donor site called for surgery in two patients. Weakening of the abdominal wall due to the absence of the rectus abdominis muscle did not cause major difficulties to the patients. At present, after complete removal of the rectus abdominis muscle, we secure the closure of the donor site by a prolen mesh.

The dynamics of complications in relation to the implemented operations in individual years are shown in Figure 7. They do not show a correlation, as might be anticipated, with either the number of procedures or with the possible increased experience with this operation over the course of the years.

The resulting state was evaluated according to the following criteria: as very good when symmetry of shape and size was achieved; as good when symmetry of size was achieved. In 8 patients the condition was described as satisfactory – the patients ceased to use an epithesis, although

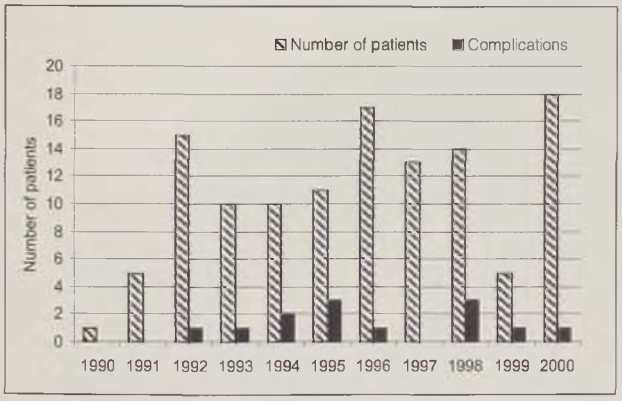

Fig. 7. Ratio of the number of reconstruction breasts and their complications in individual years.

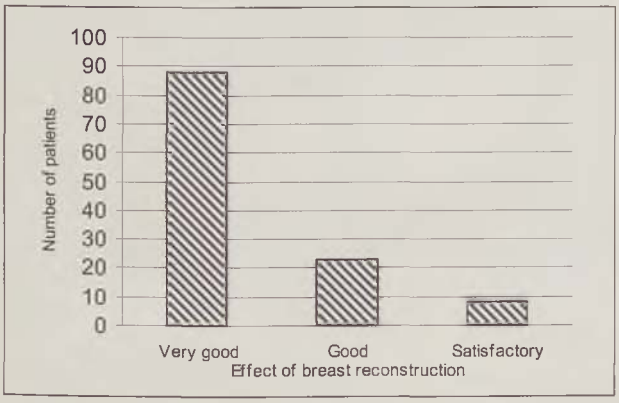

Fig. 8. Results of implemented breast reconstruction procedures.

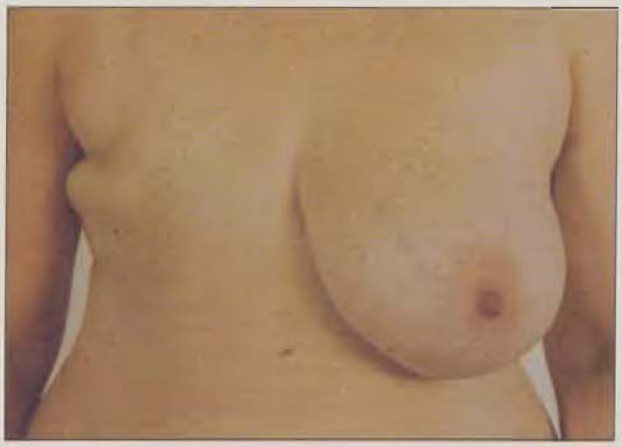

Fig. 9. Status after mastectomy.

Fig. 10. Status after completed breast reconstruction by means of free TRAM flap.

symmetry in shape and size was not achieved. The results are presented in Figure 8.

CONCLUSION

Mastectomy, the surgical component of comprehensive breast cancer treatment, substantially helps patients to cope with this serious disease. On the other hand, it is associated with the serious problem of overcoming this mutilating operation. According to our experience, the main concern of these women is loss of symmetry. The defect on the chest reminds them daily that they suffer from cancer.

Therefore, if possible, breast reconstruction forms part of breast cancer treatment. There is a number of breast reconstruction methods. Breast reconstruction by a free TRAM flap has, beyond a doubt, several advantages as compared with other methods. It is most consistent with the idea of breast reconstruction, the restoration of symmetry as regards shape and size (Figs 9, 10). It is a safe surgical procedure associated with an acceptable risk of complications.

In this retrospective review covering the beginnings of the operation and our gradually assembled experience with free transfer of a TRAM flap, the authors wish to confirm the known attributes of this operation.

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APLASIA OF THE BREAST – RECONSTRUCTION USING A FREE TRAM FLAP

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Department of Plastic Surgery, University Hospital Královské Vinohrady, Third Medical Faculty, Charles University, Prague, Czech Republic

SUMMARY

Breast aplasia and hypoplasia are found most frequently in Poland's syndrome but may also be the consequence of damage to the germ of the mammary gland in childhood. The authors present two cases of breast aplasia in which reconstruction was implemented by free transfer of a TRAM flap. The internal mammary vessels were used as recipient vessels, the condition of which was tested before surgery by Doppler. In both instances the reconstruction was implemented at the age of 19 years, and subsequently the areolomammillary complex was created and the contralateral breast corrected to achieve symmetry.

The use of autologous tissue in the form of a free TRAM flap provides, in this indication, very good results that are permanent, and the problems associated with the use of implants are eliminated.

ZUSAMMENFASSUNG

Die Brustaplasie – die Rekonstruktion mithilfe des freien TRAM Lappens

Tvrdek M., Kletenský J., Svoboda S.

Die Brustaplasie und Brusthypoplasie treten häufig beim Poland-Syndrom auf, können aber auch aufgrund einer Beschädigung des Brustdrüsekeimes im Kindesalter vorkommen. Die Autoren präsentieren zwei Fälle der Brustaplasie und folgende Rekonstruction mithilfe der freien Übertragung des TRAM Lappens. Arteria und Vena Mammaria Interna wurden als Empfangsgefäße angewendet. Zustand der Gefäße wurde vor der Operation mittels Doppler Gesätes überprüft. In beiden Fälle wurde die Brustrekonstruktion im Alter von 19 Jahren durchgeführt. Es folgte die Gestaltung des areolomamillaren Komplexes und die Korrektion der kontralateralen Brust zwecks der Symmetrie. Die Anwendung des autologen Gewebes in Gestalt des freien TRAM Lappens bringt in dieser Indikation sehr gute und dauerhafte Ergebnisse. Die Schwierigkeiten, die mit der Benützung von Implantaten zusammenhängen, sind bei Anwendung dieser Methode eliminiert.

Key words: breast aplasia, Poland's syndrome, breast reconstruction, free TRAM flap

Inborn defects of the breast may be of different grades, from small deformities of the areolomammillary complexes to polythelia, polymastia, and hypoplasia to aplasia, possibly associated with a marked chest deformity such as Poland's syndrome, which is the most frequent cause of inborn breast aplasia or hypoplasia. Poland's syndrome was described in 1841 and is usually manifested by a unilateral aplasia of the pectoralis major muscle with various grades of affection of the ipsilateral upper extremity. This affection may be manifested as symbrachydactyly, hypoplasia of the hand, forearm or arm, hypoplasia or aplasia of the pectoral muscles, the mammary gland or the areolomammillary complex, anomalies of the neurovascular structures of the affected extremity and anomalies of the ribs, spine, scapula, axilla and dermal adnexa. Hypoplasia or aplasia of the breast may be also due to damage of the germ of the mammary gland in childhood due to injury or surgery.

In conjunction with affections of the pectoral muscles and the ensuing deformity, the majority of patients is referred to a plastic surgeon to consider possible reconstruction. The most frequent method of reconstruction in men is a transposition of the latissimus dorsi muscle. Custom-made chest-wall prostheses were also tested but did not prove very successful. Impaired breast development makes this affection more serious in women, and it is an important reconstruction problem in attempts to achieve the best possible symmetry with the other, unaffected breast.

The timing of the surgical correction of an inborn breast deformity is, no doubt, important for the resultant psychological and aesthetic effects.

In unilateral hypoplasia or aplasia, the reconstruction is implemented at a time when the contralateral breast is developed. Breast development starts as a rule between the 10th and 13th years of age and is completed near the age of 15 years. During breast development, if the asymmetry is marked, it is possible to use an implant, which is slightly larger than the contralateral side, taking into account further development. It is also possible to use a breast implant-expander, which makes gradual enlargement of the hypoplastic breast possible, corresponding to the growth of the unaffected side. Reconstruction using synthetic materials is not a definite solution because of complications ensuing from the body's reaction to alien material and the limited service life of the latter.

Similarly as in men, breast reconstruction in women is implemented by transposition of the latissimus musculocutaneous flap, usually combined with a submuscular implant to provide adequate projection. The advantages of reconstruction using autologous tissue are diminished when the reconstructed breast is supplemented by an implant.

Reconstructions of inborn breast aplasia using autologous tissue are only very rarely mentioned in the literature. Fujino et al. described in 1975 a reconstruction using a free transfer of an upper gluteal flap. Siebert et al. presented a series of nine female patients with Poland's syndrome in whom a total of twelve free flap transfers was used.

In adult women there is, as a rule, enough tissue in the hypogastrium to implement such a reconstruction. A pedicled TRAM flap is a technique that weakens the abdominal wall more markedly with regard to a possible pregnancy. Therefore it is suitable for women who already have children and are not planning another pregnancy. A free TRAM flap implies substantially less weakening of the abdominal wall and is a suitable alternative in young women.

Asymmetry is a frequent problem of reconstructions of inborn and developmental breast anomalies. Frequently modification of the contralateral side is necessary to achieve symmetry.

METHODS AND CLINICAL CASES

Two cases of reconstruction of breast aplasia by a free TRAM flap are presented. In both instances, the internal mammary vessels were used as recipient vessels; their condition was tested by Doppler ultrasound examination.

Case 1 (Figs 1, 2): A 19-year-old woman with right-sided Poland's syndrome in whom the affliction comprised symbrachydactyly and aplasia of both pectoral muscles, the breast and areolomammillary complex. The affection of the hand was corrected during childhood. The breast was reconstructed by a free TRAM flap using the internal mammary vessels as recipient vessels. With regard to the subsequent pregnancy of the patient, the reconstruction of the areolomammillary complex and modelling of the contralateral breast were made after a 3-year interval.

Case 2 (Figs 3, 4): A 19-year-old woman with aplasia of the left breast due to removal of a malignant non-Hodgkin lymphoma in the area of the areola and a rudiment of the mammary gland at the age of 4 years. The patient refused any reconstruction method other than by autologous tissue. As the patient was very slim, there was not enough tissue in the hypogastrium to match the contralateral side. The reconstruction was implemented by a free TRAM flap connecting its vascular pedicle with the internal mammary vessels. Subsequently the reconstructed breast was augmented according to Longacre's method, an areolomammillary complex was created and the right breast was reduced in size to achieve symmetry.

The surgical procedures proper, as well as the postoperative course, were uneventful and did not differ from that in other breast reconstructions using a free TRAM flap.

DISCUSSION

The goal of breast reconstruction in aplasia is to create a breast with a normal axillary fold, which will correspond in shape and size as closely as possible to the unaffected side. In the past the best results were achieved by transposition of the latissimus muscle in combination with a submuscular placement of an implant. This procedure involves a relatively high percentage of complications associated with the use of implants such as

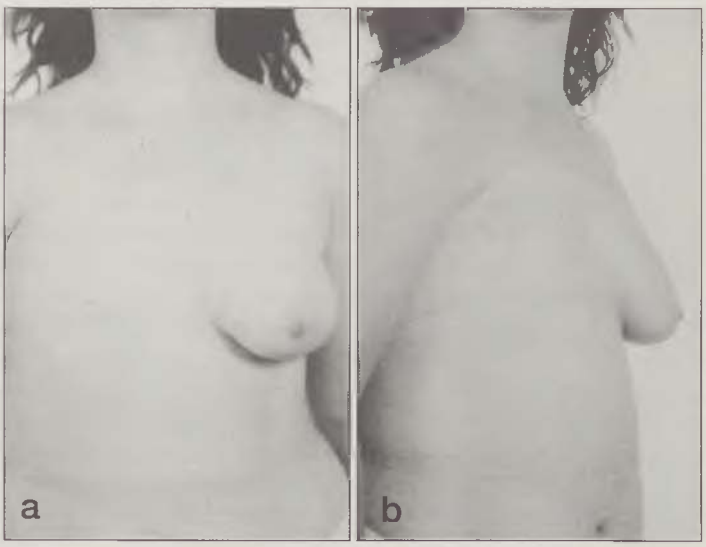

Fig. 1. 19-year-old patient with right-sided Poland's syndrome, condition before surgery: a – anterior view, b –lateral view.

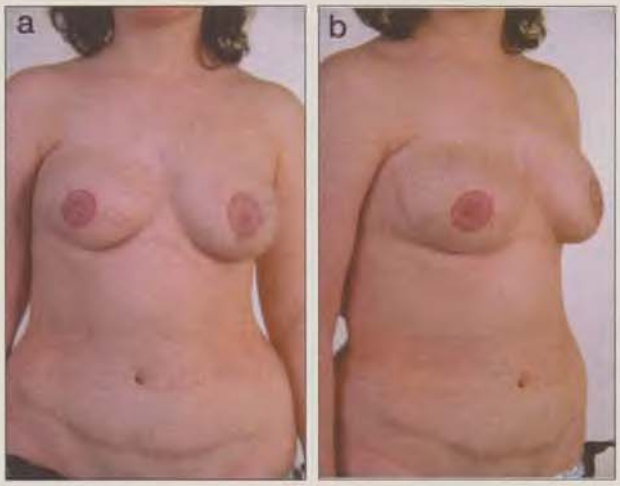

Fig. 2. Condition after reconstruction, subsequent creation of areolomammillary complex and modelling of the contralateral breast: a – anterior view, b – lateral view.

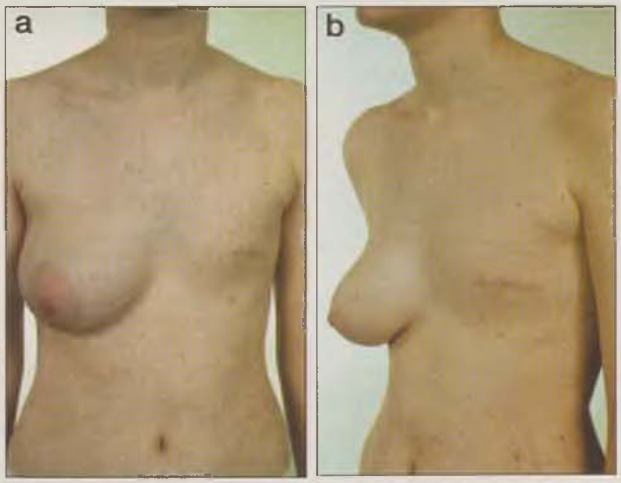

Fig. 3. 19-year-old patient with aplasia of left breast after removal of breast tumour at the age of 4 years, condition before surgery: a – anterior view, b –lateral view.

capsular contracture, migration, rupture and infection.

Only breast reconstruction using autologous tissue provides the possibility of creating a natural looking breast with a very good long-term results and without the problems associated with implants.

A pedicled TRAM flap has, as compared with a free TRAM flap, several disadvantages. It provides a smaller volume of tissue and causes greater weakening of the abdominal wall.

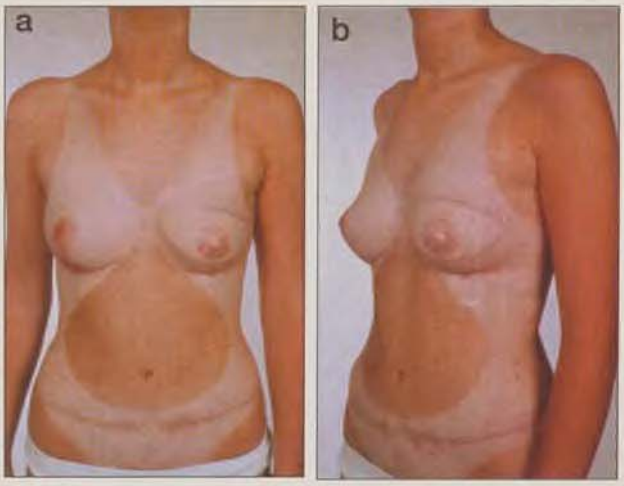

Fig. 4. Status after reconstruction, subsequent augmentation using Longacre's method, creation of areolomammillary complex and reduction of contralateral breast: a – anterior view, b – lateral view.

This is the reason why we consider free TRAM flaps the optimal method of breast reconstruction in young women with breast aplasia.

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BREAST RECONSTRUCTION AS AN INTEGRAL PART OF BREAST CARCINOMA THERAPY (A SELF-PRESENT FINAL REPORT OF A RESEARCH PROJECT IGA MZ ČR)

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SUMMARY

This comparative prospective study elucidates whether breast reconstruction that is not associated with systemic oncological treatment may trigger a tumour relapse, and if there is any difference between the evaluated reconstruction methods, a simple procedure using an implant versus a TRAM flap, on this hypothetical influence.

The study group of 95 patients suffered from stage I–II of breast carcinoma. As regards the available reconstruction procedures, the study group was divided into two subgroups, the first using an implant ($n_1 = 33$) and the second using a TRAM flap ($n_2 = 62$). All oncological problems manifesting during the subsequent 12 months were considered as a response to the reconstruction.

The oncological course was compared with two control groups.

The first control group ($k_1 = 82$) corresponded to the study group in terms of tumour stage (I–II), average age, time of initial diagnosis, type of primary surgery, i.e. mastectomy with axilla exenteration, and subsequent oncological treatment.

The second control group ($k_2 = 19\,625$) was based on the National Oncology Register data. It was formed from all patients with breast carcinoma stage I–II from 1985–1994. The disease development in terms of the relative number of relapses and deaths was compared to the number of healthy and living patients, respectively, in the preceding year.

The working hypothesis of late breast reconstruction (i.e. not associated with oncological treatment) being a possible trigger effect on the subsequent course of breast cancer has not been confirmed.

No statistically significant differences at the 5% significance level were found between individual reconstruction methods and control groups in terms of the number of local relapses and survival length.

ZUSAMMENFASSUNG

Die Brustrekonstruktion als die unteilbare Komponente der Brustkarzinomtherapie

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Diese Vergleichsstudie erläutert, ob die Brustrekonstruktion, die nicht im Rahmen der onkologischen Therapie durchgeführt wird, ein Tumorrezidiv hervorrufen kann. Dieser hypothetische Effekt wurde bei zwei unterschiedlichen therapeutischen Methoden, der Verwendungund des Implantats und der Rekonstruction mittels des TRAM Lappens, beurteilt. Ingesamt 95 Patientinen mit einem Brustkarzinom (Stadium I–II) wurde angesichts der Belastung durch die Rekonstruktion in zwei Gruppen eingeteilt. In der ersten Gruppe wurden die Fälle der Verwendungund von Implantate ($n_1 = 33$) einbezogen. Die zweite Gruppe umfasste die Fälle der Rekonstruktion mittels des TRAM Lappens ($n_2 = 62$). Alle Erkrankungserscheinungen, die in den nachfolgenden 12 Monate auftraten, wurden als Nachwirkungen der durchgeführten Rekonstruction betrachtet. Der Verlauf der Erkrankung wurde mit zwei Kontrollgruppen verglichen. Die Patientinen in der ersten Kontrollgruppe ($k_1 = 82$) wiesen ähnliches Alter, die Zeit der Diagnosebestimmung, den Typ der Primäroperation (Mastektomie mit der Axillaexenteration), das Stadium des Brustkarzinoms und die Methode der Brustkarzinomtherapie auf. Die zweite Kontrollgruppe ($k_2 = 19\,625$) wurde dank der Datenbank des Nationalen Onkologischen Registers, die aus den Jahren 1985–1994 stammt, gesammelt. Alle Patientinen mit dem Brustkarzinom im Stadium I–II wurden einbezogen. Die Anzahl der Patientinen mit dem Brustkarzinom im Stadium I–II in den einzelnen Jahre und die Erkrankungsentwicklung, die in der Proportion zwischen der Rezidive und der Gestorbenen einerseits und der Anzahl der Gesunden im vorangehenden Jahr andererseits liegte, wurden eingeschätzt. Die Arbeitshypothese, dass die späte Brustrekonstruktion ein Tumorrezidiv hervorrufen kann, wurde nicht nachgewiesen. Was das Vorkommen der Lokalrezidive und die Anzahl der Gestorbenen betrifft, keine signifikante Unterschiede weder zwischen beiden Rekonstructionsmethoden, noch zwischen den einzelnen untersuchten Gruppen wurden festgestellt.

Key words: breast carcinoma, breast reconstruction, oncological safety

The poor results of breast reconstruction in the past, along with the fear of a possible relapse, have caused a long-lasting negative attitude on the part of oncologists towards this operation as a part of breast carcinoma treatment (8).

At the present time, the unified opinion of oncologists, surgeons, and plastic surgeons recognises breast reconstruction as a method of choice for all patients with breast carcinoma who underwent a mastectomy. No regard is taken as to the size of the tumour, disease stage or the condition of the lymphatic nodes. It is routinely performed at the same time as mastectomy (9, 21, 27, 40, 43).

This point of view is based on the knowledge that no significant differences in the incidence of local relapse or survival length have been found between a simple mastectomy, resection operations, and mastectomy with immediate reconstruction (15, 16, 26, 46).

If a breast carcinoma is considered to be a systemic process, then these results are logical, as all the procedures mentioned above are accompanied by systemic therapy (47).

In the Czech republic the situation remains different. It is interesting that Czech oncologists have, relatively speaking, welcomed resection procedures (partial mastectomy), though with a delay of several years, while on the other hand many have been persistently refusing breast reconstruction. There probably exists a combination of distrust in its oncological safety and of a fear of relapse, along with lasting bizarre reconstruction results from the past that were actually nothing but a burden without any real aesthetic benefit (1) (see Fig. 11).

Furthermore, one cannot use data from foreign studies because they concern immediate reconstruction (which is not performed in the Czech Republic at all), along with which a patient undergoes complex oncological treatment (18, 19, 20, 21).

It is known, however, that a breast carcinoma may form metastases after many years (4, 12, 25).

Paradoxically from the aspect of disease characteristics, an attending Czech oncologist approves of reconstruction at a time when a patient is thought disease-free in the long run, but she is only followed up after an oncological therapy terminated long ago. This type of surgery is named after its timing as a delayed or better to say a late reconstruction.

Is it really safer or, on the contrary, may this timing be more dangerous?
What is actually a trigger mechanism?
What leads to a provocation of disease relapse and tumour activation by surgery?
Are there any possible reasons for a hypothetical option?

1. A *patient is in a disease free stage and she is no longer being treated oncologically* – compare with the theory of dormant cancerous cells (9, 10).
2. *The length and type of anaesthesia may influence the general condition of the organism* – a lengthy surgery uses up more metabolic and immune reserves (a non-specific immunosupressive effect as well as an antigen-specific response with long-lasting sedation, especially by thiobarbiturates and diazepam – 3, 38, 42).
3. *An administration of allogenous blood transfusion increases the risk of carcinoma progression* – proven clinically as well as experimentally in colorectal carcinoma, sarcoma, and lung cancer – no proof of a simple immunity mechanism (40).
4. *An irritation by a foreign material is possible on the local level* – the adherence of carcinoma cells is higher to natural protein-based materials made of more fibres than to man-made and inorganic monofilamentous ones. Its extent is given by the chemical composition of the fibre and its physical and surface structure (44).
5. *Mental stress* – often in highly motivated patients with a greater sensitivity toward external stimuli (14, 17, 24, 45).
6. *Hormonal dependency of the carcinoma* – the influence of the surgery, general anaesthesia, and endocrine stress response appear on the neurohumoral and immune systems of the body via the hypophyseo-adrenal axis (2, 3).

PURPOSE OF STUDY

Aware of the considerations above, the purpose of the study was to elucidate:

1. whether breast reconstruction not associated with systemic oncological treatment may trigger a relapse as a response to this provocation;
2. whether it may cause a decrease in survival time;
3. if there is any difference between the applied reconstruction methods.

MATERIAL AND METHODS

Comparing their disease course, this prospective study is observing a group of patients who underwent a late reconstruction and two control groups of similar oncological characteristics. All the patients followed suffered from stage I–II of breast carcinoma.

Study group of 95 patients with breast reconstruction

The average age of the study group at the time of diagnosis was 40.2 years. All patients underwent modified radical mastectomy with axilla exenteration and subsequent radiation, hormonal and chemotherapy, as the charts show (Figs l, 2, 3).

The breast reconstruction was performed in all of these patients at least 25 months after mas-

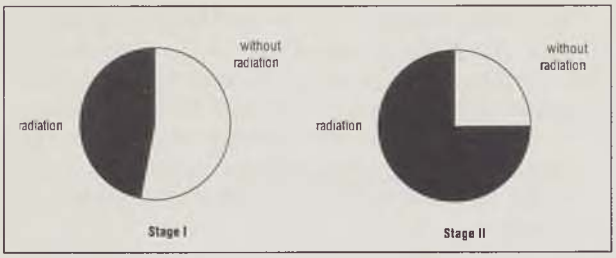

Fig. 1. Radiation therapy.

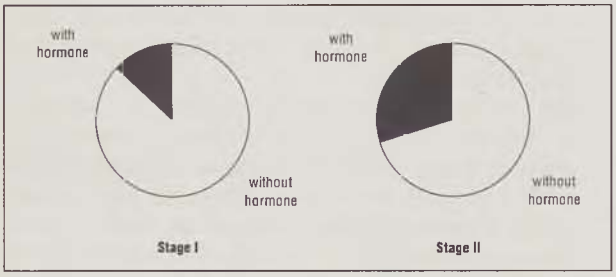

Fig. 2. Hormonal therapy.

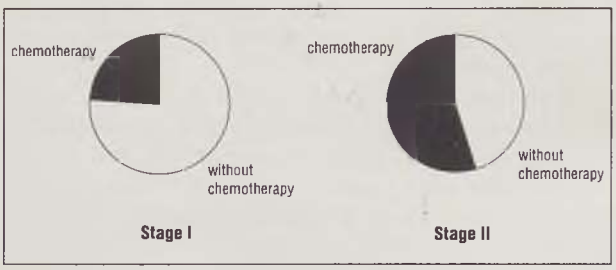

Fig. 3. Chemotherapy.

tectomy. The mean time of reconstruction was 70,5 months after mastectomy. The disease-free staging was assured just before reconstruction.

The surgeries were performed in a single institution from 1993–1996.

The available scale of reconstruction methods is very wide. Concerning the working hypothesis of observation, it represents a variable degree of burden. Therefore, only those methods achieving the bra shape of the breast within one operation and representing opposite poles in terms of complexity and the demands of the applied methods were intentionally included.

Regarding this load aspect of reconstruction, the study group (n = 95) was divided into two subgroups:

- the first with a synthetic implant ($n_1 = 33$) – augmentation by a simple implant, augmentation by Becker prosthesis, fasciocutaneous thoracodorsal flap with augmentation by synthetic insert;
- the other reconstructed by means of a musculocutaneous flap ($n_2 = 62$) – transverse rectus abdominis muscle (TRAM) flap either transferred by rotation or freely.

The following data were collected: total number of patients, average age at the time of mastectomy, average age at the time of reconstruction, duration of the surgery in hours (with respect to general anaesthesia), use of blood transfusion (%), foreign body surface (implant suture), surgical complications (%), local recurrence or distant metastasis (%), average time of origin after reconstruction, or corresponding moment in control group, in months, documented deaths (%), average time of death after reconstruction, or corresponding moment in control group, in months.

Data concerning the costs of basic reconstruction, including the length of hospitalisation, were collected simultaneously for the needs of health policy.

A psychosocial questionnaire evaluation of the influence of the reconstruction on the patient was randomly performed in 20 women.

As a hypothesis, the 12 months following the reconstruction were considered as the critical period for a possible somatic response bearing upon surgery and necessary for a manifestation of a possible relapse. During that time patients were checked every month. To allow for a comparison with both control groups and for possible delays in regular check-ups, the observation period was prolonged up to 24 months. This means that all oncological problems appearing between the reconstruction itself and a point 24 months after reconstruction were considered as a response to the reconstruction. However death culminated from those symptoms after 24 months period was taken on, too.

This hypothetical critical period for the manifestation of a somatic response to the surgery was based on the consensus and experience of ten specialists in breast carcinoma (four oncologists, two senologists, two oncological surgeons, and two plastic surgeons).

Two control groups

Control patients had the same oncological premise, i.e., stage I or II disease. Additional similar characteristics are specified for each control group in the following description.

- ***The first control group ($k_1 = 82$)***

This group consists o 82 patients who corresponded to the study patients in terms of average age, type of primary operation and subsequent oncological treatment. These controls were disease-free for at least 24 months after a mastectomy (the mean time was 38.2 months) and subsequently were followed-up for a minimum of 12 months and a maximum of 24 months. This means that all oncological problems appearing between these two timepoints were considered as corresponding to the critical period of the study group. However, a reconstruction was never performed in this control group. The control patients were selected from registers of the same oncological departments, as were the patients of the study group. This mode of control selection was the only possible way of making a comparison concerning primary oncological treatment in probates and controls, because in the Czech Republic there exist obvious differences and a wide variety

of basic oncological treatment protocols, depending on the particular oncologist.

• ***The second control group (k_2 = 19 625)***

The second group was formed o a patients with breast carcinoma stage I–II who were included into The National Oncological Register of the Czech Republic from 1985–1994, i.e. 19 625 patients. This period had ended just before this prospective study started. Concerning primary oncological treatment, it was chosen as comparable with the following period. Some reconstructions or partial mastectomies were performed in 1985–1994, but only sporadically. With regard to the number of patients, its size may be neglected for statistical data processing. The NOR contains reports and follow-ups after 1, 2, 3, 4, 5, and 7 years of all patients suffering from malignant diseases. The disease development of these afflicted persons in terms of the relative number of relapses and deaths was compared to the number of healthy and living patients, respectively, in the preceding year.

The following methods were used for statistical data processing:

1. chi-square test and its modification by Yates for four-field table and a chi-square test for a contingency table,
2. t-test,
3. a method of dispersion analysis.

Table 1. Comparison of study subgroup n_1, study subgroup n_2 and control group (k_1)

Observed group	n_1	n_2	k_1
Total number of patients	33	62	82
Average age at the time of primary operation	41.1	39.8	42.3
Average age at the time of reconstruction or at the corresponding time in controls	48.2	45.0	45.5
Duration of reconstruction with respect to general anaesthesia, in hours	1.7	5.1	–
Transfusion required (%)	0.0	98.2	–
Foreign body surface	implant, suture	suture	–
Surgical complications (%)	18.5	34.0	–
Local relapse or distant metastasis (%)	0.0	8.1	8.9
Average time of their origin after reconstruction or at the corresponding time in controls (months)	0.0	19.2	20.7
Documented deaths (%)	0.0	8.1	0.8
Average time of death after reconstruction or at the corresponding time in controls (months)	0.0	29.0	27.0

All tests were performed at the 5% significance level. In cases in which a level higher than 1 % was reached, this fact was also noted. The testing was performed by the team of prof. RNDr. J. Zvárová, DrSc., EuroMise according to the data provided by research and UZIS Praha.

RESULTS

The following survey of observed characteristics (Tab. 1) compares the study groups n_1 (the first subgroup with a synthetic implant) and n_2 (the second subgroup with TRAM) with k_1 (the first control group).

The following figures (Figs 4a, b) show the development of the entire group with regard to relapse and death (%) in successive years.

Yates' modification of the chi-square test did not show a significant difference at the 5% level in the percentage of deceased patients between those who underwent TRAM and those receiving an implant. The differences between individual groups in relative data on relapse and death inci-

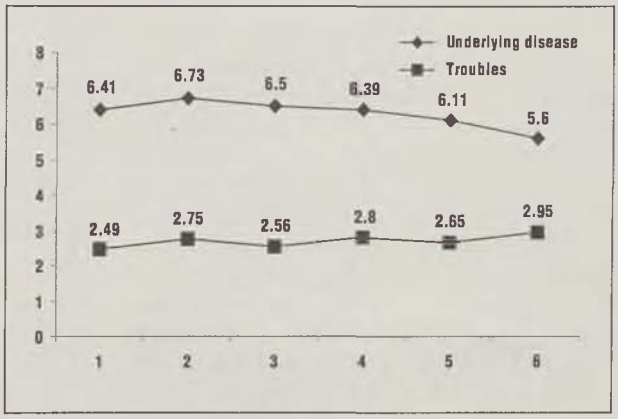

Fig. 4a. Incidence of underlying disease and troublesome conditions after primary surgery in successive years (troublesome conditions = a patient does not feel well, but there is no real evidence of tumour).

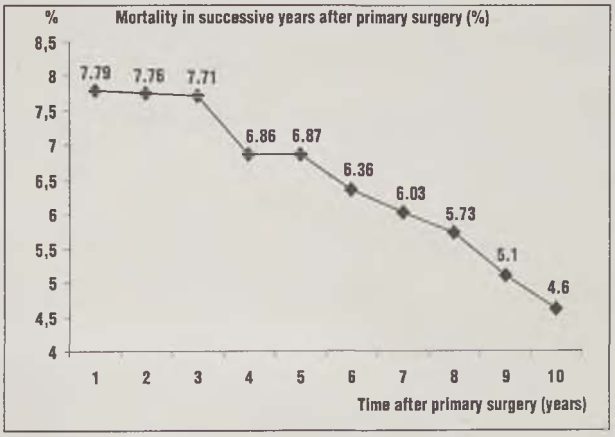

Fig. 4b. Mortality in successive years after primary surgery; values are related to actual number of survivors in the preceding year.

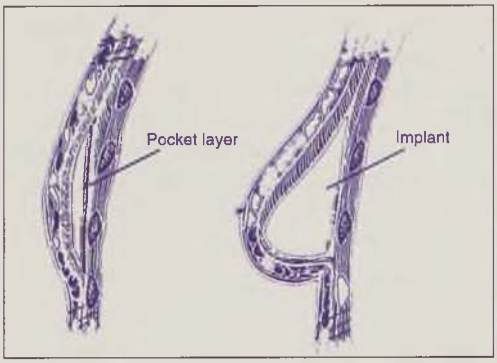

Fig. 5. Principle and breast reconstruction by the simple implantation of a breast prosthesis.

dence were not statistically significant at the 5% level.

No significant differences at the 5% significance level were found between individual methods and control groups in the number of local relapses and survival lenght. No significant difference in the evaluation of the aesthetic results was found between both methods.

The cost of reconstruction using proper live tissue is approximately twice as high. There are also significant differences in the duration of the operation, intensive care stay, and total hospitalisation time, in the use of blood transfusions, and in the number of members of the surgical team. Higher figures are seen with the TRAM flap method.

A psychosocial survey into the relationship between handicap and mutilation was performed.

No significant change in work ability was found.

The following figures 5–10 show the surgical methods employed, their principles and results.

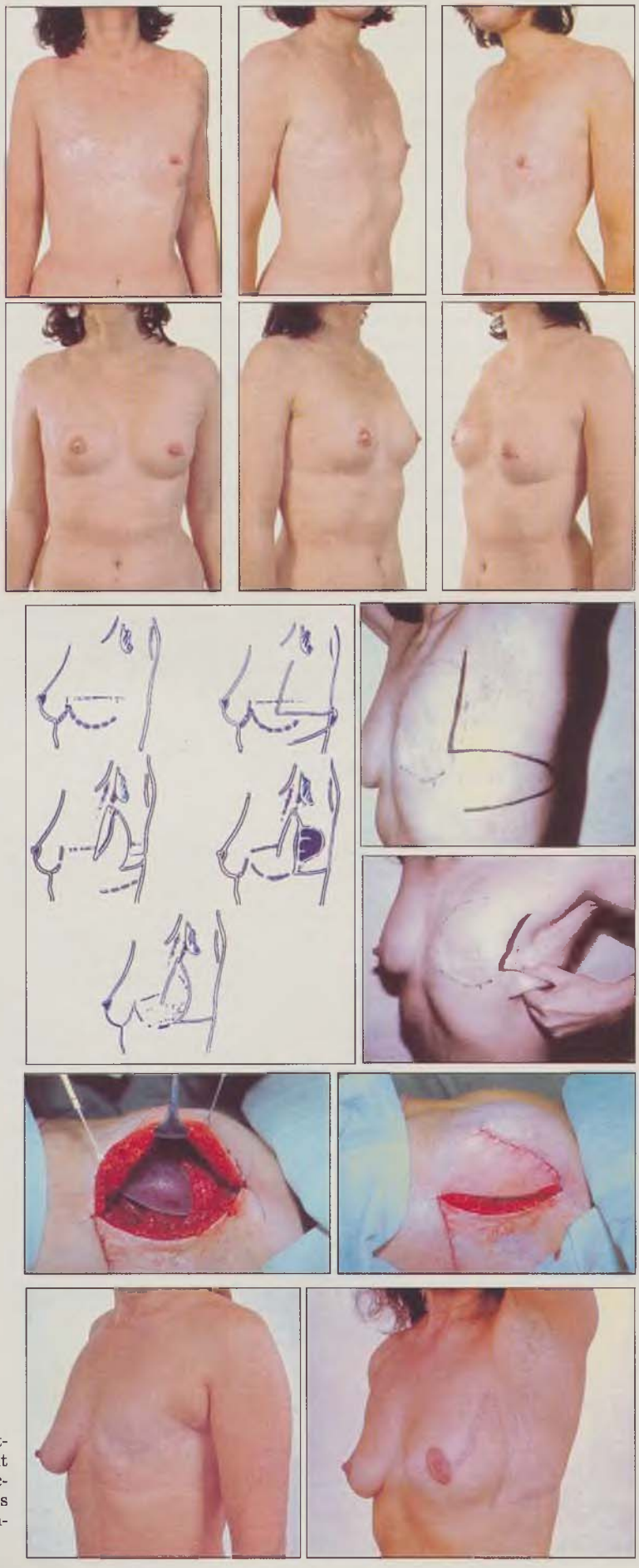

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Fig. 6. Principle and breast reconstruction by a lateral thoracodorsal flap (TD) with synthetic implant augmentation: pre-operation outline, tissue elasticity and ductility test, an implant under a pectoralis major muscle, a patient prior to and after reconstruction.

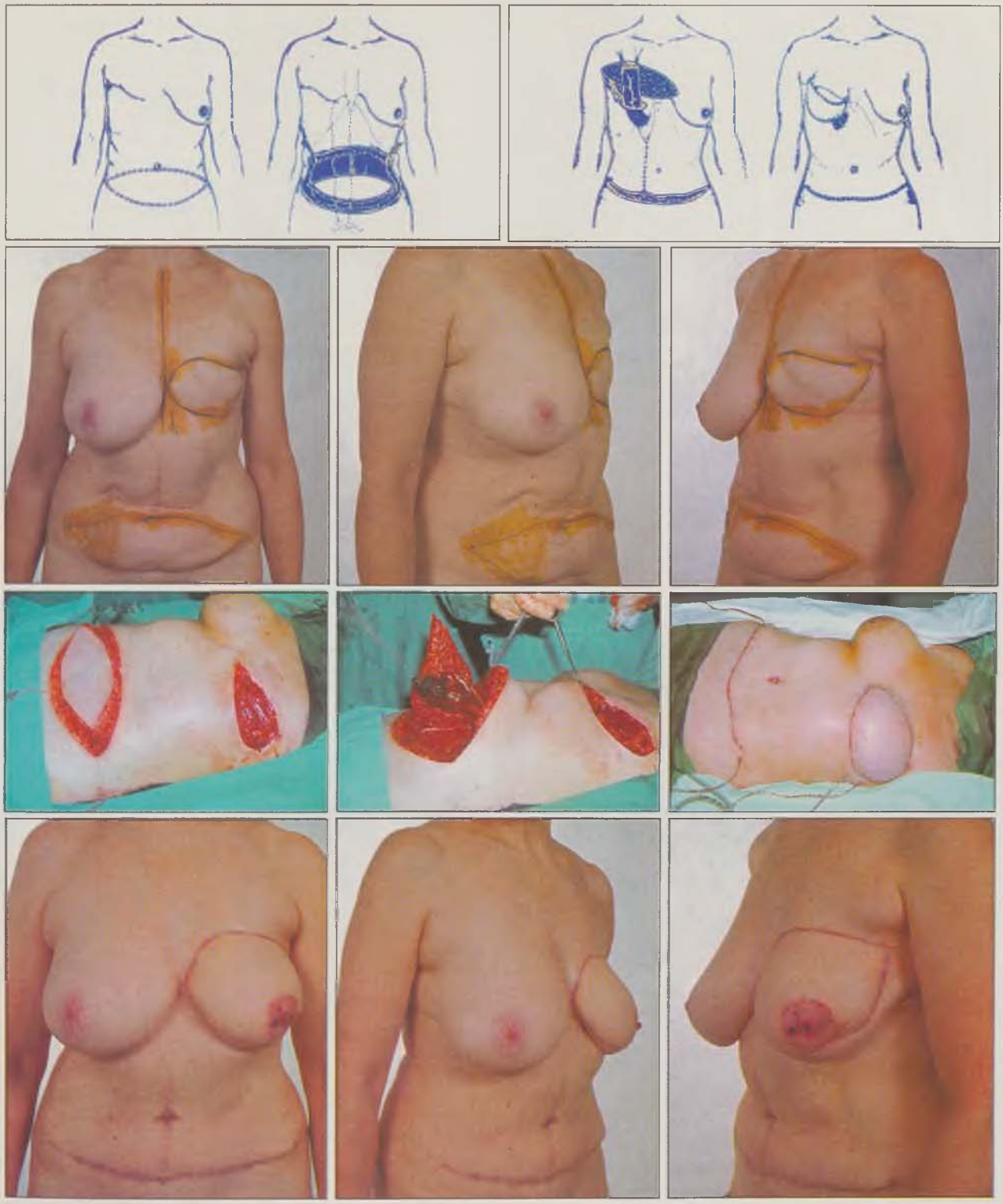


Fig. 7. Principle and breast reconstruction by a rotated transversus rectus abdominis musculocutaneous (TRAM) flap: rotation schema, a patient with pre-operation outline, a circumcised flap, thoracic space wide open, a flap pulled through and set up, a patient after termination of reconstruction.

DISCUSSION

Until 1989, breast reconstruction was rarely performed at The Department of Plastic Surgery in Prague – the largest plastic surgery centre in the Czech Republic. Figure 12 shows the increase in the numbers of patients undergoing reconstruction in 1985–1996.

The increase in the number of operations since 1991 is remarkable, due to the removal of clocking political and economic mechanisms. The routine use of new surgical techniques was

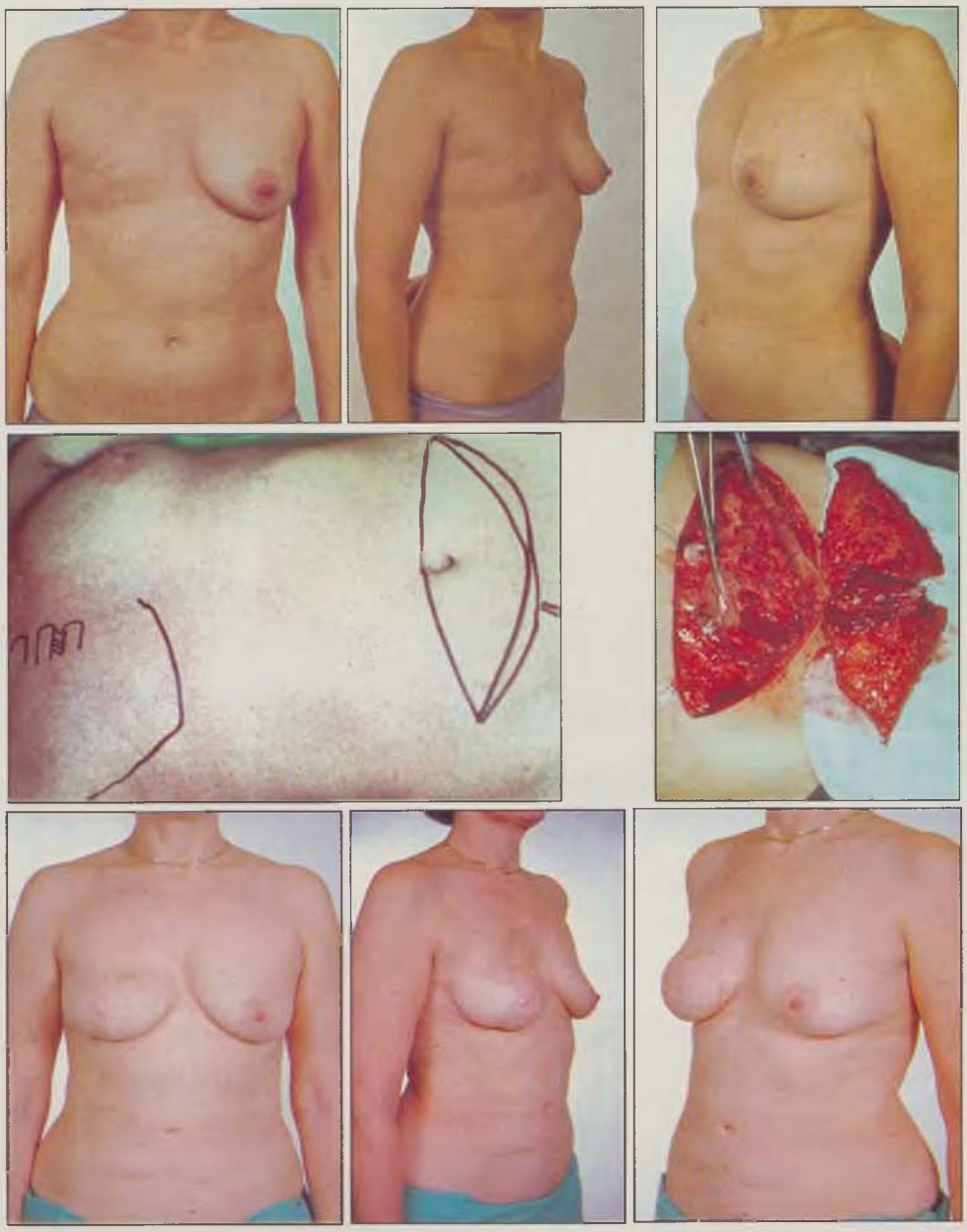


Fig. 8. Breast reconstruction by freely transferred TRAM flap: a patient after mastectomy, preoperation outline, an elevated flap with prepared vessels, a patient after reconstruction.

started after 1989 as well as the registration and regular import of contemporary synthetic implants produced by renowned companies. However, the numbers are still low.

American publications mention a 38% frequency of reconstruction compared to more modest data in European countries (between 10 and 20%) and Taiwan (5%) (2, 6, 29, 37).

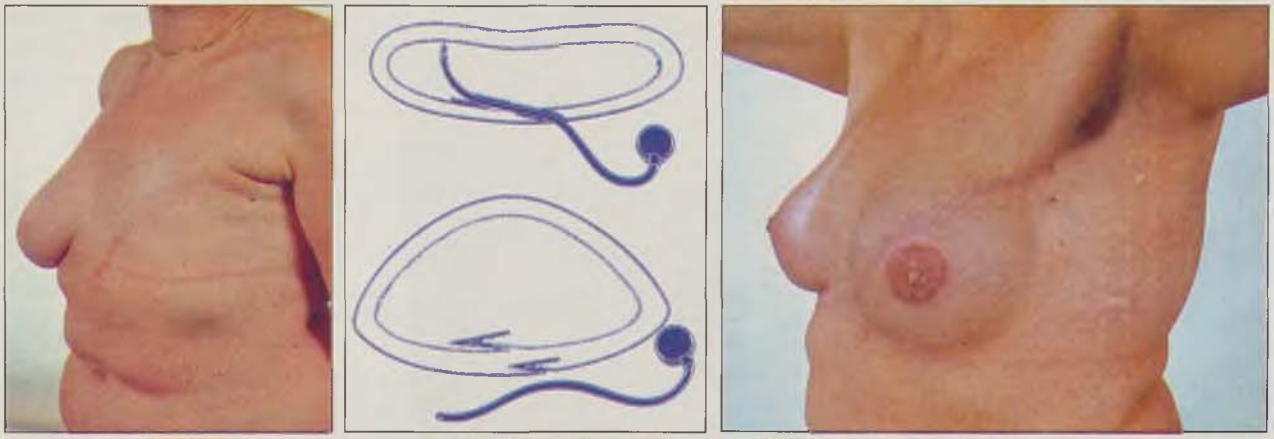
Considering the number of reconstructions performed during 1990–1996 at the Department of Plastic Surgery in Prague and other large involved facilities in the Czech Republic, the 332 reconstructed patients represent less than 2 % of the total number of patients in stage I–II during the respective period (49).

Even these numbers may be misleading. Current foreign data apply to immediate reconstructions that are not done in this country at all. Three-quarters of all operations take place more than 2 years after the primary oncological treatment.

The usual reasons for such an approach are the uncertain peroperative histologic classification of the tumour, uncertain prognosis quo ad sanationem et quo ad vitam and thus a futile burden of the operation for the patient. An important argument of the oncologists against reconstruction is the possibility of resection. However, it has been proven that resection followed by radiotherapy results in an aesthetically acceptable outcome in only 75 % of patients. Moreover, it is more technically demanding than a simple ablation. If it is not done by an experienced surgeon, the results are unsatisfactory both from a medical and aesthetic point of view (5, 31, 39, 48).

In accordance with the main idea of the project, the study group was selected so that the influence of systemic treatment after the primary operation was eliminated. Therefore, only patients who underwent the primary tumour surgery at least 25 months before reconstruction were followed.

As a hypothesis, the 12 months following the reconstruction were taken as the critical period during which patients were checked monthly for a possible somatic response leading to a relapse. To allow for a comparison with control groups and possible delays of regular check-ups in non-reconstructed patients, the observation period



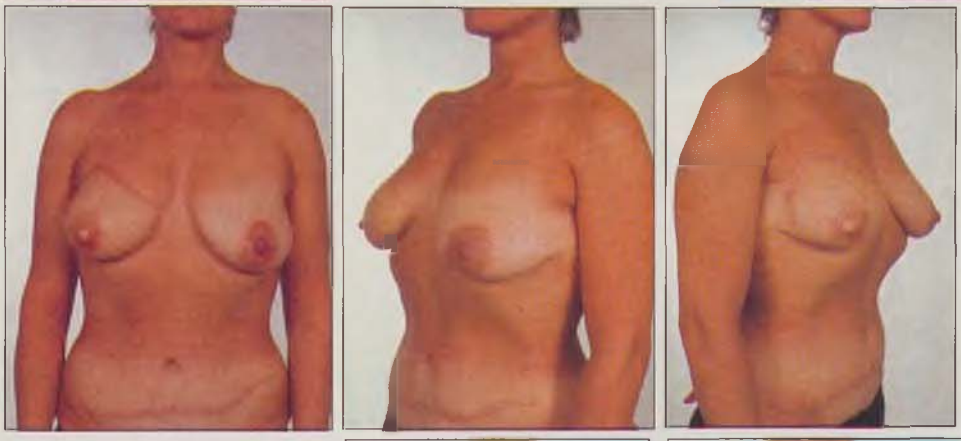


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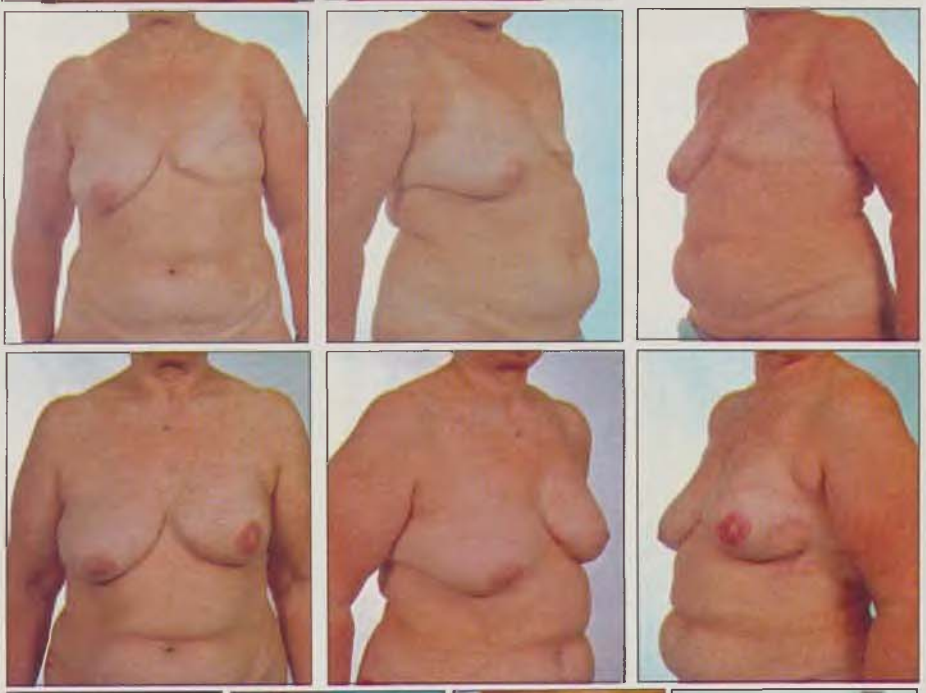
Fig. 9. Ideal result with Backer prosthesis and with free TRAM flap.

was prolonged up to 24 months. This hypothetical critical period for the manifestation of a somatic response to the surgery was based on the consensus and experience of ten specialists in breast carcinoma (four oncologists, two senologists, two oncological surgeons, and two plastic surgeons). This means that all oncological problems appearing between the reconstruction itself and a point 24 months after reconstruction were considered as a response to the reconstruction.



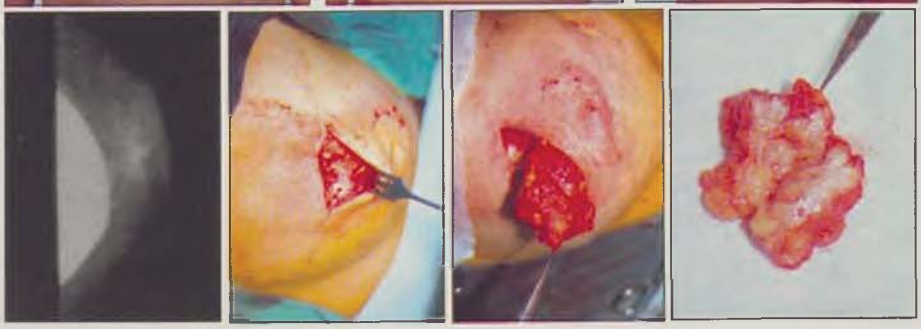


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Fig. 10. Local relapse of a cancer in a post-mastectomy scar in breast reconstructed by a flap and prosthesis: conditions after mastectomy, after reconstruction, tumour relapse on mastogram, technically easy total extirpation.

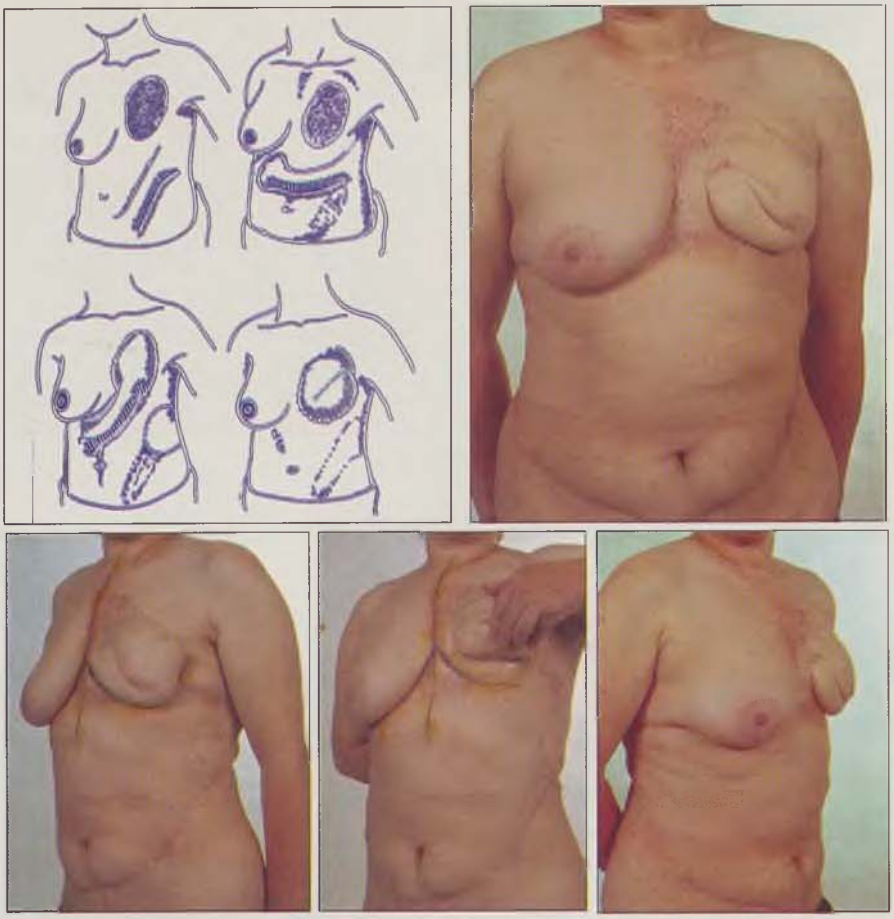

Fig. 11. Historical reconstruction by a tubulised flap: principle of formation and transposition of the flap; a patient with a reconstructed breast; scars on abdomen and hip due to flap transposition.

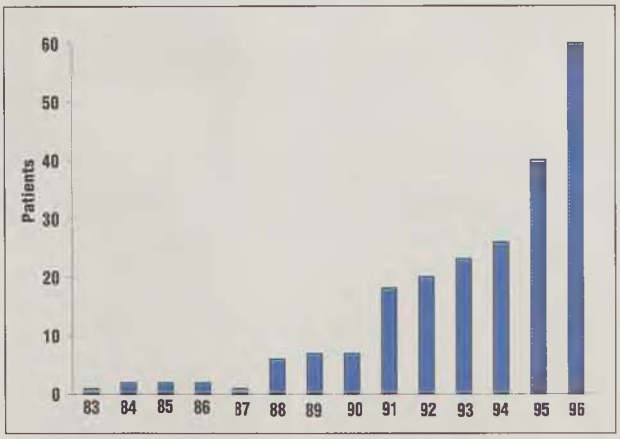

Fig. 12. The number of reconstruction done at the Department of Plastic Surgery, Prague, during 1983–1996.

The scale of available reconstruction methods is very wide. Concerning the working hypothesis of this study, it represents a variable degree of burden. Therefore, only those methods that achieve the bra shape of the breast within one operation and represent opposite poles in terms of the complexity and demands of the applied methods were intentionally included. Regarding this aspect, the tested group (n = 95) was divided into two subgroups – first (simple approach, using implant) and second (complex surgery – TRAM flap).

The statistically important differences in costs, duration of intensive care, total hospitalisation time, duration of general anaesthesia, and the use of blood transfusions are apparent. The hard core advocates of breast reconstruction by means of an implant even claim that the risk of heterologous blood transfusion is much higher than the risk of prosthesis side effects. The complicated situation concerning prostheses calls for further consideration of autologous live tissue (11, 22, 23, 28, 40, 45).

This view is still supported by the data of Dr. C. Neuhann-Lorenc from 1993–1994. She asked female plastic surgeons what would they do if the decision-making on the use of an implant versus live tissue concerned themselves or other vomen. The implant was chosen for their personal use by 65 % of European surgeons and 60 % of American ones, whereas only 47 % of the Europeans and 46 % of the Americans would use it for a patient. The researcher deduced that female surgeons worry less about the implant for themselves than about a possible legal suit.

The issue of diagnosis and treatment of the systemic progression of the disease is naturally not solved by any approach to local treatment. However, this is different in the case of a local recurrence. As long as many consider this the indicator of the systemic condition and there is a 60–90% association with the start of a distant metastatic process, early diagnosis is necessary. Superficial relapses are not problematic, but the matter rests in metastases and relapses under the implant or the flap. When in doubt, a MRI examination is recommended. Neither local nor systemic relapse treatment is limited by breast reconstruction (31, 34).

There are significant differences in the duration of the operation, intensive care, and total hospitalisation time, in the use of blood transfusions, and in the number of members of the surgical team. Higher figures are found with the TRAM flap method (30, 41). No significant differ-

ences were found in an evaluation of the aesthetic results of either method.

The first control group ($k_1 = 82$) corresponded to the study group not only in terms of tumour stage but also in average age, time of the start of the disease, type of primary operation and subsequent oncological treatment as well. These controls were disease-free for 48.2 months on average after a mastectomy and subsequently were followed-up for a minimum of 12 and a maximum of 24 months. This means that the subsequent follow-up time was considered as corresponding to the critical period of the study group. However, a reconstruction was never performed in this control group. They were selected from registers of the same oncological departments, as were the patients of the study group. This mode of control selection was the only possible way of making a comparison concerning primary oncological treatment in probates and controls, because in the Czech Republic there exist obvious differences and a wide variety of basic oncological treatment protocols, depending on the particular oncologist.

The second control group ($k_2 = 19\ 625$) was based on the National Oncology Register data. It was composed of all patients with breast carcinoma stage I–II from 1985–1994. This period had ended just before this prospective study began. Concerning primary oncological treatment, it was chosen as being comparable with the following period. Some reconstructions or partial mastectomies were performed in 1985–1994, but only sporadically. With regard to the number of patients, its size may be neglected for statistical data processing. The total number of breast carcinoma diagnoses in stages I–II in successive years was recorded. The disease development in terms of the relative number of relapses and deaths was compared to the number of healthy and living patients, respectively, in the preceding year.

A psychosocial survey into the relationship between handicap and mutilation was performed. The influence of mutilation on handicap and the patients' ability to work was not found to be important. The causes of a psychosocial effect could be rather seen in a patient's individuality and her attitude toward systemic disease, which are not changed by reconstruction (13).

Breast reconstruction is only exceptionally covered as a whole by insurance abroad; usually a patient must participate financially. Most insurance companies require a report by an oncologist. Data concerning the costs of basic reconstruction, including the length of hospitalisation, were collected simultaneously for the needs of health policy. The cost of reconstruction using proper live tissue is approximately twice as high.

Under the local circumstances it has been realised that coverage by health insurance is necessary to keep this operation available to the majority of patients concerned. Taking into consideration the very limited number of patients, it does not represent a substantial part of available financial resources. A rapid increase in demand cannot be expected, since currently both oncologists and patients prefer resection surgery (partial mastectomy – 45, 49).

The preconditions of success are not only the technical aspect of the operation, but also good communication between the surgeon and patient, a thorough examination, and a detailed analysis of all circumstances. A patient must be individually indicated for the reconstruction operation in close co-operation with the interdisciplinary breast cancer team. There exists a historically negative attitude on the part of Czech oncologists towards reconstructive surgery. Therefore, this study had been conducted as a broad interdisciplinary research. It may serve as a communication aid among specialists. Only if all sides understand each other will there be an improvement for patients.

No significant differences at the 5% significance level were found between individual methods and the control groups in terms of the number of local relapses and survival length. However, the number of observations was only 95. It would certainly be very interesting to find a control group of women who underwent another demanding operation, comparable with the TRAM flap, for a continuing study. This is a difficult task because the extent and duration of such an operation is not common, thus to find a sufficiently large group will be a problem. With regard to the Czech population, a complicated surgery on the biliary system lasting more than 4 hours could be considered for a comparison.

CONCLUSION

Breast reconstruction can become an integral part of the complex therapy in breast cancer only if patients are carefully acquainted with the potential risks of this procedure. Besides the usual surgical complications, there are typical problems concerning breast reconstruction. The most serious of them are probably a local recurrence of the tumour, systemic cancer, and their detection and management.

It has been shown that there is no difference in local recurrence and survival time of patients treated by mastectomy, partial mastectomy or by mastectomy with immediate reconstruction. However, all these procedures are accompanied by systemic oncological treatment.

The working hypothesis of late breast reconstruction (i.e. not associated with oncological treatment) being a possible trigger effect on the subsequent course of breast cancer has not been confirmed.

No statistically significant differences at the 5% significance level were found between individual reconstruction methods and control groups in terms of the number of local relapses and survival length.

Though a statistically significant difference has not yet been observed, it is not possible to exclude that in a clinical setting and in a larger number of observations, it could be found. A study of the subsequent development of malignancies after other complicated operations could bring another answer.

Further knowledge may then lead to the inclusion of breast reconstruction as an integral part of breast cancer therapy. At the moment, breast reconstruction is regarded as an option in complex breast cancer therapy, improving the quality of life and providing valuable psychosocial support.

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Editors apologize for the wrong spelling of the title of an article in last number of this journal and its incorrect German summary. The right form follows:

ACTA CHIRURGIAE PLASTICAE 43, 1, 2001, pp. 17–20

TRAUMATIC SKIN LOSS FROM THE MALE GENITALIA

Hrbatý J., Molitor M.

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ZUSAMMENFASSUNG

Der unfallbedingte Hautverlust am Penis und am Hodensack

Hrbatý J., Molitor M.

Die beiden Autoren präsentieren die Kasuistik eines 35-jährigen Patienten mit dem Hautverlust am Penis und am Hodensack. Zur Therapie im akuten Zustand unter Berücksichtigung der finalen Behandlung wurde die Übertragung des fasciocutanen Freilappens angewandt. Zur Rekonstruktion des Hodensackes diente der sensitive chinesische Lappen, zur Abdeckung des Penisdefekts wurde ein Hautspalt verwendet. Die Heilung verlief ohne Komplikationen. Die Autoren halten diese Methode für vorteilhaft unter zwei Hinsichten: 1. ein fast normales Aussehen des Hodensackes und Penis nach der Behandlung, 2. die physiologische Position der Hoden. Nach weniger als 4 Monaten konnte auch Sexualverkehr ausgeübt werden.

ACTA CHIRURGIAE PLASTICAE 43, 2, 2001, pp. 54 - 56

LOCAL TREATMENT OF FACIAL LIPODYSTROPHY IN PATIENTS RECEIVING HIV PROTEASE INHIBITOR THERAPY

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SUMMARY

Localized facial lipodystrophy is a socially disabling complication affecting many HIV-seropositive patients receiving triple combination therapy. The exact pathogenesis is not well understood and proper therapy is not available. The purpose of this pilot-study was to determine whether a hyaluronic acid gel, used to treat wrinkles for cosmetic reasons, would be a safe and effective treatment for facial lipodystrophy in patients receiving triple combination therapy. Seven patients were treated with intradermal gel injections after skin tests. There were no immediate or late allergenic reactions or other side effects. Within the limitations of the product, overall satisfaction regarding the results was high.

ZUSAMMENFASSUNG

Lokaltherapie der fazialen Lipodystrophie bei der Patienten, die durch Inhibitor der HIV Protease behandelt werden

Ritt M. J. P. F., Hillebrand-Haverkort M. E., ten Veen J. H.

Lokalisierte faziale Lipodystrophie stellt ein Sozialhandicap dar, das bedeutende Anzahl der HIV-positiven Patienten betrifft. Exakte Pathogenese wurde noch nicht ganz erklärt und entsprechende Behandlung ist nicht bekannt. Der Zweck dieser Pilotstudie wurde es festzustellen, ob die Hyaluronsäure in der Gelform, die zur kosmetischen Faltenbehandlung benutzt wird, ein sicheres und effektives Mittel zur Therapie der fazialen Lipodystrophie bei den HIV-positiven Patienten sein könnte. Sieben Patienten wurden nach der Durchführung der Hauttesten die intrakutane Gelspritzen appliziert. Es wurden keine unmittelbare oder späte allergische Reaktionen, geradeso keine Nebensymptome vermerkt. Die Ergebnisse waren angesichts der Einschränkung der Behandlungsmittel sehr gut.

Key words: lipodystrophy, protease inhibitor therapy, hyaluronic acid

Lipodystrophy is a serious and socially disabling complication affecting many HIV-seropositive patients receiving highly active antiretrovirus therapy (HAART), also known as triple combination therapy. The exact pathogenesis is not well understood and proper therapy is not available. However, as there is evidence that this local lipodystrophy is caused by protease inhibitors used in the triple therapy, many patients have changed their virologically successful therapy or even discontinued it.

The lipodystrophy is characterized clinically by the symmetrical loss of subcutaneous fat tissue from the body surface. In contrast, there can be local fat deposition in the buttocks and abdomen giving an impression of obesity. However, most disfiguring is the disappearance of subcutaneous fat from the face. There is a cachectic appearance as a result of the loss of buccal, parotid and preauricular fat pads with sunken eyeballs, prominent zygomata and sharply defined nasolabial folds. Although patients benefit a lot from the triple therapy and feel more fit and healthy, they look tired and ill. What used to be the Kaposi-sarcoma is now lipodystrophy: the stigma of being infected with HIV and by which one can be recognized in public.

The purpose of this pilot-study was to determine whether a hyaluronic acid gel, used to treat wrinkles and folds for cosmetic reasons, would be a safe and effective treatment for facial lipodystrophy in patients receiving triple therapy.

PATIENTS AND METHODS

In June 1999 we treated seven patients on HAART suffering from facial lipodystrophy with intradermal Hylaform® viscoelastic gel injections (Biomatrix Inc., Ridgefield NJ, USA) in the nasolabial fold bilaterally. Viral load and CD4-cell

count were determined before beginning of the treatment. A combination of the multi-puncture technique and a treading technique was used in one session per patient. It was attempted to inject into the reticular layer of the dermis. After injection the skin was kneaded between thumb and index fingertip, thereby spreading out the gel evenly. Before the actual treatment, every patient was subjected to a skin test in order to rule out any possible allergenic reactions or other side effects. An intradermal injection on the dorsal side of the lower left arm with 0.1 ml of Hylaform® viscoelastic gel was used. This was done twice with an interval of two weeks. Inspection of the test site was done three days and two weeks after injection. The final effect of the treatment of the nasolabial folds was judged by the patients and authors one week and one month after injection. Photographs were taken before and one month after therapy.

Fig. 1. Left nasolabial fold of the patient in case 1 before treatment.

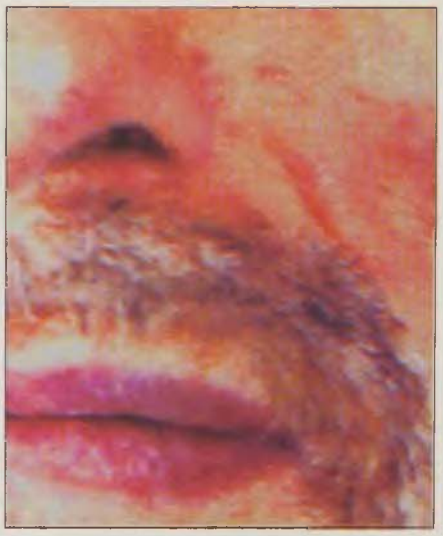

Fig. 2. Left nasolabial fold of the patient in case 1 one month after injection of 1.5 ml Hylaform® intradermally.

REPRESENTATIVE CASE REPORT

A 37-year-old HIV-seropositive homosexual male started AZT and 3TC medication in May 1994. In October 1996 this was discontinued and a triple therapy including the protease inhibitor ritonavir was started. Lipodystrophy was first noticed in February 1997. As a direct result of this he gradually became socially isolated and by the end of 1998 he stayed home from work because he felt his appearance was not presentable in public, although his friends and colleagues had tried to convince him that this was very much his own subjective feeling. Otherwise he was in good health, with a viral load of < 50 copies/ml and a CD4-cell count of 520/mm^3. In June 1999, only the nasolabial folds were treated with in total 3 ml Hylaform® viscoelastic gel. At the final evaluation, there was a small but noticeable effect objectively: the folds were less deep en less sharply defined (Figs 1, 2). Subjectively, the patient remarked that his whole appearance had improved because of the smoothed nasolabial folds. Friends and relatives had noticed a positive change in his appearance without knowing he had undergone injection treatment. He requested treatment of other wrinkles and folds as well.

RESULTS

There were no immediate or late allergenic reactions or other side effects. The total procedure of injecting both nasolabial folds took on average 30 minutes per patient. In total, no more than 3 ml of Hylaform® viscoelastic gel was used in each patient, costing approximately 450 Euro. Some punctate bleeding and swelling occurred, but the effect of the treatment was immediately visible. All patients experienced the treatment as a little painful, but easy to overcome. At final evaluation, all patients felt they had improved. Many of them remarked that their facial contours had softened and all of them had had positive reactions from their social environment. Those patients with less severe lipodystrophy were most satisfied. One patient, who had stopped working, had resumed work again. In general, the authors were of the same opinion as the patients. When looking only at the nasolabial folds, there was a small but noticeable effect: the folds were less deep en less sharply defined. In more severe cases of facial lipodystrophy however, it was felt that the procedure perhaps should be repeated to achieve maximum effect, as there is a known cumulative effect using these intradermal injections.

DISCUSSION

HIV protease inhibitors confer virological, immunological, clinical and survival benefits (Danner, 1995; Hammer, 1997). However, localized and/or generalized lipodystrophy is an unwanted and frequent side effect and of growing concern to patients receiving HAART. Already there is a call for newer HIV protease inhibitors that do not cause these side effects (Carr, 1998). Until then, a growing number of patients will turn to their plastic surgeon asking for treatment, especially when the lipodystrophy affects the face and is confrontingly present.

Due to the HIV infection and their medication, these patients have an immune system that is easily disturbed and therefor the reaction of these patients to implanted foreign bodies or injected materials is somewhat unpredictable. This is one of the reasons why we chose not to try autologous fat injections and tried to avoid the use of injectable implants, which could cause an allergenic or inflammatory response. Hylaform® viscoelastic gel has been proven in international multicenter studies to be safe. It did not cause any acute or chronic allergenic reactions in more than 279 patients (Balazs, 1995). Although it is of animal origin, it is highly purified (less than 5–30 μg/ml protein derived from birds) and a skin test is neither mandatory nor recommended in healthy patients. In addition, Hylaform® viscoelastic gel has the advantage to fully resorb within one year, so that any unwanted cosmetic effects would only be temporary.

Although the current pilot study included only a few patients, we feel that the results indicate that Hylaform® is probably also safe to use in patients receiving HAART. Within the limitations of this product, overall satisfaction regarding the results was high. However, most of these patients demonstrate localized lipodystrophy characterized clinically by a more substantial loss of facial subcutaneous fat tissue.

To treat these patients effectively, much more volume is needed which should be deposited subcutaneously, rather than intradermally. This cannot be done using Hylaform®. Recently, a new product (New-Fill®, Ashford Aesthetics N. V., Brussels, Belgium) has become available that probably is better suited to fulfil the needs in these types of patients, i.e. large volume deposition subcutaneously. It is a hydrogel of polygalactic acid, which possesses visco-elastic and pseudoplastic qualities that are necessary when injecting and handling. Furthermore, it is neither cytotoxic nor genotoxic as the acid is obtained by biosynthesis. It is marketed as being absolutely nonallergenic. Still, it would be most advisable to use this new product again under limited and controlled circumstances including skin tests.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

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ACTA CHIRURGIAE PLASTICAE 43, 2, 2001, pp. 57 - 60

SPECIAL FEATURES OF BURN INJURIES IN ELDERLY PATIENTS

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SUMMARY

Types of burns and other aspects of burn injuries and case outcomes were assessed in a group of geriatric patients (> 60 years) and a younger group of patients (40–59 years). Between 1990 and 1999, 137 geriatric patients (47 [34 %] males and 90 [66 %] females) were admitted to the Burn Centre and Reconstructive Surgery Centre at University Hospital in Brno. We compared findings in this elderly group to those in 176 younger burn patients (126 [72 %] males and 50 [28 %] females) who were treated at the centre during the same time period. Age and concomitant chronic disease contribute to the high mortality and a higher frequency of complications in geriatric patients who suffer burn injuries. In this study, the complication rates for geriatrics during hospitalization (44 % in males and 32 % in females) and the elderly patients' mortality rates (26 % in males and 17 % in females) differed statistically from the corresponding rates in the younger patient group. It is important to know the special needs of elderly burn patients because this patient group is expected to grow in parallel with the rising average age of the Czech Republic's population.

ZUSAMMENFASSUNG

Besondere Merkmale der Vebrennungsverletzung bei älteren Patienten

Koupil J., Brychta P., Říhová H., Kincová Š.

Die Verbrennungsart, andere Aspekte der Verbrennungsverletzung und der Fallergebnis wurden festgestellt bei der Gruppen von geriatrischen Patienten (> 60 Jahre) und jüngeren Patienten (40–59 Jahre). In den Jahren 1990–1999 wurden am Verbrennungszentrum und Zentrum für plastische Chirurgie des Fakultätskrankenhauses in Brünn insgesamt 137 geriatrischen Patienten (47 [34 %] Männer und 90 [66 %] Frauen) behandelt. Wir verglichen diese Gruppe mit einer Gruppe von 176 jüngeren Patienten, die an der genannten Arbeitsstäte in gleicher Zeitspanne behandelt wurden. Das Alter und die begleitende chronische Erkrankung beiträgt zur höheren Sterblichkeit und höherem Vorkommnis der Komplikationen bei geriatrischen Patienten, die von der Vebrennungsverletzung leiden. In dieser Studie wies die Gruppe von geriatrischen Patienten im Vergleich mit der Gruppe von jüngeren Patienten signifikant höheres Vorkommnis der Komplikationen während Hospitalisierung (44 % bei den Männer und 32 % bei den Frauen) und der Sterblichkeit (26 % bei den Männer und 17 % bei den Frauen) auf. Es ist wichtig die spezifische Bedürfnisse der älteren Verbrennungsverletzten zu erfassen, besonders hinsichtlich des Anstiegs dieser Patientengruppe infolge des steigenden Durch schnittsalters der Bevölkerung der Tschechischen Republik.

Key words: burn accident, geriatric patient, complications of burn injury

Similar to the situation in other Central European countries, the average age of the Czech Republic's population is rising. Currently, 13 % of our people are over 60 years old, and 2.5 % are older than 80 years (3). From 1989 to the present date (since the totalitarian government was overthrown), the average age for men has increased by 3 years to reach 70.5 years, while that for women has risen 1.6 years to reach 77.6 years. It is predicted that 30 years from now, a quarter of our country's population will be of geriatric age.

MATERIAL AND METHODS

We conducted an epidemiological study to retrospectively compare geriatric burn patients and younger burn patients in terms of mortality, morbidity, type of burn injury, patient age and systemic complications. Between 1990 and 1999, 137 geriatric patients (47 [34 %] males and 90 [66 %] females) were admitted to the Burn Centre and Reconstructive Surgery Centre at University Hospital in Brno. We compared findings in this elderly group to those in 176 younger burn patients (126 [72 %] males and 50 [28 %] females) who were treated at the centre during the same time period.

RESULTS

Patient age

In the elderly patients, the average age at hospitalization was 71 years for males and 75 years for females. The corresponding mean ages

in the younger group were 47 years for males and 50 years for females.

Type of burn injury

The next figure illustrates the cause of burn injuries in the geriatric patients (Fig. 1). Scalding was most common and was involved in 79 of the cases (58 %). Many of these burns were caused by a hot-water bottle bursting or by falling into a bath. Some cases involved carelessness or a specific motor disability (e.g., disability after stroke, epilepsy, Parkinson's disease). In 39 cases (28 %; 22 females and 17 males), the burn caused by a flame or by an explosion due to gas leaks from tanks or malfunctioning electrical appliances. Carelessness and ignorance featured in many of these cases. All 14 cases (10 %) of contact burn were caused by electrical fire. The remaining 5 (4 %) burns were due to various other causes, such as chemical burns.

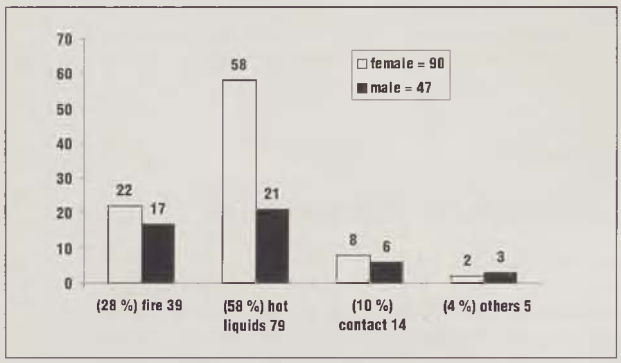

Fig. 1. Distribution of the various types of burn injury in the geriatric patient group (> 60 years).

In the younger patient group, fire or explosion caused 84 of the burn cases (48 %). These accidents involved men more often than women, and there was a high incidence of work-related burn injury (Fig. 2). Scalding was the second most common cause, accounting for 66 cases (37 %). The findings indicated that these types of burns were most often seen in housewives who sustained burns from spilling boiling water. Nineteen (11 %) of the burns were contact burn injuries, and the remaining 4% of burns were caused by other mechanisms.

Urban versus rural setting

A comparison of the incidence of burn accidents in urban and rural areas revealed that the younger patients living in urban settings were treated for burns twice as often as their counterparts from the rural environment. On the other hand, in the older patients, the proportion of older patients from urban settings was very similar to that from rural settings.

Mortality

The overall mortality in the elderly patients was 21 % (29 cases), with a rate of 26 % in males and 17 % in females (Fig. 3). Of the 29 deaths, 48 % resulted from a fire in the home, 17 % from a gas explosion, 18 % from a scald injury, 7 % from burns caused by flammable liquids, and 10 % were due to other types of burns. In the younger patient group, overall mortality was 3 %, with 5 male deaths (4 %) and 1 female (2 %). The groups' mortality rates differed significantly.

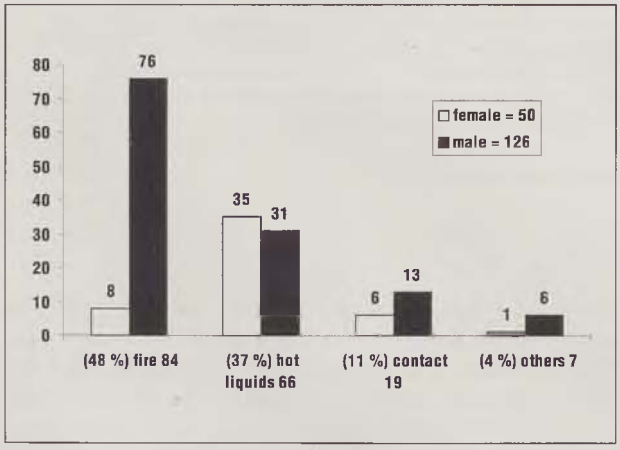

Fig. 2. Distribution of the various types of burn injury in the younger patient group (40–59 years).

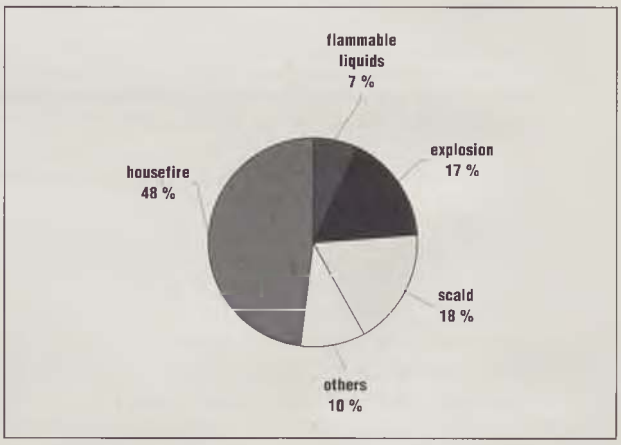

Fig. 3. Mortality in the elderly patients, listed according to cause of accident (29 cases).

Tab. 1. Extent of burns in geriatric patients

TBSA	< 1 %	1–4 %	5–9 %	10–14 %	15–30 %	> 30 %
Superficial and partial thickness burn wound	5 (3 %)	25 (18 %)	18 (13 %)	8 (6 %)	3 (2 %)	3 (2 %)
Full thickness burn wound	21 (16 %)	12 (8 %)	17 (12 %)	12 (8 %)	8 (6 %)	5 (3 %)

Extent of burns in elderly patients

Twenty-five patients sustained burns involving less than 1 % total body surface area (TBSA). All of these patients survived. Forty patients had burns between 1–5 percent TBSA. Thirty-five patients sustained burns of 5–9 % TBSA, twenty patients between 10–14 % and nineteen patients had burns of more than 15 % TBSA (Tab. 1). All patients who died had burns greater than 30 percent of TBSA.

Hospital stay

The average hospitalization time in the geriatric group was 24 days for males and 18 days for females. The corresponding means for the younger patients were 17 days for males and 21 days for females. The difference between the younger and older groups was not statistically significant.

Treating the burn wound

In the elderly patients, conservative treatment was used in 41 % of the male cases (21 cases) and 31 % of the female cases (28 cases). Surgical management (excision and autografting) was significantly different in this group: 59 % (26 cases) of the males and 69 % (62 cases) of the females. However, the rate differences between the two groups (younger and elderly patients) were not statistically significant (Tab. 2).

Tab. 2. Treating the burn wound

Type of treatment	40–59 years		> 60 years	
	Male	Female	Male	Female
Conservative treatment	44 (34 %)	31 (57 %)	21 (41 %)	28 (31 %)
Excision and autografting	82 (66 %)	19 (43 %)	26 (59 %)	62 (69 %)

Tab. 3. Incidence of systemic complications during hospital stay

Type of complication	40–59 years		> 60 years	
	Male	Female	Male	Female
Pneumonia	4	1	3	12
Acute renal failure	4	1	5	2
Hepatic dysfunction	3	0	1	1
ARDS	3	0	1	1
Sepsis	2	1	4	3
Cardiac failure	1	1	1	2
Coagulation disorders	0	1	1	1
Multiorgan failure	1	0	4	7
Curling's ulcer	2	0	1	0
Total	20	5	21	29

System complications

In the geriatric group, 21 males (45 %) and 29 females (32 %) developed complications. In the younger patients, 20 males (16 %) and 5 females (10 %) encountered problems. The rate differences between the groups were significant. Pneumonia and sepsis were the most common complications (Tab. 3).

Anatomical distribution of burn injuries

In males, the upper limbs were more often involved than other parts of the body: 32 % of cases in elderly males and 33 % in younger males. The lower limbs were more often injured in both elderly (39 %) and younger females (33 %). Next came the trunk, head and neck (Tab. 4).

Tab. 4. Anatomical distribution of burn injuries (%)

Anatomical region	40–59 years		> 60 years	
	Male	Female	Male	Female
Head and neck	15	11	15	7
Trunk	13	14	12	15
Upper limbs	33	25	32	22
Abdomen	11	12	5	6
Back	7	2	10	8
Genital	3	3	4	3
Lower limbs	18	33	22	39

DISCUSSION

Burn injury ranks fourth among the causes of injury-related death in the geriatric age group. The risk factors that affect the incidence and severity of complications after thermal injury are age, pre-existing disease, associated injury and type of burn. The seriousness of burn injuries in the elderly is increased by a characteristic delay in seeking medical attention. The relatively superficial appearance and small surface area of a burn can be deceptive, and this is why some older patients put off treatment. Advanced age and chronic disease contribute to high morbidity and mortality in this group (1). In treatment, preexisting cardiovascular or pulmonary diseases often complicate the restoration and maintenance of proper fluid volume. Pneumonia, prolonged immobilization and physical stress are other elements that significantly impact morbidity (4). The mortality rate increases with the extent of the thermal injury. The treatment of geriatric patients has been one of the most controversial topics in modern burn therapy. Conservative wound care has historically been advocated for this group. Elderly patients may tolerate the stress of

early excision better than complications of wound sepsis (2).

Elderly patients with burns require specialized care. Many of these individuals live alone and are often physically or mentally unable to respond appropriately in an emergency situation. Often, by the time they get treatment the injury has progressed significantly. Once treatment is initiated, the most important factors for survival in this group are early excision and grafting, ensuring sufficient nutrition and maintaining functional mobility.

CONCLUSION

Geriatric burn patients need special medical attention. It is important to recognize the problems in this group because the average age in the Czech Republic and European populations is on the rise, and this will result in greater number of elderly burn patients.

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QUALITY OF LIFE IN BURN VICTIMS: A HOLISTIC APPROACH

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SUMMARY

The prognosis of burn patients is dependent – apart from adequate treatment – upon health care system and health care professionals, regarding not only survival, but also life-long quality of life. The protection of patients' rights is spelled out in the European Countries' constitutions, charters or basic laws.

The Code of Patients' Rights in the Czech Republic in 1992 entitles the patients to respectful and professional treatment, to be able to make decisions, ev. to refuse treatment, to the presence of their own families, to continuity of treatment after discharge, to withhold consent to students' participation in the curative process, to die with dignity.

The increasing interest in economic justification of any treatment in the EU calls for considering the ethical aspects. There has been differentiated intuitive ethics, ethics based on principles of Hippocrates, ethics defined by duties, ethics defined by consequences, influencing the quality of life (Grant, 1998).

The age of patients should not play any role in decision – making concerning diagnostic or curative procedures. However, in geriatric burn patients the "aggressive" therapy should not deteriorate their last days. From the ethical point of view there should be applied "palliative care". The age is a significant factor in the permanent sequels in children and youngsters, in whom scar deformities cause the loss of "body image" and severe psychological problems when the Patients Rights (comprehended in the Code of Czech Republic) are not respected.

ZUSAMMENFASSUNG

Das Lebensniveau der Vebrennungsverletzten: ein holistischer Zugang

Königová R.

Die Prognose der Verbrennungsverletzten hängt von der entsprechenden Therapie, aber auch von dem Gesundheitssystem und der Betreuung des medizinischen Personals ab. Alle diese Faktoren beeinflussen das Überleben der kritischen Zustände und das zukünftige Lebensniveau. Der Patientenschutz wird in den europäischen Länder durch eine Reihe von Direktiven und Gesetze gewährleistet. In der Tschechischen Republik setzt der Kodex der Patientenrechte aus dem Jahr 1992 folgende Rechte fest – eine rucksichtsvolle und professionelle Behandlung für alle Kranken, die Möglichkeit die Therapiewahl mitentscheiden und eventuell die Therapie ablehnen, das Recht bei der Hospitalisierung von der Familie besucht werden, das Fürsorgerecht nach der Entlassung, das Recht die Teilnahme der Studenten bei den Untersuchungen ablehnen und das Recht des ehrwürdigen Todes. Parallel zur steigenden Bedeutung der ökonomischen Aspekte der Gesundheitssysteme in den EU-Länder ensteht die Notwendigkeit die ethische Prinzipe zu betonen. Es wurden sogenannte intuitive Ethik, auf den hippokratischen Prinzipen basierte Ethik, mit den Pflichten des medizinischen Personals verbundene Ethik und den Therapiefolgen determinierte Ethik, die das Lebensniveau beeinflusst, unterschieden. Das Alter des Patientes sollte keine entscheidende Rolle bei der Untersuchung und der Therapiewahl spielen. Bei geriatrischen Vebrennungsverletzten sollten nicht die letzte Tage des Lebens aufgrund einer "aggressiven" Therapie verschlimmert werden. Aus dem ethischen Gesichtspunkt sollte in diesen Patienten eine Palliativtherapie verwendet werden. Das Alter ist von Bedeutung im Fall der Dauernachwirkungen bei Kindern und Jugendlichen. Die narbige Deformationen ändern das Körperaussehen und können schwere psychologische Probleme verursachen, solange die im oben genannten Kodex beschriebene Patientenrechte nicht respektiert werden.

Key words: quality of life, ethical issues in medicine, ethical theories, patients' rights in EU, futility in burn care, dysmorphobia

The life-long quality of life of burn patients may be fatally altered as a consequence of their disrupted "body image", and to improve it relies (besides other factors) on the experience, skills, and art, human approach and patience of the burn surgeon, as severe psychic derangement in

burn patients may develop when the continuity of treatment after discharge has not been secured.

The anticipated quality of life might influence decision making with respect to withholding or withdrawing the so-called "aggressive" therapy in life threatening burns.

Many countries in Europe have incorporated certain social and patients' rights in their legislation. (Social rights related to health care are spelled out in the countries' constitutions and basic laws.) Because patients are reliant on the health care system and health care professionals, and therefore potentially vulnerable, they need mechanisms to promote and protect their rights.

Along with the patients' vulnerable position, there are two other factors:

• first, recent extraordinary developments in medical science may have ethical as well as physical implications for human beings;

• second, many countries in the WHO European Region are undertaking action to contain costs and to ration health care delivery (while holding a general political commitment to maintain equity in healthcare). It is therefore necessary to reinforce basic human rights with a set of specific rights reflecting the particular circumstances in the health care sector.

Since the Second World War, a growing number of international organizations have produced declarations, charters, conventions and treaties on human rights and patients' rights that are not always respected, and developments in medical technology have made protecting them even more difficult.

The WHO Regional Office for Europe has therefore set up a Network on Patients' Rights and Citizens Empowerment. The Network held its first meeting in Sweden in 1997 and the second meeting was in the U.K. in 1998. Some countries have adopted new legislation on patients' rights, while others have updated existing legal texts as in Austria, Bulgaria, Czech Republic, France, Germany, Hungary, Poland, Slovakia, Slovenia, Spain, Sweden, and Uzbekistan. Patients' rights legislation is in force in Denmark, Finland, Greece, Iceland, Israel, Lithuania, and the Netherlands. Legislation on patients' rights is in preparation in Belarus, Estonia, Georgia, Norway, the Russian Federation, and Turkey. The British, French, Irish and Portuguese governments have promulgated patients' charters.

From the practical point of view, non-parliamentary procedures take less time than legislative ones, but their results are not legally binding. Thus, patients' rights in a Charter cannot be defended in Court. On the other hand, drafting a law requires more time and resources. The Code of Patients Rights in the Czech Republic (25 February 1992) states that patients are entitled:

- to respectful and professional treatment given by qualified workers;
- to know who is in charge of them;
- to be informed so as to be able to make decisions regarding the health care provided;
- to the presence of their own family;
- to refuse treatment;
- to give or withhold consent to students' participation;
- to access to confidential medical records;
- to continuity of treatment after discharge;
- to be informed when non-standard or experimental treatment will be used;
- to respectful care when dying;
- to respect the internal order of the health care establishment.

The Conference on "Quality of Life in Severe Burns" held in Prague in September 1996 focused on two goals:

• The first goal was to remind that the primary aim of burn care is to save the life, but survival is not a subtle enough indicator of our success. Decisive is the subsequent quality of life, which is influenced by scar formation and the individual stress response of the patient, though multiple subjective and objective factors play an important role in a positive or negative way.

• The second goal of the Prague Conference was to stimulate awareness of ethical problems and of possible legal consequences. With the development of the biosciences, the sum of individual requirements in medicine has become much higher than society can provide; however, it would be expected that health care professionals will be influenced in their decision-making not only by the constraints of the law or those of professional bodies, but by their own moral principles and values.

Ethical decisions require deliberation on the best means (to achieve the goal of allowing each human) to ameliorate the quality of life, be that in body or mind, according to Ian Ramsey Centre, Oxford (1995). The concern has become more pressing with the clash between prolonging life and the well-being of the patient – between "quantity of life" and "quality of life".

In 1998, Ian Grant differentiated the following types of ethics:

- intuitive ethics, which are inadequate for all the dilemmas inherent in burn care;
- ethics based on patients' rights – the patient is at the centre of concern (four ethical principles must be kept in mind);
- ethics defined by duties – the healthcare professional is at the centre of concern (field of deontology);
- ethics defined by consequences – considering the resultant final balance of good and bad in the world (utilitarianism).

Medical interventions could be futile if they failed to meet one or all of the following goals:

- physiological – influencing single vital functions;
- postponing death – antibiotics administration;
- lengthening survival – by the use of mechanical ventilation;

– improving quality of life – enabling independent living (orthopaedic surgeons teach that quality of life means freedom of movement, and they try to provide that freedom well into old age.)

In addition to the fact that outcome cannot be perfectly predicted, the concept of futility is also limited in that physicians, patients, families and other parties may view futility differently.

Although the issue of physician refusal of requested care has not been resolved by case law or legal statute, it is supported by ethical principles:

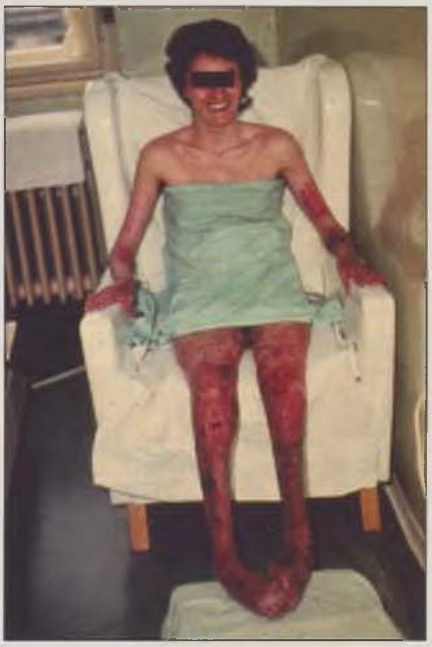

Fig. 1. This 20-year-old girl refused any physiotherapy and any orthopaedic intervention and preferred to exhibit her deformed legs and feet.

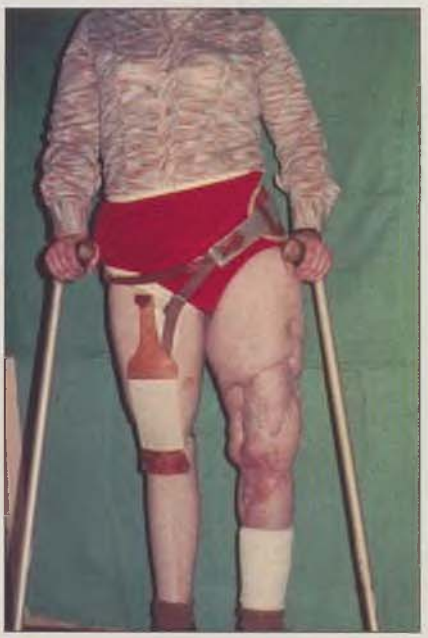

Fig. 2. In contrast, this 20-year-old girl, severely disabled following a train accident, started to work again as a radio reporter.

I. beneficence – medical care may confer two types of benefit:
preserving life = to actively prevent harm,
improving life = to do good;
II. non-maleficence – "primum non nocere" = doing no harm is the oldest principle;
III. autonomy – is implied by the doctrine of informed consent;
IV. social justice – treatment should be given in a fair and impartial manner.

This IVth principle in burn care means a continuing obligation to the patient by the burn team.

All considerations of patient outcome (Ryan, Schoenfeld, Thorpe and others, 1998) should be free from:
– age-based discrimination,
– monetary pressures,
– determinations of quality of life by outsiders.

The ethical principle of autonomy complicates the doctor-patient relationship by introducing factors that vary with each patient.

Attitudes to life and death, as well as medical problems, combine uniquely in each patient (Figs 1, 2). The patient should know the risk and bene-

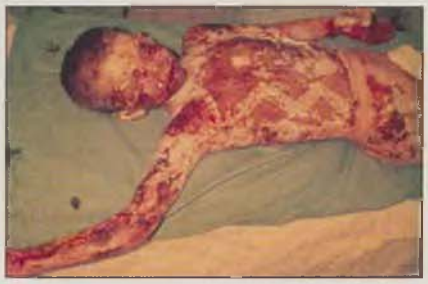

Fig. 3a. For example, this 9-year-old girl sustained a flame burn involving 67 % of TSBA.

Fig. 3b. She has been followed-up for 24 years having achieved normal activity as a wife and mother.

fits of the treatment and all possible complications including disability, disfigurement and subsequent quality of life, or even death.

A.E.R. Young asked in his essay in 1998: "What are the rights of a competent adult with a life-threatening burn?

- To die with dignity?
- To request maximum treatment?
- To demand expensive new forms of treatment in a superspecialised centre?"

The first question "to die with dignity" – ARS MORIENDI – is related to the method of EUBIOSIA – a high quality of life until death (Pannuti, 1980), which offers medical and spiritual help when any curative treatment has ceased to be a categorical imperative.

It was not until 1985 that open discussion of explicit policies to limit medical care began, and in 1986 Brett, among others, described three circumstances in which requested care is not necessary:

1. when such care is not likely to confer benefit to the patient,
2. when such care is likely to cause more harm than good,
3. when the request conflicts with social justice.

However, the refusal of an aggressive therapy is much more difficult if the treatment is already underway, unless the patient's medical chart specifically contains DO NOT RESUSCITATE ORDERS (DNR).

Objective estimates of the probability of death from burn injuries elaborated in Boston in 1998 by Ryan, Schoenfeld, Thorpe and others, might be useful to clinicians making medical and financial decisions about burn care.

DNR decisions in burns are used in the early stage of burn care when 3 risk factors for death are present (age above 60, TBSA above 40, inhalation injury) or in the late stage of burn care when Multiple Organ Failure Syndrome has developed and has not been responding to therapy.

Ian Grant published in 1998 that with the consent of the patient, it is ethically valid for a doctor to remove potential obstacles to the patient's death.

There is an ethical difference between omitting obstacles to death and precipitating death. Discontinuing resuscitation requires a greater

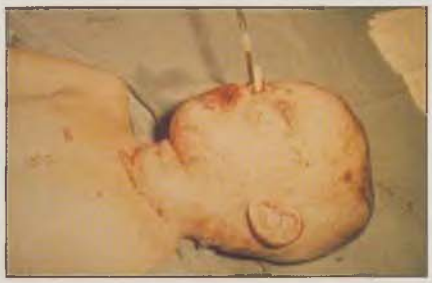

Fig. 4a. This 4-year-old girl sustained a very deep facial burn and inhalation injury. Her family requested withdrawal of treatment to prevent her life-long suffering because of a disfigured face. An appropriate explanation resulted finally in good cooperation of the whole family.

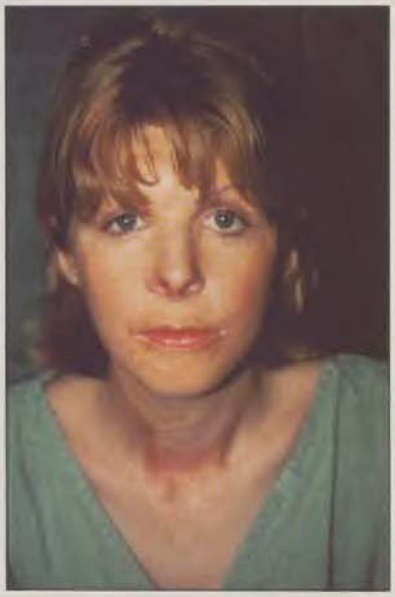

Fig. 4b. The final result after 15 years.

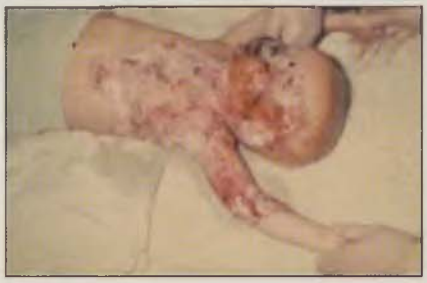

Fig. 5a. This 10-month-old girl sustained a severe burn under obscure conditions: her mother intended to get rid of her even after having been admitted to the burn centre as accompanying person. Two years later the child was adopted by another family that was cooperative.

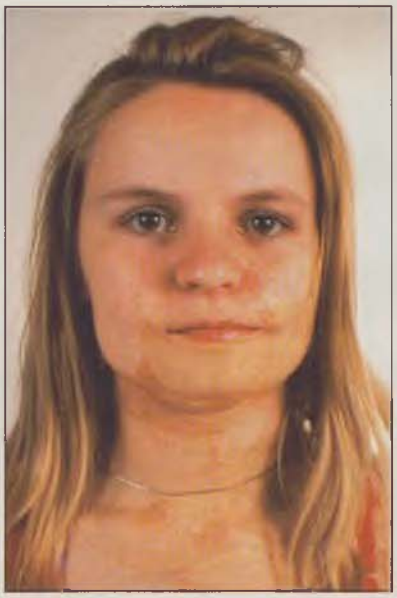

Fig. 5b. Multiple reconstructive procedures were performed during the following 18 years.

moral fortitude than merely not starting such treatment.

Even the most severe burns do not result in immediate clinical deterioration, but are such patients competent and capable of informed consent? Some are extremely anxious, while some are aggressive and not cooperative, which may preclude their decision making.

Although Gillon Ward's opinion (1992) was to inform constantly alert patients (..."When they are told they will die, they can begin to make basic decisions about their lifes..."), in my own opinion and experience, I never dared to distress the patient by telling the patient that he/she would die, but I did explain the outcome to the family. As aggressive therapy may actually worsen the quality of life in the last days, it is withheld, and "comfort care" is provided as a rule. In critical burn cases, consent is rarely obtained, because the "lucid interval" is usually missed or the patients are delivered by the emergency service sedated or intubated.

Some burn victims will die in the hours or days after the accident, some will survive for a period of weeks and some may live on with a quality of life that would be considered by others as very poor (Figs 3a, b).

The economic justification of any treatment (according to Kerridge and others) requires the comparison of patient outcome and cost of treatment with other medical interventions. Cost-utility analysis has been used for these comparisons, and quality adjusted life years (QALY) have been used to incorporate differences in both quality and duration of survival. A.E.R. Young reminds us in his essay (1998): "... doctors as a profession are dedicated to the welfare of the patient and the patient trusts doctors to act for his best interest and does not expect them to act as agents for society..."

One of the most difficult questions in burn care is whether one should base decisions of withdrawal of care on potential quality of life.

The crucial factor is age. Some studies describe elderly patients in various ICU as having positive attitudes towards life-support and as choosing survival over quality of life.

In the burn ICU, everyday torture associated with each intervention is anticipated by the elderly, even if adequate pain control is provided. This brings us to the paradox that in these patients, more sophisticated knowledge and practise contribute to suffering.

In children, decisions about the futility of care are extremely complicated. In 1997 guidelines were produced on the withdrawal or withholding of life support for children. On the other hand, in clinical practice there is the alternative scenario of parents requesting withdrawal of care, when the medical team believes life is worth striving for (Figs 4a, b).

Also, the possibility of Münchhausen Syndrome by Proxy must be considered, though it has been more frequently published in the paediatric literature (Figs 5a, b).

To quote Grenacre (1953) "...a major trauma is never done with."

Particularly, scar disfigurement post-burn, called "burn image", contributes to psychosocial problems. Bernstein described in 1976 this condition as DYSMORPHOBIA. It has been frequently encountered in patients suffering from the "disfigured face syndrome" involving the "facial triangle".

It has been confirmed by our clinical experience, and published by Pondělíček in 1987, that the "loss of face" may cause the "loss of personality" and may fundamentally influence the quality of life.

However, there are many patients in our practice for whom long-term continual follow-up and staged reconstructive procedures helped to re-establish equilibrium in their lives.

Older persons may not have a perception of a reduced quality of life, but youngsters are the most devastated by deformity and disability and perceive significant impairment in social, psychological, vocational and aesthetic areas.

On the other hand, there are severely burned children and adults, physically disfigured, but with an intact capacity to reproduce and to enjoy all the other possibilities of life.

Therefore, T. L. Wachtel, H. A. Frank and J. A. Nielson concluded in 1987 that quality of life decisions should carry limited weight in decisions about withdrawal of care in severe burns. The impact on a patient is not proportional to the magnitude of the disfigurement, but depends on other psychological parameters, family adaptation and how much it interferes with daily life. It has been emphasized many times that surgery alone is not sufficient, that such patients require informed supportive counseling.

Because in some countries this service is missing, many patient support groups have been founded; however, more important is to persuade politicians to ensure that resources are made available for this continuous treatment after discharge from the hospital.

To abolish or ameliorate psychological problems and to prevent so-called "social death" or even suicide, secondary reconstructive procedures are indispensable components of the overall treatment. Burn surgeons must, therefore, also master the knowledge and techniques of plastic surgery and the principles of aesthetic surgery. To take the stance, as some health care systems have done, that "aesthetic" treatment will not be provided, may deprive patients of an improved quality of life.

McGrouther pointed out in the British Medical Journal in 1997 that at the root of the patient's distress lies the pressure in modern society to conform to an idealized appearance. He warned also that stigmatization by appearance is reinforced at every stage in education.

A.E.R. Young reminded readers in his essay that the public image of a burn survivor as an evil or tragic figure must negatively influence the public's and also professionals' attitudes. The burn survivor is referred to as "burn victim", and society's response to victims is to pity but more often to despise them.

James Partridge remembers that all burn patients have to go through a process of self-discovery; he calls it a "mirror moment", an awareness of altered body image.

Already in 1974 Converse reminded us that it is the nonhandicapped who by their negative and prejudicial attitudes help create and perpetuate the handicap itself and the consequent burden of suffering.

The WHO defines health not only as an absence of disease or invalidity, but also as a condition of physical, psychic and social well-being. We cannot disregard the social and historical circumstances in which we live, but they do not change the justification of morality and ethics.

We have to remember that outcome prediction, quality of life assessment and also cost efficiency were not taught in medical schools, nor were they emphasized in postgraduate training. However, they are among our most important tools for meeting the challenges of today and of tomorrow.

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SOUHRNY

Rekonstrukce prsu volným přenosem TRAM laloku z pohledu desetileté zkušenosti

Nejedlý A., Tvrdek M., Kletenský J.

Za deset let bylo na našem pracovišti provedeno 119 rekonstrukcí prsu volným přenosem TRAM laloku. V přehledném příspěvku je přiblíženo indikační schéma pro rekonstrukci prsu. Je uveden věk pacientek u kterých byla provedena rekonstrukce prsu, uveden přehled o časovém intervalu mezi mastektomií a rekonstrukcí prsu, o příjmových cévách, které byly použity, o komplikacích celkových i místních i o komplikacích týkajících se anastomózy. Celkový přehled o našem souboru pacientek doplňuje informace o časovém intervalu mezi rekonstrukcí prsu a rekonstrukcí komplexu areoly a přehledný údaj o výsledcích rekonstrukce prsu volným přenosem TRAM laloku, kterých bylo dosaženo.

Aplazie prsu – rekonstrukce volným TRAM lalokem

Tvrdek M., Kletenský J., Svoboda S.

Aplazie a hypoplazie prsu se nejčastěji vyskytuje u Polandova syndromu, ale může být i důsledkem poškození zárodku mléčné žlázy v dětství. Autoři prezentují dva případy aplazie prsu, u nichž byla rekonstrukce provedena volným přenosem TRAM laloku. Jako příjmových cév bylo užito a. et v. mammaria interna, jejichž stav byl předoperačně ověřen dopplerem. V obou případech byla rekonstrukce provedena v 19 letech a následně byl vytvořen areolomamilární komplex a korigován kontralaterální prs k dosažení symetrie.

Užití autologní tkáně ve formě volného TRAM laloku přináší v této indikaci velmi dobré výsledky, které jsou trvalé, takže odpadají problémy spojené s užitím implantátů.

Rekonstrukce prsu jako integrální součást léčby karcinomu prsu

Dušková M., Kaňková H., Tvrdek M., Vachoušek J., Chodounský Z., Guthwirtová E., Helclová H.

Srovnávací prospektivní studie objasňuje, zda rekonstrukce prsu, která není provedena v souvislosti se systémovou onkologickou léčbou, může být podnětem vyvolávajícím recidivu nádoru a je-li případně tento hypotetický vliv rozdílný při použití rozličných metod operace. Staví proti sobě jednoduchý výkon s užitím syntetické náhrady a rekonstrukci muskulokutánním lalokem (konkrétně m. rectus abdominis – TRAM lalok).

Skupina 95 nemocných trpěla karcinomem prsu ve stadiu I–II. Z hlediska zatížení pacientky rekonstrukcí byla sledovaná skupina rozdělena do dvou podskupin: 1. metody užívající implantát ($n_1 = 33$), 2. užití TRAM laloku ($n_2 = 62$). K rekonstrukci byly vztaženy projevy onemocnění, které se manifestovaly v období 12 měsíců následujících po rekonstrukci.

Průběh onkologického onemocnění byl porovnán s dvěma kontrolními skupinami.

První kontrolní skupina pacientek ($k_1 = 82$) byla podobná sledovanému souboru věkovým rozložením, konkrétním časem, kdy byla stanovena diagnóza, a typem primární operace, což byla mastektomie s exenterací axily, stadiem I–II karcinomu prsu a jeho systémovou léčbou.

Druhá kontrolní skupina ($k_2 = 19\ 625$) je postavena na údajích Národního onkologického registru z let 1985–1994. K výpočtům byly použity následující údaje: celkový počet pacientek ve stadiu I–II v jednotlivých letech a vývoj jejich onemocnění, vyjádřený v relativních číslech recidiv a úmrtí ve srovnání se zdravými a žijícími nemocnými v předchozím roce.

Pracovní hypotéza, že pozdní rekonstrukce může být impulsem pro vznik recidivy karcinomu prsu, se nepotvrdila. Nebyl nalezen staticky významný rozdíl na 5% hladině významnosti ve výskytu lokálních recidiv a počtu úmrtí ve sledovaném období ani mezi jednotlivými metodami rekonstrukce, ani mezi sledovaným souborem rekonstruovaných a kontrolními skupinami, u kterých tato operace provedena nebyla.

Lokální terapie faciální lipodystrofie u pacientů prodělávajících léčbu inhibitorem HIV proteázy

Ritt M. J. P. F., Hillebrand-Haverkort M. E., ten Veen J. H.

Lokalizovaná faciální lipodystrofie představuje sociální handicap, postihující značnou část HIV pozitivních pacientů léčených trojkombinací. Přesná patogeneze nebyla dosud zcela objasněna a vhodná terapie není známa. Smyslem této pilotní studie bylo určit, zda by kyselina hyaluronová ve formě gelu, užívaná k odstraňování vrásek z kosmetických důvodů, mohla být bezpečným a efektivním prostředkem k terapii faciální lipodystrofie u pacientů léčených trojkombinací. Sedmi pacientům byly po kožních testech aplikovány intradermální injekce gelu. Po aplikaci nebyly zaznamenány žádné bezprostřední nebo pozdní alergické reakce, stejně tak nebyly pozorovány ani jiné vedlejší příznaky. Spokojenost s výsledky byla s ohledem na možnosti použitého terapeutického prostředku vysoká.

Zvláštní znaky popáleninového traumatu u starších pacientů

Koupil J., Brychta P., Říhová H., Kincová Š.

Druh popáleniny, některé další aspekty popáleninového traumatu a výsledek případu byly stanoveny u skupin geriatrických pacientů (> 60 let) a mladších pacientů (40–59 let). V letech 1990–1999 bylo na Popáleninovém centru a Centru plastické chirurgie ve Fakultní nemocnici v Brně přijato 137 geriatrických pacientů (47 [34 %] mužů a 90 [66 %] žen). Tuto skupinu jsme porovnali se skupinou 176 mladších popálených pacientů (126 [72 %] mužů a 50 [28 %] žen), kteří byli ošetřováni na uvedeném pracovišti ve stejném období. Věk a průvodní chronické onemocnění přispívá k vyšší úmrtnosti a vyšší frekvenci komplikací u geriatrických pacientů, trpících popáleninovým traumatem. V případě této studie byla frekvence výskytu komplikací během hospitalizace (44 % u mužů a 32 % u žen) a stupeň mortality (26 % mužů a 17 % u žen) u skupiny geriatrických pacientů signifikantně vyšší než u skupiny mladších pacientů. Je důležité znát specifické potřeby popálených pacientů v pokročilém věku, neboť lze očekávat nárůst této skupiny pacientů souběžně se stoupajícím průměrným věkem populace České republiky.

Kvalita života po popáleninovém traumatu: holistický přístup

Königová R.

Prognóza pacientů s popáleninovým traumatem záleží kromě odpovídající léčby z valné části na zdravotním systému a na péči zdravotnického personálu, a to nejen z hlediska přežití kritických stavů, ale i z hlediska kvality života, jenž následuje. Proto je třeba pacientům oboje zabezpečit. Ochrana pacientů je vyjádřena v řadě evropských zemí rozličnými směrnicemi, chartami a zákony.

Kód práv pacientů v České republice z roku 1992 stanovil: ohleduplné a profesionální léčení pro všechny nemocné, možnost pacienta spolurozhodovat o léčbě a event. ji odmítnout, právo na přítomnost rodiny při hospitalizaci, právo na kontinuální péči po propuštění, právo odmítnout spoluúčast studentů při vyšetřování či zákrocích a právo na důstojnou smrt.

Při vzrůstajícím významu ekonomického hlediska ve zdravotnictví v řadě zemí Evropské unie je zapotřebí upozorňovat na aspekty etické. Byla rozlišena etika tzv. intuitivní, etika založená na principech Hippokratových, etika definovaná povinnostmi zdravotníků a etika určovaná důsledky léčení, které ovlivňují kvalitu života. Věk pacienta by neměl hrát rozhodující roli při volbě léčby či vyšetřování, ale u geriatrických pacientů s popáleninovým traumatem by kvalita života posledních dnů neměla být zhoršována "agresivní" terapií a z etického hlediska je žádoucí volit léčbu "paliativní".

Věk je významným faktorem z hlediska trvalých následků u dětí a mladistvých, kde jizevnaté deformace vedou ke ztrátě tzv. body image a závažným psychologickým problémům, pokud nejsou dodržována práva pacientů obsažená ve zmíněném kódu České republiky.

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