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DEVELOPMENT AND PRESENT STATE OF PLASTIC SURGERY IN HUNGARY

Plastic surgery looks back upon considerable traditions in Hungary. The first written document, "Manuale Chirurgica"by Ferenc Miskoltzy, published in 1742, dealt with the surgery of facial clefts. The first comprehensive textbook was published in 1844: "Képlő sebészetről" (On Plastic Surgery) by Sándor Lumnitzer. In the second half of the nineteenth century Hungarian surgeons followed the world literature with interest and endeavoured to introduce the new techniques in their country. For example, Thiersch's method of epithelium transplantation described in 1886 was instantly adopted and used, so that several papers on the experiences were published a year later.

In the nineteenth century János Balassa founded his modern surgical school in Hungary. His book "Operationes Plasticae" published in 1861 was based on his inaugural lecture read at the academy when be became a member. In this book he desribed 40 operations, mostly techniques for the reconstruction of defects of the nose and mouth. Several of these techniques became connected with other surgeons' names 20—25 years later because Balassa only published in Hungarian. His ingenuity is best reflected by the fact that he used a lining when reconstructing defects of the nose, whereas Gillies, in his book written with Millard, maintained that this technique was introduced as late as the nineteen-twenties, when it was realized that such a lining prevents the shrinking of the flaps.

Jenő Pólya, too, described several new plastic surgical techniques, the most important of which was the use of a flap taken from the skin over the masseter muscle for reconstructing defects of the oral mucosa. Published in 1911, Pólya's report on the use of a musculocutaneous flap preceded that of D'Este by a year. Unfortunately his priority was never acknowledged.

János Ertl was director of the hospital founded for the reconstructive treatment of casualties of World War I. He summarized his experiences in a number of books published also in German. His osteoplastic techniques were widely applied, especially his "petal plasty", which is still used for reconstructing defects of the skull.

Plastic surgery was recognized as an independent specialty in Hungary after Professor B. V. Petrovski, member of the USSR Academy of Sciences and later Minister of Healths in the Soviet Union, had come to Hungary as a visiting professor and had called attention to the importance of this branch of surgery. The Ministry of Health organized a department of plastic surgery in

1953, which was headed by Miklós Érczy, a well-known plastic surgeon. After his death his students continued his activity at the department which is currently under the direction of Dr. Ilona Kartik.

A second department with 50 beds was organized in 1954, which became the Department of Plastic Surgery of the Postgraduate Medical School. In Hungary doctors graduate from university with an M.D. degree and may specialize after having completed an appropriate course at the Postgraduate Medical School. Those wishing to specialize in plastic surgery, which may be taken on as a second specialty, are prepared for their examinations at the above-mentioned department, of which I am the director.

It is one of the fundamental tasks of our Department to teach the basics of plastic surgery such as atraumatic handling of tissues, techniques of incision and suturing, the most important aspects of tissue transplantation, and the reconstruction of skin defects to would-be specialists in all branches of surgery. Individual tuition lasts 1—6 months, while courses for 20—25 surgeons are organized annually. The total number of Hungarian surgeons visiting the Department each year amounts to 50—60, and we have 6—10 visitors a year from abroad. Postgraduate students preparing for academic qualifications (C.Sc.) also work at our Department. Since plastic surgery has become an independent specialty, surgeons come to our Department when studying for their specialty examinations. These exams consisting of a theoretical and a practical part are taken at our Department.

In addition to the two large departments in the capital, several small centres with 10—12 beds have been organized in the university towns of Pécs, Szeged and Debrecen, and also at Miskolc and Szentes. The surgeons of these centres regularly visit our Department for postgraduate training.

Only adults and adolescents are treated at the various departments of plastic surgery. Infants and children are attended by surgeons working in paediatric institutions; clefts are treated by ENT surgeons. Burned patients are admitted to special departments and are only transferred to plastic surgical departments for reconstructive surgery. Hand surgery is on its way of becoming an independent specialty in Hungary.

In 1978 the Hungarian Ministry of Health ordered plastic surgery to become an independent specialty. On 23 surgeons who had been working in the field for more than 10 years the diploma was conferred without their having to pass an examination. Since then there is an opportunity to pass an examination twice each year. About 4—6 surgeons pass the examination on each of these occasions.

The Section of Plastic Surgery of the Hungarian Surgical Association was founded in 1958. First it had 32 members. The first scientific meeting was held on 13 December 1958. It is considered an important task of the Section to help those surgeons who may practice plastic surgery only marginally to get an answer to their theoretical and practical problems and to report on their results. Thus among our members, counting 128 today, there are not only plastic surgeons. Specialists of the surgery of burns and of hand surgery have

formed their separate sections under the auspices of the Association of Hungarian Traumatologists. There is a fruitful co-operation between the three sections in the form of joint meetings. The Section of Plastic Surgery strives to deal with problems of border areas thus making contact with specialists of many surgical fields. A one-day meeting is generally held each year for Hungarian surgeons, while every second year a two day conference is organized with international participation. As a rule, different towns of the country are picked as the venue of these meetings.

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BOOK REVIEW

Lorenzo Mir y Mir: **Conceptos y técnicas generales en CIRURGIA PLÁSTICA** (Barcelona, Spain).

This more than 600-page long book by the well-known plastic surgeon first appeared in 1982.

Following an introductory passage, the author divided his range of problems into four large groups, and supplemented it with a wealth of literary references.

First, he analyzes the terms of reference of plastic surgery on the human body surface, listing congenital and acquired defects corrected by plastic surgery, and mentioning cosmetic surgery and its significance.

The second chapter is devoted to the wound, to the incisions in use, to the process of healing, while the following chapter gives a list of the types of tissue transplantations.

Second, he brings in three chapters on the different familiar types of skin plastic operations from local transpositions, all types of skin transfer up to flap transplantations.

Third, the author deals with the modes of and options for transplantations of aponeurosis, cartilage, bone, different alloplastic materials and, in a special group, the use of silicons. As one of the Burian trainees and followers, I should have certain reservations concerning the use of those materials where the patient's own tissue could be used, albeit at the cost of more exacting surgical procedures. This, however, does not detract from the value of the book.

There is an abundance of black-and-white as well as colour large-size photographs documenting the author's own, often difficult cases, and quite a few clear sketches and drawings.

This book by an experienced plastic surgeon belongs among those which is bound to be appreciated by young plastic surgeons so long as they understand Spanish, but it will be found equally attractive by experienced specialists. I hope that in the next edition readers will also be able to learn about the author's experience with microsurgery and with the use of pedicled composite transplants from the vicinity as well as from some of the more remote parts of the body, i.e. about problems increasingly encountered in present-day plastic surgery.

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THE HISTORY OF HYPOSPADIAS

D. J. HAUBEN

Heliodor and Antyl (1st, 2nd and 3rd centuries A. D.) were the first to describe hypospadias and its surgical correction. Reading Bussemaker's and Daremberg's translation of works by Oribasius one can find the following observations: "... In such individuals whose glans penis is not open due to a congenital defect ... the opening is situated below the frenum (Celsus). Sometimes the orifice is fairly remote from the frenum, in the middle of the urethra, next to the glans penis root. Such cases are intractable. In other cases, however, the orifice is found at the level of the frenum, and such anomalies can be treated ... The simplest and least dangerous treatment consists in the surgical method of resection." The Talmud of Jerusalem, Jebamot VIII, 9b, mentions a method of plastic surgery involving skin stretching: "The skin of the penis is stretched forward until it cover the opening and is then cut off at the site where it is doubled (distal of the opening)".

Galen (129—199 A. D.) dealing with the phenomenon of hypospadias described a surgical correction in his great work "Methodus Medendi": "Unless the prepuce is entirely missing it will do to stretch the skin over the glans penis and to fix it with adhesive tape". This is where Galen refers to the lengthening of an excessively short prepuce by stretching and cutting off the outside skin. This surgical method is in agreement with that described by Celsus, and identical with that repeatedly used by Falloppio (Zeis, p. 147).

In his seventh book on hermaphroditism, Paulus Aegineta (625—690 A. D.) also mentions hypospadias, described before by Galen, on the assumption that the meatus was at the end of the glans penis. His recommendation was one of radical method.

Albucasis (936—1013) treated urethral stricture with the aid of lead bougies until the passage was sufficiently dilated. In 1363, Guy de Chauliac wrote a brief description of a surgical operation on a patient suffering from hypospadias, recommending the introduction into the canal of a suitable instrument and keeping it there until epithelialization.

Amatus Lusitanus (1511—1568), a Portuguese Jew who studied medicine in Salamanca, described a two-year old child with peno-scrotal hypospadias which he treated with a silver cannula. His successful canalization method

of 1556 was a great stride ahead in the surgery of hypospadias compared with the periods of amputation and resection techniques described by Antyl, Aegineta and Albucasis.

Paré referred to hypospadias as "that diabolic deformity", and he also described chordea and its surgical repair, and in great detail hermaphroditism, too. He even drew an artificial penis, 400 years before the first description by Gillies, using a surgical reconstruction of the penis.

Jerome Webster found that Tagliacozzi had operated on a hermaphroditic boy by creating an orifice in the glans penis and by closing the female opening next to the scrotum.

In his book "Cours l'opérations", Pierre Dionis (1658—1718) described a method of treating imperforate glans penis, hypospadias, chordea, hermaphroditism, etc. He wrote a complete treatise on the surgery of hypospadias in 1708, i. e. 10 years before Heister's studies.

Lorenz Heister (1683—1758) was concerned with the treatment of hypospadias, chordea, imperforate glans penis, and enlarged clitoris, discussing the correlations of the localization of the uretheral orifice in hypospadias, as well as the prognosis of reproduction.

In the late 18th century, Chaussier was the first to use the notions of "exstrophy" and "epispadias". Until then, the latter had gone under the name of hypospadias.

Sir Astley Cooper was the first who in 1815 treated urethral fistula with a method of plastic surgery. In 1820, he reported on a correction for fistula using an elastic catheter introduced into the urinary bladder. In 1819, Earle in London followed suit, and in 1821 reported on a similar operation.

Dupuytren treated hypospadias at the root of the penis with the aid of a trocar in the uretheral orifice in order to create a new canal which was subsequently cauterized to ensure that the subsequent inflammatory process should keep the canal open for a period of 3 months. After the operation, the original opening was closed with silver nitrate.

Writing in 1831 under the title of "Hypospadias", George Buske of New York reported on Lusitanus's trocar technique which he also used for similar operations. In 1833, Allicot of Montagna closed an anoscrotal fistula with a skin flap.

In 1829 and 1836, Dieffenbach reported on his successful attempt to close a urethral fistula. In the end, he had achieved close suring what he called "Schnurnaht-Technik", a kind of lock-stitch suture. He introduced a cannula into the passage thus keeping the canal wide open. Although he was the first to make such attempts, he never lived to see success.

Liston (1794—1847) reported in 1838 on how he managed to close a mislocalized urethral orifice with a skin flap taken from the prepuce.

The surgical techniques described by Mettauer (1787—1875) in 1842 and by Pancoast in 1844 were presented in great detail and provided with illustrations. Mettauer reported on a complicated case of hypospadias and was the first to find corpus spongiosum in a case of hypospadias. He also gave

precise details describing the pathology of chordee which he managed to relax by means of numerous subcutaneous incisions. He recommended the introduction of an elastic catheter to keep the passage open.

Pancoast was the first to describe a method for correcting hypospadias in his book "A Treatise on Operative Surgery" of 1844.

Rousson (quoted by Welch in 1962) also relaxed chordee by means of several subcutaneous incisions though he failed to find any anomalous tissues responsible for the condition.

In spite of so many reports on the treatment of hypospadias and imperforate glans penis by Albucasis, Paré, Fabrice of Aquapendente, Dionis, Heister and others, most surgeons of the 16th, 17th and 18th centuries ignored this defect.

Speaking before a surgical society in Paris on January 1st, 1874, Théophile Anger reported on a successful repair surgery of peno-scrotal hypospadias.

The modern era of surgery for hypospadias was started by three great French surgeons: Duplay (1880), Nové-Josserant (1897) and Ombrédanne (1923), all of them pioneers in the field.

Duplay, regarded by many as the father of hypospadic surgery, referred to the principles proposed by Thiersch (1869). His method of 1874 made use of two-stage surgery. One stage involved the correction of chordee and the formation of a newly created urethra. The other stage was a modification of Dieffenbach's operation using parallel incisions of the hypospadic orifice up to the glandular urethra. This is where he introduced two skin flaps round the newly created canal which he covered up about half way its length. Six years later, Duplay published a report on his other method using systematically parallel longitudinal incisions. A catether was then introduced through the glans penis canal.

The first to manage the reconstruction of the urethra using free skin grafts was Nové-Josserand in 1897. In 1909, he managed to achieve the same effect using a trocar.

In 1911, Ombrédanne created a new urethra using a pedicled flap taken from the ventral side of the penis surface behind the meatus. He developed the technique of purse strings using elliptical flaps around the orifice and "button holes" in the prepucial cover.

In 1907, Bucknall developed a peno-scrotal skin flap until he joined together the scrotum and the rough surfaces.

In 1949, Davis Brown joined together two lateral skin flaps on the ventral side while performing a "relaxation" operation on the dorsal side of the penis. This method, however, was not an entirely new discovery since the only difference from Duplay's technique consisted in that the creation of the tube was rendered unnecessary.

A whole number of attempted homograft (allograft) transplantations in the uretheral canal failed to bring any new results.

It was not until 1937 that McIndoe reawakened interest in skin transplant operations.

While Young and Benjamin used skin transplant operations, Marshall and Mammelaar recommended mucosa to be transplanted instead of skin. Skin or mucosa transplantations are, in fact, an improvement on a method first reported on by Guy de Chauliac in 1363.

J. H.

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CEPHALOMETRIC AND MORPHOLOGIC FACIAL CHANGES IN ADULTS WITH COMPLETE BILATERAL CLEFT LIP AND PALATE

Z. ŠMAHEL

The present report deals with further investigations into changes of facial configuration in individual types of clefts. Our previous papers described changes in adult males with unilateral cleft lip and palate — UCLP (Šmahel, 1982), with isolated cleft palate — CP (Šmahel, 1983), or with cleft lip alone — CL (Šmahel, in press). Throughout these studies we have used the same method for the selection and examination of patients, as well as for the assessment of the results obtained which were thus readily comparable. The present communication was aimed at the description of facial changes persisting in adults with complete bilateral cleft lip and palate ($BCLP_c$) and at the comparison with patterns recorded in unilateral complete clefts ($UCLP_c$). The values presented were obtained by cephalometry, somatometry and somatoscopy. Roentgenocephalometric patterns will be described separately (Šmahel, in press).

MATERIAL AND METHODS

The series examined consisted of 26 Czech males ranging in age from 20 to 40 years. All of them had complete bilateral cleft lip and palate without any other associated malformation or a prior maxillofacial osteotomy. We invited for check-up examinations all consecutive patients meeting the above mentioned criteria and who were treated by surgery at the University Department for Plastic Surgery in Prague. Approximately one quarter of the invited individuals did not attend. Primary surgical repair was carried out between 1945 and 1965 incl.

At the time of check-up examinations the mean age of probands was 27.69 years (SD = 6.48). They were matched with the series of controls, inclusive of age distribution (27.18 years, SD = 5.79, F = 1.27), as well as with the earlier studied series with $UCLP_c$ (28.00 years, SD = 5.32, F = 1.50). Lip suture

was carried out according to Tennison (in six patients according to Veau); on the right at a mean age of 8.19 months and on the left at 7.27 months. There was no significant difference from the situation in UCLP$_c$ (7.59 months), or between both sides ($t = 0.54$). The repair of the palate consisted of a push-back and pharyngeal fixation (in four patients pharyngeal fixation was used as a secondary procedure) at the age of 5.83 years (ranging from 3 to 10 years). This represented a significantly older age as compared to UCLP$_c$ (4.65 years, $t = 2.53$). In nine patients (35 %) palatoplasty was preceded by premaxillary setback with a displacement of the premaxilla backwards. Prior to palate suture the vestibulum was enlarged in three individuals (12 %) and after palatoplasty in another nine cases (35 %). With the exception of three patients (12 %) all individuals were subjected to a secondary repair within the region of the lip or nose, inclusive of a prolongation of the columella in seventeen patients (i. e. in 65 %). This situation was consistent with the treatment of UCLP$_c$ when in 9 per cent of the patients no secondary repair was performed. Thus the series with BCLP$_c$ differed from that with UCLP$_c$ by the older age at the time of palatoplasty, by the technique of cheiloplasty (according to Veau in UCLP$_c$), and by the use of premaxillary setback in one third of individuals examined. The technique of palatoplasty was identical.

Since premaxillary setback could exert certain affects on some dimensions of the upper face our series was assessed also after its subdivision into two groups: with and without premaxillary setback ($n = 9$ and $n = 17$ resp.). Both groups were compared with each other as well as with controls, but in the table (Tab. 2) were presented only changes which showed definite changes after a premaxillary setback (adequate data could be used readily for a comparison with the results reported by other authors).

The series of controls consisted of 50 normal individuals selected at random. Their body height and weight were in full agreement with the norm for the Czech adult population. This series was described in more detail in a previous study (Šmahel and Brejcha, 1983).

The method used throughout our studies was described in an earlier paper (Šmahel, 1982). The determined cephalometric points are marked on figures 1—2 and the review of the investigated characteristics is presented in table 1. Rohrer's index characterizes the proportions between body height and body weight and the other indexes provide information on facial proportions: the cephalic index (100 x eu-eu:g-op), the facial index (100 x n-gn:zy-zy), the upper facial index (100 x n-sto:zy-zy), the lower facial index (100 x sto-gn:zy-zy), the mandibular index (100 x sto-gn:go-go), the intercanthal index (100 x en-en:ex-ex), the nasal index (100 x al-al:n-sn), and the cheilo-zygomatic index (100 x ch-ch:zy-zy). The intercanthal index served for the determination of euryopia (more than 38 index units) and of hypertelorism (more than 42 i. u.). Visually assessed deviations of facial characteristics were mentioned in the text (as an asymmetry in the position of the nares was designated a difference between the right and left sides at least by one category of Topinard's classification).

Tabl 1. Cephalometric and basic somatometric characteristics in adult males with complete bilateral cleft lip and palate (the mean, standard error and difference from controls are expressed in mm or degrees*)

Body			
height (cm)	175.15	1.90	− 1.73
weight (kg)	71.08	2.12	− 6.14
chest circ.	912.70	11.60	−21.90
biacrom w.	386.73	3.90	− 4.97
bierist. w.	282.31	4.04	− 1.19
bitroch. w.	325.19	3.97	− 0.93
Head			
circumfer.	573.64	2.87	− 0.14
g-op	189.00	1.03	+ 0.58
eu-eu	159.12	1.43	− 0.28
ft-ft	113.50	0.94	+ 3.58
t-t	143.35	1.17	− 0.87
Face			
zy-zy	143.50	1.00	+ 0.68
go-go	108.04	1.27	− 0.42
en-en	34.11	0.52	+ 1.51
en-m dx	17.15	0.26	+ 0.69
en-m sin	16.92	0.28	+ 0.82
ex-ex	92.73	0.70	+ 2.43
en-ex dx	29.31	0.24	+ 0.41
en-ex sin	29.31	0.25	+ 0.49
n-gn	124.08	1.48	+ 4.62
n-sto	70.92	1.02	− 2.00
sto-gn	54.27	0.80	+ 5.23
t-g-t	311.15	2.24	− 1.95
t-sn-t	272.12	2.05	−24.68
t-gn-t	309.80	2.76	−12.30

Lateral facial regions			
t-n dx	122.42	0.79	− 0.08
t-n sin	121.88	0.81	− 0.74
t-sn dx	122.38	0.82	− 7.36
t-sn sin	122.58	0.85	− 8.10
t-gn dx	143.38	1.24	− 0.92
t-gn sin	142.19	1.06	− 1.61
t-go dx	70.19	0.78	− 2.55
t-go sin	69.04	0.80	− 2.90
t-ch dx	109.12	0.76	− 2.86
t-ch sin	108.69	0.89	− 3.25
t-ex dx	77.00	0.52	− 2.92
t-ex sin	77.08	0.57	− 2.98
go-ex dx	98.46	1.16	− 2.34
go-ex sin	97.92	0.91	− 2.98
go-ch dx	77.31	0.70	− 4.45
go-ch sin	75.81	0.70	− 4.89
go-gn dx	89.04	0.81	− 3.12
go-gn sin	89.15	0.73	− 2.99
ex-ch dx	73.00	0.93	+ 0.56
Oronasal region			
n-sn	49.62	0.71	− 0.54
al-al	39.19	0.56	+ 3.57
al-m dx	19.65	0.31	+ 1.81
al-m sin	19.50	0.32	− 1.68
prn-sn	24.59	0.60	+ 2.68
prn-sbal dx	31.85	0.47	− 0.35
prn-sbal sin	32.15	0.48	− 0.33
sn-sbal dx	17.23	0.40	+ 1.87
sn-sbal sin	16.69	0.38	+ 1.61
sn-ls	11.81	0.52	− 6.37
sbal-ll dx	17.73	0.40	− 2.91

Continuation tabl. 1

Continuation tabl. 1

Oronasal region			
sbal-ll sin	18.38	0.42	− 2.14***
[1]nose deviat.[0]	−0.81	0.75**	1.21
[1]prn deviat.[0]	−0.38	0.88**	0.90
[1]collum. dev.[0]	−0.15	0.66**	0.19
[1]m-prn	−0.31	0.47**	0.65
[1]m-sn	−0.08	0.27**	0.30
Topinard dx	2.31	0.23**	+ 0.31
Topinard sin	2.12	0.22**	+ 0.12
ch-ch	48.50	0.76	− 4.66***
ch-m dx	24.15	0.38	− 2.47***
ch-m sin	24.23	0.38	− 2.37***
[2]dif. ch dx: sin	−0.20	0.36**	0.06
Ear lobes			
obs-n dx	119.12	0.79	− 1.22
obs-n sin	118.42	0.75	− 1.78(*)
obi-sn dx	110.12	0.80	− 8.12***
obi-sn sin	110.38	0.95	− 8.24***
sa-sba dx	65.19	0.98	− 1.19
sa-sba sin	65.54	1.00	− 0.56
pra-pa dx	35.85	0.51	− 1.03(*)
pra-pa sin	35.31	0.50	− 1.41*
protrusion dx[0]	21.00	1.69	− 0.54
protrusion sin[0]	25.04	1.65	+ 3.38(*)
inclination dx[0]	15.08	0.77	+ 1.00
inclination sin[0]	14.28	0.73	− 0.02
Indexes (proportionality)			
Rohrer i.	1.32	0.03	− 0.09*
i. cephalicus	84.23	0.84	− 0.35
i. facialis	86.58	1.09	+ 2.92*
i. fac. sup.	49.46	0.75	− 1.60(*)
i. fac. inf.	37.85	0.59	+ 3.47***
i. mandibul.	50.38	0.80	+ 5.04***
i. intercanth.	36.77	0.38	+ 0.79
i. nasalis	79.31	1.41	+ 8.07***
i. cheilozygom.	33.77	0.58**	− 3.37***
ex-ch sin	73.23	0.80	+ 1.23

(*) $p<0.1$ * $p<0.05$ ** $p<0.01$ *** $p<0.001$

° significant differences between the variance in clefts and in controls

[1] deviation to the left [2] at the higher level on the left

Tab. 2. The mean values in patients with (set) and without (nonset) premaxillary setback (only those characteristics which differ in both subgroups are presented in mm)

Variable	Set	Nonset	Control	Variable	Set	Nonset	Control
n-gn[+]	120.22	126.12[xx]	119.46	obi-sn dx[+]	107.67[xxx]	111.41[xxx]	118.24
n-sto	69.56[x]	71.65	72,92	sin[+]	107.56[xxx]	111.88[xxx]	118.62
n-sn[+]	47.78[x]	50.59	50.16	t-sn dx	120.78[xxx]	123.24[xxx]	129.74
t-sn-t	268.89[xxx]	273.82[xxx]	296.80	sin	120.78[xxx]	123.53[xxx]	130.68
t-gn-t[+]	303.13[xxx]	312.94[x]	322.10	t-gn dx	141.33	144.47	144.30
i. facialis[+]	83.78	88.06[xx]	83.66	sin	139.78[x]	143.47	143.80
i. fac. sup.	48.44[x]	50.00	51.06	al-al[+]	37.67[x]	40.00[xxx]	35.62
i. nasalis	79.22[xx]	79.35[xxx]	71.24	sn-sbal dx[+]	16.11	17.82[xxx]	15.36
zy-zy	143.67	143.41	142.82	sin[+]	15.89	17.12[xxx]	15.08

[x] significant differences between clefts and control (explanations see tab. 1)
[+] significant differences between individuals with and without premaxillary setback

The results were tested with the F-test and with the t-test. The numbers of cases were reduced by two in the case of the angle of ear protrusion because of its bilateral correction. During the determination of the shape of the nostrils according to Topinard's classification method was used quantifying the qualitative features. These procedures were described in more detail in our previous study (Šmahel, 1982).

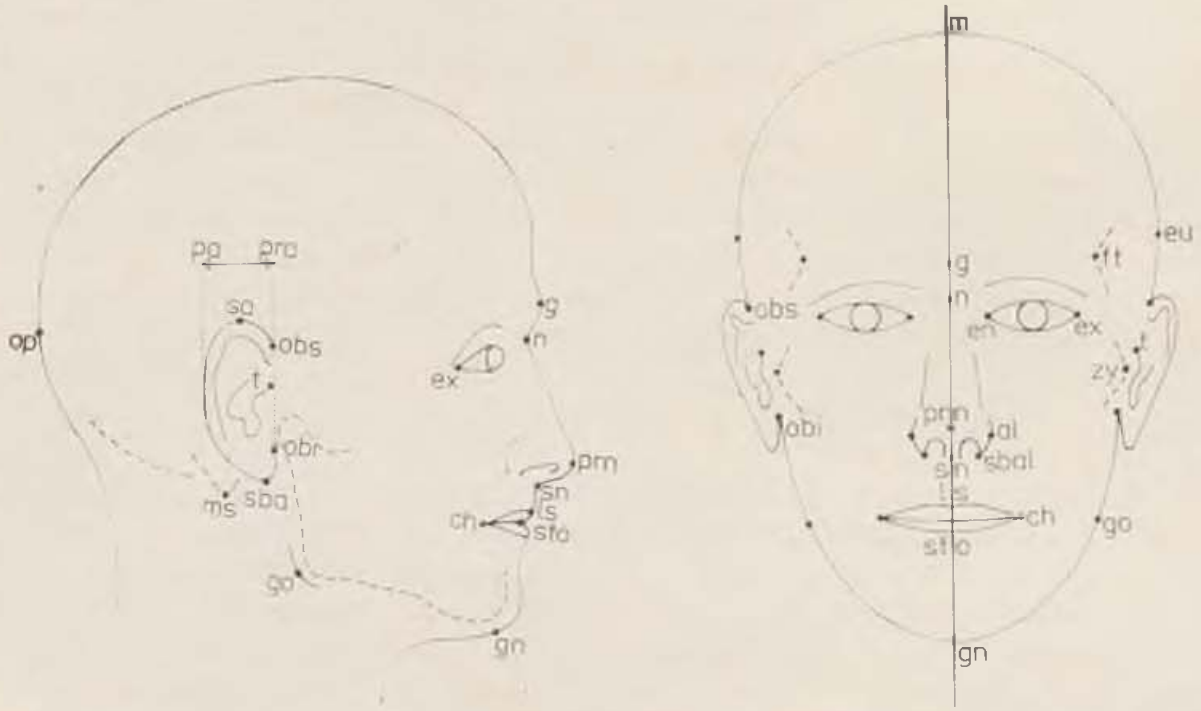

Fig. 1, 2. Cephalometric points used in the study

RESULTS

The results are presented in table 1.

Somatic development: Body weight was significantly reduced ($p < 0.05$), while body height and the other investigated characteristics were only slightly below the norm. This resulted in a disproportion between body height and weight (Rohrer's index, $p < 0.05$).

Neurocranium: The length (g-op), width (eu-eu), and circumference of the head were unchanged, yet there was a highly significant increase of the minimum frontal width (ft-ft, $p < 0.01$). This deviation was due to the lateral displacement of orbits.

Cranial base: The width of the cranial base (t-t) was consistent with that in controls.

Upper face: The bizygomatic width (zy-zy) was unchanged. The height of the upper face was slightly reduced (n-sto, $p < 0.1$) and this deviation was due to the reduced height of the lip (see further). The height of the nose was consistent with that in controls (n-sn). The distance between both the inner (en-en, $p < 0.05$) and outer canthi (ex-ex, $p < 0.01$) was increased,

while the eye slids width (en-ex) corresponded to the norm. The proportions within the ocular region thus showed no changes (intercanthal index), but there was an increase of the frequency of euryopia (30.8 % as compared to 10 % in controls, $p < 0.05$). Hypertelorism did not occur. The increased width of the interocular distance was symmetric (m-en dx et sin, $p < 0.05$). The markedly reduced subnasal arch (t-sn-t, $p < 0.001$) was due to the retrusion of the middle face.

Mandibular region: Mandibular width remained unchanged (go-go) but the height of the lower face was significantly increased (sto-gn, $p < 0.001$). This resulted in an alteration of the height-width proportion within this region (mandibular index and lower facial index, $p < 0.001$). The length of the mandibular body was reduced (go-gn, $p < 0.01$), as well as the dimension which was in good correlation with the length of the mandibular branch (t-go dx $p < 0.05$ and sin $p < 0.01$). The reduction of the size of the mandible was in agreement with the smaller submandibular arch (t-gn-t, $p < 0.001$) which was characteristic of retrognathia.

The face as a whole: The total height of the face was increased (n-gn, $p < 0.05$) due to the longer lower face. This deviation was reflected by the facial index ($p < 0.05$).

Oronasal region: The nasal width was markedly increased (al-al, $p < 0.001$, nasal index $p < 0.001$); the increase was symmetrical (m-al dx et sin, $p < 0.001$). This was related to the wider tresholds of the nostrils (sn-sbal, $p < 0.001$). The depth of the nose was increased as well (prn-sn, $p < 0.001$), obviously as the result of the surgical prolongation of the columella. Since the length of nasal wings was unchanged (prn-sbal) the increase of nasal depth resulted from the surgically produced increase of the depth of nasolabial transition. The dorsum nasi and the columella were not deviated and the tip of the nose and the base of the columella, equally, showed no deviations from the median plane (m-prn, m-sn). However this pattern represented only an average situation; individual deviations towards either side occurred rather frequently. The nasal dorsum was deviated in 50 per cent (as compared to 24 % in controls, $p < 0.01$), the tip of the nose in 69 per cent (in 22 % of controls, $p < 0.001$) and the base of the columella in 46 per cent (in 20 % of controls, $p < 0.01$). Thus only the columella per se, showed no significantly increased frequency of deviations (in 23 % as compared to 14 % in controls, i. e. nonsignificant). This was due to the circumstance that in these cases the whole complex consisting of the premaxilla and the nose was more symmetrically deviated than in unilateral clefts. In addition no dimension within this region showed any differences between the left and right side. Similarly, the position of the nostrils according to Topinard, on the average, did not differ from that in controls, yet nostrils were more often asymmetric (in 35 % as compared to 8 % in controls, i.e. $p < 0.01$).

The width of the oral slot was markedly narrowed (ch-ch, $p < 0.001$, the cheilozygomatic index $p < 0.001$) and the upper lip was shortened. The shortening was more conspicuous in the median plane (sn-ls, $p < 0.001$) than in the lateral parts below the insertions of nasal wings (sbal-ll, $p < 0.001$; the

measurements were carried out on the skin portion of the lip where the difference was most conspicuous). The corners of the mouth were situated, on the average, at the same level (dif. ch dx:sin), yet there were again more frequently differences of the level at which they were situated (in 54 % as compared to 18 % in controls, $p < 0.001$).

Lateral facial regions: Maxillar retrusion was characterized by the reduced distance between the columella base and the tragion point (t-sn, $p < 0.001$) and was related also to the reduced distance of mouth corners from the tragion (t-ch, $p < 0.01$), as well as from the mandibular angle (go-ch, $p < 0.001$). Both latter characteristics documented the backward position of the mouth. In spite of retrognathia the distance between the chin and the tragion (t-gn) was not significantly reduced because of the prolongation of the face. The normal anteroposterior position of the tragion was confirmed by the unchanged distance from the nasal radix (t-n). The reduced distance from the outer eye canthi (t-ex, $p < 0.001$) was due to the lateral or even lateroposterior displacement of the canthi (documented by the increased distance between the mandibular angle and the outer eye canthus (go-ex) was related to the shortening of the mandibular ramus (t-go). The distance between the eye canthi and mouth corners (ex-ch) was unchanged and reflected the normal height of the upper face. The described dimensions showed no differences between the right and left sides.

Ear lobe: The height (sa-sba), protrusion, inclination or anteroposterior position (obs-n) of the ear lobe showed no deviations. The reduced distance between the distal margin of ear lobe insertion and the base of the columella (obi-sn, $p < 0.001$) resulted from the retrusion of the middle face. The lower set ear lobe did not occur, retroinclination of the auricle (at an angle exceeding 20°) was recorded in a single patient, and protruding ears in two individuals (8 %) did not represent a significant increase of its frequency. The single deviation consisted in a narrowing of ear lobes (pra-pa) which was significant on the left side only ($p < 0.05$, dx $p < 0.1$).

Facial asymmetry: No significant differences were disclosed between the dimensions of the right and left side of the face, inclusive of the oronasal region. However, within the latter some asymmetries occurred (see above) as confirmed by the increased variability of corresponding characteristics (Tab. 1). Some asymmetries were recorded in visually determined features (see below).

Somatoscopic characteristics: These characteristics revealed no deviations in the morphology of individual parts of the ear lobe, while anomalies occurred rather frequently. Shape anomalies were recorded in five individuals (19 % as compared to 2 % in controls, $p < 0.05$); in addition there were two patients operated upon for protruding ears and another with retroinclination and thus the frequency amounted to 31 per cent (4 % in controls, $p < 0.01$).

The facial somatoscopic features showed in nine individuals vertical differences in the position of the inner eye canthi (35 % as compared to 10 %

in controls, $p < 0.05$) which was suggestive off a certain dismorphogenesis. Similarly fifteen probands (58 %) had differences between the insertion of nasal wings on the right and on the left in vertical (32 % in controls, $p < 0.01$) and anteroposterior directions (16 % in controls, $p < 0.001$). These differences were not reflected by the calculated mean values. The tip of the nose was definitely flat in five patients examined (19 %, $p < 0.05$). Retrocheilia was present in twenty patients (77 %, $p < 0.001$), in the remaining six individuals the upper lip was in anteroposterior direction at the same level as the lower lip. These changes were absent in controls who had regularly a prominent upper lip.

Variability: Variability was significantly increased only in characteristics of the oronasal region (Tab. 1); as for the nasal depth and the width of nasal tresholds, this represented, obviously also the sequelae of surgical repair. Results of the F-test confirmed further an increased frequency of deviations of nasal structures, differences in the position of the nostrils, as well as dislocations of the vertical position of mouth corners, though the mean values failed to disclose any differences from controls. Values of body height and the dimension ex-ch dx showed a larger scatter at a low significance level. The latter values were considered as accidental.

Effects of premaxillary setback on the configuration of the face: (Tab. 2). Premaxillary setback increased significantly the retrussion of the middle face (obi-sn, $p < 0.05$). The other depth dimensions within this region were influenced as well (t-sn, t-sn-t). The width of the nose showed a marked increase, especially in individuals without premaxillary setback (al-al and sn-sbal, $p < 0.001$). The difference between the two subgroups was significant ($p < 0.05$). Vertical dimensions of the upper face (n-sn, n-sto) and thus of the face as a whole (n-gn) showed definite signs of changes after this surgical procedure. They were always smaller after premaxillary setback (at the level $p < 0.1$). This difference was reflected also in the dimensions t-gn-t and t-gn. Since the width of the face (zy-zy) was identical in both subgroups, the height-width proportions differed (facial index, upper facial index). However because of small numbers of cases the differences between vertical and some other dimensions did not attain the significance level.

DISCUSSION

The comparison with earlier described series of patients with unilateral cleft lip and palate (Šmahel, 1982) showed that numerous deviations were in full agreement in both series, but that some of them differed. The similar basic skeletal changes included the retrusion of the middle face, the shortening of the mandible, the increase of the lower face height and of the interocular distance, while the upper face height was not significantly reduced. Among soft tissue changes was a similar increase of nasal width, as well as a narrowing of the oral slot and a shortening of the upper lip. However the calculated mean values did not reflect deviations and asymmetries within the oronasal region which were typical of an unilateral involvement. The other described deviations resulted either from basic alterations (e. g. prolongation

of the face as a whole, changes of lateral facial dimensions) or represented specific sequelae of earlier surgical therapy (e. g. increased nasal depth). Results of cephalometric measurements were in full agreement with the roentgenocephalometric patterns described in the second part of our study (Šmahel, in press). These findings explained also why the height of the upper face remained unchanged in bilateral clefts in spite of the completely altered interaction between growth regulating nasal septum and the maxilla. An X-ray analysis disclosed that there was rather an inferior displacement of the premaxilla, while the height dimensions of lateral parts of the upper face were reduced as well.

Thus, but for some differences, the basic configuration of the face was identical in both forms of clefts (with similar alternations of proportions), yet the grade of many deviations differed (Tab. 3). Bilateral clefts were characterized by a more marked enlargement of nasal width (al-al, $p < 0.01$), a narrower oral slot (ch-ch, $p < 0.05$), a shorter upper lip (sn-ls, $p < 0.001$, sbal-ll, $p < 0.01$) and by a more pronounced retrusion of the middle face (t-sn-t, $p < 0.001$), with a regularly associated retrocheilia. These deviations persisted even after the relatively more frequent secondary repair of the lip and nose (2.0 surgical procedures per patient as compared to 1.2 in UCLP$_c$) regardless of a prior maxillary setback (see tables 2 and 3). Significant differences recorded between these two series including the length of the nasal wings (prn-sbal), the width of the thresholds of nostrils (sn-sbal), deviations of nasal structures nose dev., prn. dev., m-prn, m-sn) and the distance of the columella base from the tragion and from the distal insertion of the ear lobe on the right side (t-sn dx, obi-sn dx) resulted from asymmetries associated with unilateral involvement; the difference in nasal depth (prn-sn) was due to the prolongation of the columella in BCLP$_c$. The reduced distance between eye canthi and the tragion (t-ex dx et sin) was produced by the more marked lateral displacement of outer eye canthi (ex-ex) in BCLP$_c$. The latter change was in good correlation with the slightly larger increase of the supraorbital frontal width (ft-ft). The total height of the face (n-gn) showed a smaller increase in unilateral clefts than in bilateral involvement, since the prolongation of the lower face was "compensated" by the reduced height of the upper face (there was significant difference of nasal height n-sn between unilateral and bilateral clefts). In unilateral clefts the differences between the right and left sides were due exclusively to asymmetries and deviations within the oronasal region and were missing in bilateral complete involvement. However an individual assessment of characteristics confirmed the presence of asymmetries. The causes leading to all basic deviations were discussed in our previous reports (Šmahel 1982, Šmahel and Brejcha 1983, in press). The investigated somatic dimensions in unilateral clefts revealed also smaller values of body height and circumference of the head which were not demonstrated in bilateral clefts. However, the difference between both series was not significant. Reduction of the width of the cranial base (t-t) in UCLP represented an exception and was not demonstrated in BCLP, CP or CL (Šmahel 1983, in press).

Tab. 3. Mean values of some characteristics and their differences (dif.) in individuals with complete bilateral ($BCLP_c$) and complete unilateral ($UCLP_c$) cleft lip and palate (in mm; [1]in degrees)

Variable	$BCLP_c$	$UCLP_c$	Dif.
Face			
n-gn	124.08	121.19	+ 2.89
n-sto	70.92	69.31	+ 1.61
n-sn	49.62	47.69	+ 1.93
sto-gn	54.27	53.06	+ 1.21
ft-ft	113.50	111.16	+ 2.34
t-t	143.35	140.97	+ 2.38
ex-ex	92.73	91.34	+ 1.39
t-sn-t	272.12	284.84	−12.72
Lateral facial regions			
obi-sn dx	110.12	112.75	− 2.63
obi-sn sin	110.38	110.59	− 0.21
t-sn dx	122.38	125.34	− 2.96
t-sn sin	122.58	122.97	− 0.39
t-ex dx	77.00	80.03	− 3.03
t-ex sin	77.08	79.44	− 2.36
Oronasal region			
al-al	39.19	36.72	+ 2.47
ch-ch	48.50	50.72	− 2.22
prn-sn	24.50	21.81	+ 2.69
prn-sbal dx	31.85	30.06	+ 1.79
prn-sbal sin	32.15	29.09	+ 3.06
sn-sbal dx	17.23	15.97	+ 1.26
sn-sbal sin	16.69	14.09	+ 2.60
sn-ls	11.81	14.09	− 2.28
sbal-ll dx	17.73	19.50	− 1.77
sbal-ll sin	18.38	20.09	− 1.71
[1]nose deviat.	−0.81	−3.38	− 2.57
[1]dev. prn	−0.38	−2.84	− 2.46
m-prn	−0.31	−1.72	− 1.41
m-sn	−0.08	−1.88	− 1.80
i. cheilozygom.	33.77	35.59	− 1.82

significant differences between clefts and controls

[1]sig n. diff. between $BCLP_c$ and $UCLP_c$ no significant differences between $BCLP_c$ and $UCLP_c$ were recorded in the other measured dimensions

Premaxillary setback with backward displacement of the premaxilla increased in adults the retrusion of the middle face and simultaneously reduced slightly the height of the upper face. These changes were confirmed by roentgencephalometry and described in more detail in the paper reporting the results of X-ray studies (Šmahel, in press). The other differences were derived from those mentioned above with the exception of the larger nasal width which was definitely less marked after premaxillary setback. Thus it would appear that the displacement of the premaxilla forwards contributed to the increase of nasal width, or that on the contrary its surgical displacement backwards resulted in the reduction of the originally large nasal width. This observation should be verified in larger numbers of cases. The more marked retrusion of the middle face in adults would represent, therefore, an important adverse sequela of premaxillary setback.

The problem of dismorphogenesis of ear lobes in clefts was discussed repeatedly. On the basis of our studies in unilateral and bilateral cleft lip and palate and in cleft lip alone, as well as in isolated cleft palate we have reached the conclusion that there were, on the average, no substantial differences in size, protrusion, inclination and localization of ear lobes. However, but for cleft lip alone, all other types of clefts showed an increased frequency of anomalies (in UCLP at the level of $p < 0.05$, in BCLP at $p < 0,01$ and in CP at $p < 0.001$). They were associated frequently with retroinclination of ear lobes which occurred in particular in the series of individuals with isolated cleft palate; in the subgroup of complete clefts the mean value of the inclination angle was increased significantly (in incomplete clefts at $p < 0.1$). A narrowing of ear lobes was found only occasionally (in incomplete CP and in BCLP and UCLP at the left). The inreased occurrence of anomalies of ear lobes was suggestive of dismorphogenesis related most probably to the important role played by exogenic factors in the etiology of clefts. Deviations of metric parameters of the outer ear did not represent an associated characteristic.

We failed to disclose any cephalometric study in the literature available which would be concerned exclusively with complete bilateral cleft lip and palate. A global assessment of bilateral clefts was reported by Dahl (1970), Farkas and Lindsay (1971, 1972, 1973) and Lindsay and Farkas (1972). Dahl (1970) mentioned a smaller body height and circumference and length of the head, while he failed to disclose any deviations in the width of the neurocranium, of the cranial base, of the face or of the mandible (the other characteristics were assessed on the basis of X-ray films). However the series of controls of this author had values of body height which were above the average. The results obtained by Farkas and Lindsay (l. c.) were in agreement with our conclusions. These authors recorded a prolongation both of the lower face and of the face as a whole, a reduction of the subnasal arch, an enlarged nasal width, a narrowing of the oral slot and a normal height of the upper face and nose. However, at the same time, they found an adequate height of the upper lip, measured inclusive of the vermilion. As compared to our findings they mentioned a higher frequency of a flat tip of the nose (in 62 %) and an impaired position of the nostrils (mostly of the 4th

type according to Topinard's classification). They found the same frequency of asymmetric nostrils (in 38 %) and a less frequent presence of nose deviations (in 21 %) and of a dislocation of nasal wing insertions (anteroposterior in 17 %, vertical in 45 %). The comparison of these results was not adequate because of the differing composition of the series, the different frequency of secondary repair and of subjective factors involved in the visual inspection of characteristics. Contrary to our results the above mentioned authors described posterior inclination of ear lobes. We failed to confirm a regular occurrence of auricular narrowing reported by these authors. Within the ocular region they demonstrated in males an increased distance between the inner and outer eye canthi, which was in agreement with our observations.

Complete bilateral cleft lip and palate represented the most severe involvement as compared to other types of clefts. However, the changes were more or less symmetrical. A similar situation, yet with a slighter degree of final changes could be expected in bilateral thick bridges across the clefts. This could be assumed in analogy with the comparison of complete and incomplete unilateral clefts of the lip and palate (Šmahel and Brejcha, 1983). In the presence of unilateral bridges, particularly osseous, typical signs within the oronasal region would consist of asymmetries and any deviations would simulate the situation in unilateral clefts. Bilateral asymmetric bridges would result in a pattern representing a transition between bilateral and unilateral types of clefts. Changes occurring in marginal types of clefts would allow to presume the occurence of changes in transitional forms of clefts (i. e. in incomplete and mixed BCLP). But they could not replace studies aimed at the investigation into these transitional types of clefts.

SUMMARY

Anthropometric studies and somatoscopic examinations were carried out in 26 adult males with complete bilateral cleft lip and palate subjected previously to primary surgery with the use of the same technique. They were, in addition, assessed after a subdivision into two groups, i. e. with or without premaxillary setback.

Smaller body weight was the single altered basic body characteristic. The neurocranium showed no deviations, but for the increased supraorbital frontal width, which was due to the lateral displacement of the orbits. Skeletal changes included a retrusion of the middle face, a shortened mandibular body and ramus, increased height of the lower face and a larger interocular distance. The prolongation of the face as a whole and deviations of lateral facial dimensions represented the results of these differences. Within the oronasal region were recorded an increased nasal width and a reduced width of the oral slot and of the height of the upper lip. All above mentioned changes were in agreement with those demonstrated in unilateral cleft lip and palate, though they were more marked within the oronasal region and always associated with retrocheilia. As compared to unilateral clefts the height of the upper face was not significantly reduced and within the region of the nose and lip, on the average, no asymmetries or deviations were disclosed.

Yet they occurred in individual cases. The depth of the nose was increased because of the surgical prolongation of the columella. We failed to disclose any differences in the size or position of the ear lobe. However, the latter showed an increased frequency of anomalies. Facial asymmetries were not demonstrated, but there was an alteration of facial proportions. Premaxillary setback increased the retrusion of the middle face and reduced slightly the height of the upper face, as well as of the face as a whole. The increase of nasal width was definitely smaller after premaxillary setback. Our results were compared with reports in the pertinent literature.

RESUME

Des changements céphalométriques et morphologiques à la face chez la division labiale et palatine bilatérale totale à l'age adulte

Šmahel, Z.

On o examiné 26 hommes adultes avec la division labiale et palatine bilatérale totale, du point de vue d'anthropométrie et visuellement. Au premier plan les malades ont été opérés par la même méthode. Ils sont évalués dans les sous-groupes selon présence ou non de vomérotomie.

Quant il s'agit des caractéristiques somatiques fondamentales, c'est seulement le poids corporel qui est abaissé. La boite cranienne ne présente pas d'aberrations à l'exeption de largeur supraorbitaire du front liée au déplacement latéral des orbites. L'étage médian du visage est retroussé comme résultat des changements du squelette. Le maxillaire inférieur est raccourci, la hauteur du tiers inférieur du visage est augmentée et la distance des yeux est élargie. La prolongation du tout visage et les anomalies des dimensions latérofaciales résultent des différences ci-dessus. Dans la région oralonasale il y a un élargissement augmenté du nez et l'abaissement de largeur de la fissure labiale et de hauteur des lèvres. En général, ces changements correspondent à l'image de la division labiale et palatine, bien qu'ils sont plus profonds, surtout dans la région oralonasale, la rétrochélie est régulierement présente. En comparaison avec les divisions unilatérales, la diminution de la hauteur du visage n'est pas signifiante et dans la région du nez et de la lèvre supérieur, ni des asymétries ni des déviations ne sont pas créés, en moyen. Seulement au cas individuels ces changements sont exprimés. La profondeur du nez est augmentée en conséquence de prolongation corrective de la columelle. La grandeur et la position du pavillon d'oreille ne montrent pas de différences, mais les anomalies sont plus fréquentes. Il n'y a pas d'asymétrie au visage, mais on y trouve une rupture de proportionnalité. La vomérotomie a approfondi le retroussement du visage moyen et la hauteur du visage supérieur était légérement abaissée, ce qui a abaissé le visage entier. L'élargissement du nez est, après vomérotomie, moins accentué. Les observations sont confrontées avec les données littéraires.

ZUSAMMENFASSUNG

Kephalometrische und morphologische Veränderungen des Gesichts bei vollkommener beiderseitiger Lippen- und Gaumenspaltung bei Erwachsenen

Šmahel, Z.

26 erwachsene Männer mit vollkommener beiderseitiger Lippen- und Gaumenspaltung, die mittels der gleichen Methode primär operiert worden waren, wurden antropometrisch und visuell untersucht.

Von den grundlegenden somatischen Charakteristiken erschien nur das Körpergewicht verringert. Der Hirnkasten zeigte keine Abweichungen mit Ausnahme einer

erweiterten supraorbitalen Stirnbreite, die mit einer lateralen Verschiebung der Augenhöhlen zusammenhing. Von knochenbedingten Veränderungen erschienen eine retrudierte mittlere Gesichtsetage, eine verkürzte Mandibula, eine grössere Höhe des unteren Drittels des Gesichts und eine breitere Entfernung zwischen den Augen. Eine Verlängerung des ganzen Gesichts sowie Abweichungen von den laterofacialen Abmessungen ergaben sich aus diesen Unterschieden. Im oronasalen Gebiet erschien die Nasenbreite vergrössert und die Breite der Mundspalte und die Höhe der Lippe verringert. Diese Veränderungen entsprechen den Befunden bei einseitigen Lippen- und Gaumenspaltungen, wenn sie auch, besonders im oronasalen Gebiet, ausgeprägter waren und Retrocheilie die Regel war. Gegenüber einseitigen Spaltungen war jedoch die Höhe des oberen Gesichts nicht bedeutsam geringer, und im Gebiet der Nase und der Oberlippe erschienen im Durchschnitt weder Asymmetrie noch Deviationen, die jedoch individuell auftraten. Vergrössert erschien auch die Nasentiefe infolge korrektiver Verlängerung der Collumella. In der Grösse und Stellung des Ohrs wurden keine Unterschiede festgestellt, jedoch häufiger erschienen Abnormalitäten. Im Gesicht gab es keine Asymmetrie, jedoch die Proportionalität erschien gestört. Vomerotomie vergrösserte die Retrussion des mittleren Gesichts und verringerte leicht die Höhe des oberen und damit auch des ganzen Gesichts. Die Verbreiterung der Nase war nach ausgeführter Vomerotomie deutlich geringer. Die Befunde werden mit den Angaben der Literatur verglichen.

RESUMEN

Cambios cefalométricos y morfológicos en la cara en el caso de la cisión bilateral del labio y el paladar en la edad adulta

Šmahel, Z.

A un examen antropométrico y visual se sometió a 26 hombres adultos con la cisión bilateral del labio y el paladar y que inicialmente fueron operados por el mismo método. Se los evalúa también en subgrupos con y sin vomerometría.

Como característica somática básica se detecta un reducido peso corporal. La cavidad cerebral no presenta divergencias a excepción de una elevada anchura supraorbital de la frente que tiene que ver con el desplazamiento lateral de las órbitas. Como cambios esqueletales se detecta un retroceso de la parte media de la cara, acortamiento de la mandíbula, prolongamiento de la altura del tercio inferior de la cara y un agrandamiento de la distancia entre los ojos. El prolongamiento de la cara entera y las divergencias en las dimensiones laterofaciales resultan de estas diferencias. En la zona oronasal aumenta la anchura de la nariz y se reducen la anchura de la rendija bucal y la altura del labio. Dichos cambios corresponden al diagnóstico de la cisión unilateral del labio y el paladar aun siendo — ante todo en la zona oronasal — más pronunciados y apareciendo la retroquilia como la regla. Sin embargo, comparado con las cisiones unilaterales no se detecta en forma significativa la reducción de la altura de la parte superior de la cara y en la zona de la nariz y del labio superior no se han conformado, en general, asimetrías ni desviaciones. Sin embargo, en casos individuales las hay. También se ve una elevada profundidad de la nariz como consecuencia de un prolongamiento correctivo de la columela. No se detectaron ningunas diferencias en cuanto al tamaño y la posición del pabellón pero sí hay frecuentes anormalidades. La cara, aun sin asimetrías, deja ver defectos en la proporcionalidad. La vomerometría ha agrandado la retrocesión de la parte media de la cara habiendo ligeramente reducido la altura de la parte superior de la cara y, por fin, de la cara entera. Realizada la vomerometría, queda claremente reducida la dilatación de la nariz. El diagnóstico viene comparado con los datos en la literatura.

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LATISSIMUS DORSI MUSCULOCUTANEOUS FLAP AND ITS POTENTIAL USES

L. BAŘINKA

For less than a century now, plastic surgery in particular has had a dominant feature in a noteworthy transposition on the latissimus dorsi muscle reported on by Olivari in 1976. No convincing expert description can be gleaned from Tansini's study of 1906 which should have suggested the first ever use of the dorsal skin flap transferred with the aid of the latissimus dorsi muscle. At our clinical department we have been using the method since 1980.

The latissimus dorsi musculocutaneous flap (LDMCF) provided a safe and quick solution to problems which previously required complex plastic surgery procedures not always quite to safe as in the case of the musculocutaneous flap. To give a few brief anatomical characteristics, the latissimus dorsi muscle is exhaustively supplied by the thoracodorsal artery. The arterial trunk of the thoracodorsal artery takes its origin from the subscapular artery which is a direct branch of the axillary artery. The perforant vessels rising to the skin in the region of the latissimus dorsi muscle over an area of 10 by 20 cm or more provide safe vascular supply to the skin with the subcutis. To give a visual idea, we have to do with a kind of large island skin flap of the above mentioned size sitting on the muscle tissue of the m. latissimus dorsi and transposable together with it. Having separated the latissumus dorsi muscle insertion from the lumbodorsal fascia we are free to use an unexpectedly long radius of transposition which is particularly well suited for transferring the skin flap to cover variously distant defects on the ventral area of the chest, neck, the nape of the neck and the facial region. As an extraordinary kind of use I should like to mention the reconstruction of part of the oesophagus with the latissimus dorsi musculocutaneous flap.

In this connection it might be interesting to mention the LDMCF as a free transplant with the microsurgical suture of the vascular bundles with vessels at the site of implantation. Harashina et al. use free transposition of merely the latissimus dorsi muscle tissue covering it primarily with a mesh skin graft following vascular suture. For operations of this kind, a microsurgical microscope, instrumentation and perfect command of the technique of suturing vessels from half a millimetre in diameter are essential.

In two of our patients we were able to use the LDMCF for a free transfer to the lower extremity.

In defence of what can now be called classical full-thickness skin transplants using the Burian-Filatov-Gillies tubed pedicle we maintain that these have belonged among the stock "ashlars" of plastic surgery ever since the first publication in 1918. The tubed pedicle will go on finding good use at all sites of the patient's body for its undisputable advantages. The tubed pedicle from the arm is still indispensable for the reconstruction of the nose, pinna, parts of the face, etc. Olivari's skin island flap transplanted on the latissimus dorsi muscle is just a welcome addition to the multitude of the latest plastic surgery procedures.

1. *LDMCF for breast reconstruction:*

Patient M. P., 35 years, clin. notes No. 65 177 had mastectomy performed for cancer of the left breast. She was referred to our department for mammaplasty for functional reasons as the scar pull limited her upper extremity movement, and for aesthetic reasons. Following the excision of the scar and skin aesthetic reasons. Following the excision of the scar and skin altered after X-ray therapy, an LDMCF was transposed into the defect. In a subsequent operation a Hydron breast replacement was implanted and the areola with the mammiola reconstructed. Figures 1 to 7 show the pre-operative state and the successive phases of reconstruction with the eventual outcome.

Fig. 1. State prior to operation

2. *Patient J. F., 25 years, clin. rec. No. 65 974* suffered from relapsing cancer of the retroauricular region and the neck. Following X-ray therapy of the cervical region, a shoulder flap was rotated to cover the resultant ulcer (Fig. 8). The secondary defect was covered with a latissimus dorsi musculocutaneous flap because of the traumatization of the skin transplants covering the donor site after the shoulder flap transposition. At the same time, the skin and muscular contractures were relieved. Fig. 9 and 10 show the mode of LDMCF transposition through a subcutaneous bridge into the shoulder and cervical regions.

Fig. 2. LDMCF marked out on the back-right

Fig. 3. Scar after LDMCF transposition

Fig. 4. Elevated latissimus dorsi with skin flap

3. *Patient L. M., 26 years, clin. rec. No. 39 464* with neurofibromatosis (Recklinghausen's disease) involving, among other parts, the right-hand half of the face. In spite of multiple operations, there were relapses of pathologically altered tissues growing in the face. In addition, recent histological tests

Fig. 5. Latissimus dorsi with skin flap transposed beneath elevated skin bridge to the ventral side of chest

Fig. 6. State after reconstruction of breast areola with mamilla

revealed dangerous changes suggesting possible malignization. The skin of the face showed signs of ptotic sagging under the weight of the neurofibromatous nodes as shown in Fig. 11. Radical excision of the skin and subcutis of the whole half of her face was indicated. Practically the only suitable donor site was the skin on the back which remained unaffected by neurofibrosis so that

Fig. 7. Side view

Fig. 8. State after shoulder flap transfer to the retroauricular and cervical regions. — Fig. 9. LDMCF transposition to the shoulder region

a skin transposition using the latissimus dorsi was more or less the only option. The first phase was to transfer a LDMCF through a subcutaneous tunnel in the dorsal and cervical regions to cover the facial defect following skin excision (Fig. 12, 13). Two months later, the latissimus dorsi muscle tissue

Fig. 10. LDMCF transposed through a dorsal region subcutaneous tunnel to the shoulder region

Fig. 11.—Fig. 12. Skin island flap on elevated latissimus dorsi muscle stretched to the axilla

Fig. 13. From the axilla the flap was transposed via the cervical region and implanted in the facial defect. — Fig. 14. After two months, the latissimus dorsi pedicle was cut off and left in the skin tunnel

Fig. 15. State after flap transfer to the face, prior to more modellation. — Fig. 16. State before operation with gastrostomy outlet

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was separated and left in the subcutaneous tunnel (Fig. 14). The skin flap with the muscle tissue filled in well the facial defect, thus helping to restore the symmetry of the two halves of the face (Fig. 16).

Fig. 17. Oesophageal defect with excluded intestinal portion anastomosing in the jugular pit. — Fig. 18. 15-cm oesophageal defect indicated for LDMCF to be transposed to cervical region

Fig. 19. Mobilized LDMCF with pedicle marked in the axilla

4. *Patient J. M, 35 years, clin. rec. No. 63 822* suffered oesophageal atresion after swallowing some lye. His condition was treated with palliative gastronomy, and oesophageal replacement was performed by small intestine ex-

Fig. 20. Method of neo-oesophagus tubulization with anastomosis to the intestinal loop

Fig. 21. Post-operative state with open-end neo-oesophagus in the cervical region

clusion, which, however, substituted only part of the oesophagus up to the jugular pit level (Fig. 16, 17). This still left the oesophagus with a 15 cm defect which was subsequently covered with an LDMCF as the surrounding chest skin was covered with copious hair (Fig. 18). Figs. 18, 19 show the portion of the skin flap adhering to the muscle tissue as it is being transposed from its original localization through a subcutaneous tunnel into the axilla. Figures 20 and 21 show the creation of the oesophageal tube anastomosed to the intestinal orifice with the cranial portion of the neo-oesophagus freely

Fig. 22. Loose end of neo-oesophageal lumen prior to suturing to the blind stum of hypopharynx. — Fig. 23. Anastomosis prior to complete union with the oesophageal stump

Fig. 24. Completed anastomosis to the oesophageal stump, skin cover elevated. — Fig. 25. State 1 year after reconstruction of defective oesophagus in the process of swallowing food

communicating. Fig. 22 shows the resulting condition five month later with sufficient patency restored. Figures 23 and 24 represent the process of neo-oesophageal anastomosis with the closed stump of the hypopharyngeal part of the oesophagus. The resulting state in a year's time is shown in Fig. 25 while the patient already can ingest suitably prepared food per os.

CONCLUSION

In four of our patients we took advantage of an island skin flap 13 by 23 cm in size transferred on the separated latissimus dorsi muscle. The healing, invariably without any complications, took no more than 14 to 20 days. The surgical operation requires the patient to lie on his side. The skin defect on the back could in each case be closed a linear suture following adequate mobilization of the surrounding tissue. The mobilization of the latissimus dorsi muscle resulted in no postoperative function impairment.

J. H.

SUMMARY

The range of indications is discussed for the use of the latissimus dorsi musculocutaneous flap as employed at he Brno Department of Plastic Surgery since 1980. The author reports on the surgical processes and results obtained in female breast replacement using the LDMCF after mastectomy, and on the transposition of the same flap into the shoulder and cervical regions, into the facial area, and, most unusually, into the oesophageal region to replace the oral part of the oesophagus.

RESUME

Lobe musculocutané *latissimus dorsi* et possibilités de son application

Bařinka, L.

On traite des indications possibles pour l'application du lobe musculocutané pris sur *musculus latissimus dorsi,* en profitant des expériences obtenues à la clinique de la chirurgie plastique à Brno depuis 1980.

Les procédés opératoires et leurs résultats sont documentés sur les opérations reconstructives des seins féminins, en applicant un lobe après la mastectomie, sur le déplacement du même lobe dans la région humérale, laryngienne, faciale et — comme remplacement curieux — dans la partie orale de l'oesophage.

ZUSAMMENFASSUNG

Der Muskelkutanlappen *latissimus dorsi* und die Möglichkeiten seiner Verwendung

Bařinka, L.

Es wird über die Indikationsmöglichkeiten bei der Verwendung des Muskelkutanlappens *latissimus dorsi* berichtet, so wie sie an der Klinik für plastische Chirurgie in Brno seit 1980 gehandhabt wird.

Es werden Operationsmethoden und Ergebnisse beim Ersetzen der weiblichen Brust durch einen solchen Lappen nach Mastektomie dokumentiert, ferner die Überführung des gleichen Lappens in die Schulter- und Halsgegend, sowie in die Gesichtsgegend und als Kuriosität der Ersatz eines Teils des oralen Abschnitts der Speiseröhre.

RESUMEN

Lóbulo *latissimus dorsi* musculocutáneo y las posibilidades de su implementación

Bařinka, L.

Se describen las posibilidades indicativas al implementar el lóbulo *latissimus dorsi* musculocutáneo basadas en el procedimiento efectuado en el Clínico de Cirugía Plástica de la ciudad de Brno, desde 1980.

Se documentan procedimientos operativos y los resultados logrados al restituirse el seno femenino mediante el lóbulo después de la mastectomia. Se describe también el transplante del mismo lóbulo hacia la zona braquial y cervical, la zona facial y, como una especialidad, la restitución de una parte de la sección oral del esófago.

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BLEPHAROPLASTY IN TREATMENT OF OTHER THAN FIREARM-CAUSED DEFECTS OF EYELIDS

M. V. ZAJKOVA, E. V. KOROLEVA, V. G. LUBNIN, V. P. KOSHEVOJ

Most cases of eyelid defects and deformities resulting from other than firearm wounds during the peace-time are reconstructed using simple (i. e. non-combined) methods of blepharoplasty. Combination of different techniques of blepharoplasty is not very frequent (Gundorova 1973, Zajkova 1969, Starkov 1977, and others).

The main aim of our research is to study special clinical features and the suitability of different methods of blepharoplasty for treatment of defects caused by other than firearm wounds during the peace-time.

60 patients (45 males, 15 females) with other than firearm wounds of the eyelids were treated. Most of them were aged between 15 and 45 years.

17 and 4 patients were wounded when working in industry and agriculture respectively, and 39 patients suffered injuries at home. Wounds were caused by sharp objects such as knives and scissors, metal splinters, machine parts, blunt objects, goring with horns. They were — in most cases — of accidental nature. The time interval between the accident and the patient's appeal for blepharoplasty ranged from a few to 25 years. Most patients had undergone some unsuccessful surgery before. In all patient the process of scarring had already been completed at admittance.

Anatomical features of the defect margin differed. The occurrence of complicated and simple defects was approximately the same. In simple cases a cicatricial deformity of the eyelid surface was a frequent finding. Cicatricial deformities were present also in complicated eyelid defects and they spread to adjacent anatomical regions. In 12 patients the defects of the osseous orbital wall or its margin were combined with deformities and penetrating defects of the eyelids. In 46 patients the eyelid defects had very unusual form and in some of them combined with defects of the canaliculi lacrimales caused by tearing off of the eyelid at the inner eye corner. A total defect of the eyelid combined with a partial defect or deformation of the orbital wall was observed in 3 patients only.

The method of blepharoplasty was chosen strictly individually. When planning the operation, the conditions of the defect margins and adjacent tissues

as well as anatomical and topographical relations in the defect region were considered. Simultaneously, auto- and allotransplantations, to reconstruct complicated structure of the eyelid, were planned.

Blepharoplasty of the superficial defects was performed in 46 patients and that of the penetrating defects in 14 patients. The distribution of the patients according to the type of defects and operative technique is given in the table.

Simple methods of blepharoplasty (using local tissues, free grafts and pedicle flaps) were performed in 17 patients. The combined one stage plasty was used in 17 patients and multistage plasty (consecutively) in 3 patients. In the combined plasties using local tissues (LT), free cutaneous grafts (FCG) and cutaneous pedicle flaps (CPF), autografts of the skin (AuS) and mucous membrane (AuM) and allografts of the dura mater (TDM) and cartilage (TC) were transplanted.

The allografts had been stored in 0.2 % aqueous solution of thymol in ethanol from several days to 12 months.

Single blepharoplasty was performed by commonly used methods.

The basic methods used in the combined blepharoplasty were: PLT — 20 operations, CPF — 19 operations. Various modifications used depended on the extent and localization of the eyelid defect. TDM was cut out in the form of a strip (0.3—1.0 × 1.5—5.0 cm) with regard to the area to be covered. The ends of the stretched strip were sutured to the subcutaneous tissue at the corresponding sites, usually at the eye corners. The strip of TDM stretched in the length provided support to the reconstructed eyelid (Koroleva 1980). TC in the form of plates of various size (1.0—5.0 × 0.5—2.0 × 0.1—2.0 cm) was implanted in the eyelid or defect of the osseous orbital wall.

LT (according Imre, Lindberg and others) enabled us to use undamaged skin surrounding the eyelid defects. The strip TDM implanted into the eyelid settles the eyelid in the position required and the transplants TC serve to level the eyelid relief. If the canaliculus lacrimalis was destroyed during the operation we tried to reconstruct it. A probe or horse hair were inserted into its lumen.

Modifications of the combined plasty using the pedicle flaps depended upon special features of the eyelid defect. The pedicle flaps were cut out of the upper lid, temple, nasolabial or buccal regions.

We will demonstrate our results by shortened case histories.

Patient K., born in 1937. Admitted on January 9, 1979. Diagnosis: anophtalmos, partial penetrating defect of the right upper lid. Wounded by a machine part on July 11, 1978. The destroyed eye was extracted and a surgical intervention followed. Conditions at admittance: the lid margin and entire tarsal plate with conjunctiva were absent. The defect was bordered by scars, scars were also at the skin of the upper eyelid. The patient complained of dryness of the eye prosthesis (Fig. 1).

Plan of treatment: 1. To reconstruct the free margin of the eyelid by the pedicle flap cut out of the eyebrow region. 2. To reconstruct simultaneously the inner plate of the lid AuM. 3. To fix the lid margins at the eye corners to the lid arches using additional grafts TDM.

Table 1. Distribution of patients according to type of blepharoplasty

Diagnosis	Blepharoplasty									
	Simple			One stage combined				Multistage		
	LT	FCG	CPF	LT+TC+TDM	CPF+AuM	CPF+LT+TC	CPF+AuM+AuS+TDM+TC	POS+TC	PKS+TC	Total
Eyelid deformities	3	1	—	8	—	3	1	—	—	16
Ectropion	1	1	1	4	—	—	1	—	—	8
Perforating defect	1	—	—	—	2	1	3	—	—	7
Deformities of the lids and face	5	2	—	4	—	1	—	—	1	13
Perforating defect of the lids + scars of the face	—	—	—	—	—	1	—	—	—	1
Deformities of the eyelids + defect of orbital walls	2	—	—	4	—	4	—	2	—	12
Perforating defects of the lids + defect of orbital walls	—	—	—	—	—	1	2	—	—	3
Total	12	4	1	20	2	11	7	2	1	60

Fig. 1. Patient K., after the surgery. Anophtalmos. Simple partial penetrating defect of the right upper eyelid

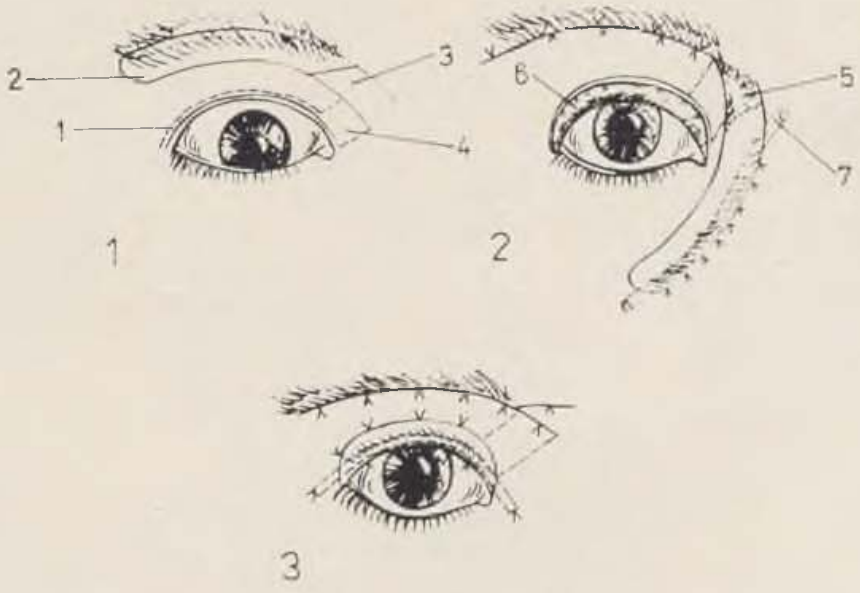

Fig. 2. Scheme of the combined one stage plasty using the pedicle flap on the inner pedicle. 1. Incision along the defect margin (1), the flap (2) on the inner pedicle (3) is cut out, the subcutaneous tunnel is formed (4). 2. The graft AuM (6) is sutured to the margin of the defect of the inner plate of the lid, the epidermis (5) of the pedicle is removed, the strip TDM (7) is inserted into the margin of the defect. 3. The skin flap passed through the subcutaneous tunnel and sutured to the margins of the outer plate of the lid

January 16, 1979. The combined one stage plasty of the right upper eyelid using the pedicle flap + AuM + TDM. The skin was incised along the entire length of the upper eyelid margin (1). In the region of the lower eyebrow the flap (2) on the inner pedicle (located medially) was cut out and its epidermis removed (3). The subcutaneous tunnel (4), reaching from the pedicle base to the lid defect, was formed (Fig. 2, 1) AuM of the size 3.5 × 1.0 cm was sutured to the margin of the defect of the inner lid plate. The TDM strip (size 4.5 × 0.2 cm) was inserted between the skin and the subcutaneous layer and attached by a few sutures. The decorticated pedicle flap was passed (5) through the subcutaneous tunnel and sutured to the margin of the skin defect of the lid (Fig. 2, 2—3). The technique used resulted in one stage reconstruction of the upper eyelid with eyelashes (Fig. 3). The dryness of the eye prosthesis was supressed.

Fig. 3. The same patient 3 years after the surgery

Defects of orbital walls or margins were closed by specially shaped grafts ГС.

Patient P., born in 1954, admitted on November 26, 1978. Diagnosis: partial perforating defect of the lower eyelid, scars of the left buccal region (Fig. 4). She injured herself, when falling on a sharp object in May 1978.

On November 3, 1978, a combined plasty СРF of the lower eyelid and transplantation of TDM and ТС were performed. The scar (1) was incised and the conjunctiva exfoliated. The narrow strip of the skin scar was excised. One end of the stretched strip TDM (4 — size 3.0 × 0.3 cm) was sutured to the region of the inner commissure, the second one to the remnants of the tarsal plate at the outer eye corner. In the region of the upper lid a skin flap (3) on a medial pedicle was cut out. The flap was sutured to the margins of the

Fig. 4. Patient P., before the operation. The partial penetrating defect of the lower eyelid, the scars of the left buccal region

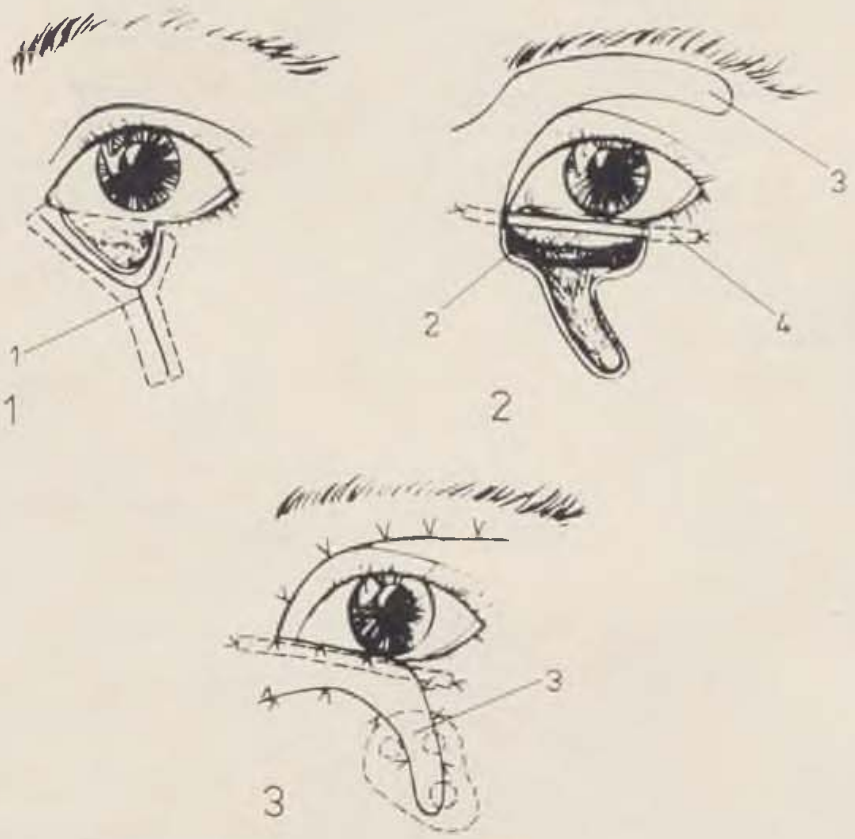

Fig. 5. Scheme of the combined blepharoplasty of the partial penetrating defect of the lower eyelid. 1. Incision (1) along the defect margin, excision of the scars. 2. The pedicle flap is cut out (3) of the region of the upper lid. Both ends of the strip TDM (4) are sutured to the subcutaneous tissues. 3. The pedicle flap (3) is sutured to the margins of the defect of the lower eyelid

lower lid defect (2) (Fig. 5, 1—2). In the middle third of the lid a perforated plate of the cartilage allograft was inserted under the skin flap (Fig. 5, 3). The primary healing took part.

The lower lid was completely reconstructed and its margins fitted closely to the globe on examination of September 29, 1980 (Fig. 6).

Fig. 6. The same patient 3.5 years after the surgery

The combined plasty was used for reconstruction of the lid deformities and defects of the lower orbital wall in two patients. The skin tubed pedicle flap cut out of the temporal region and grafting TC to the orbital defect were combined. The tubed pedicle was excised in the second stage. With this approach we succeeded in removing the severe deformity of the lid.

The multistage plasty using the tubed flap (according Filatov) in combination with grafting TC was applied in one patient suffering from severe deformity and cicatricial temporal dislocation of the lids.

Foregoing grafting of AuS failed in three patients. However, the plasty using the tubed flap removed the severe deformities and dislocations of the lids.

No serious complications were observed in the post-operative period.

With some patients we have used a permanent magnetic field (PMF) applied by means of elastic magnets, i. e. oval rubber plates of the size 5—6 × × 4—5 cm, containing ferromagnetic particles arranged chessboard-fashion. The ferromagnetic particles produce magnetic field with spatial differences in polarity. The absolute intensity of the magnetic field influencing the tissue reaches 8—10 mT, which is acceptable level (Instruction of Ministry of Health, 1978, 1979). It was found that the intensity of the magnetic field decreases with increasing distance of the magnet from the tissue, so that maximum is

reached in the lid region. Biologic activity of PMF was proved experimentally (Novickij, and Koshevoj, 1981).

Method: elastic magnets in sterile napkins are applied on the regions of surgical interventions and fixed there by means of a bandage. The treatment consisting of 10—12 sessions lasting 30 minutes decreases the post-operative oedema and results in formation of tenderer post-operative scars (Zajkova et al., 1981).

The permanency of the results has been followed for as long as 20 years in 39 patients. Good results were achieved in 32 patients, in 3 patients the results were satisfactory and in 4 patients unsatisfactory. Extremely complicated deformities and defects of the lids are believed to be the reason for only satisfactory results of the combined one stage blepharoplasty in the 3 patients. Moreover, it seems that unsuitable operative technique was chosen. Better results would be achieved using combination of several techniques in more operative stages. Unsatisfactory results of the simple blepharoplasty in 4 patients were caused by massive scars of the defect margins with scarring of the transplanted autografts and AuS, which prevented removal of the eyelid deformities.

M. D.

SUMMARY

These are the most characteristic features of the eyelid deformities and defects resulting from other than firearm wounds in the peace-time: 1. The predominance of the cicatricial deformities over the perforating defects of the lids. 2. Frequent combination of the lid deformities with scars of the face and — less frequently — with defects of the osseous orbital walls. 3. The occurrence of partial eyelids defects. The effectivity of the reconstructive treatment is considerably influenced by the proper choice of the operative technique. Simple methods of blepharoplasty enable us to remove cicatricial deformities of the eyelids. The combined blepharoplasty is to be used in cases of perforating defects and more complicated deformities. The use of the one stage blepharoplasty in combination with transplantation of the dura mater allografts increases the effectivity of the reconstructive surgery of eyelid injuries in the peace time. Treatment with the aid of permanent magnetic field in the post-operative period contributes to the formation of more tender scars.

RESUME

La blepharoplastie sur des blessures de paupières ne pas causées par des armes à feu

Zajkova, M. V., Koroleva, J. V., Lubnin, V. G., Kochevoj, V. P.

Les traits les plus caractéristiques des déformations et défauts des paupières, en époque de paix, c'est-à-dire des traumas ne pas causés par des armes à feu, sont les suivants:

1. Des déformations cicatricielles dominantes sur des défauts perforants.
2. Une fréquente combinaison des déformations de paupières avec des cicatrices au

visage, une combinaison moins fréquente avec la cicatrisation des murs osseux de l'orbite.

3. L'apparition régulière des défauts incomplets.

L'effet du traitement réparateur, agissant sur des conséquences des traumas thermiques, dépend considérablement du choix de méthode de blépharoplastie. On peut éliminer des déformations cicatricielles des paupières par une plastie non combinée, des défauts perforants par une plastie combinée, au contraire. L'utilisation d'une blépharoplastie combinée dans un temps avec une autogreffe de la dure-mère influence favorablement l'effet du traitement réparateur des conséquences des traumas des paupières, en époque de paix. Pour atteindre une cicatrisation postopératoire plus douce, on peut appliquer un champs magnétique stable, en utilisant des magnétoélastes.

ZUSAMMENFASSUNG

Blepharoplastik bei anderen als durch Schüsse verursachten Verletzungen der Lider

Zajkova, M. V., Koroleva, J. V., Lubnin, V. G., Koschevoj, V. P.

Die charakteristischen klinischen Züge bei Deformationen und Defekten der Lider in Friedenszeiten (d. h. die anders als durch eine Schussverletzung verursacht wurden) sind die folgenden:

1. Narbenartige Deformationen der Lider überwiegen über perforierende Defekte.
2. Kombinationen der Deformation der Lider mit Narben im Gesicht sind häufig, dagegen weniger häufig Kombinationen mit Narben der Knochenwände der Augenhöhlen.
3. Es treten regelmässig unvollständige Defekte der Lider auf.

Die Wirksamkeit einer reparativen Behandlung der Folgen der Verletzung der Lider hängt in grossem Mass von der Wahl einer geeigneten Methode der Blepharoplastik ab. Narbenartige Deformationen der Lider kann man in wesentlichen durch nichtkombinierte Plastik, perforierenden Defekte durch kombinierte Plastik beseitigen. Die Anwendung kombinierter Blepharoplastik in einer Etappe mit Allotransplantation der weichen Hirnhaut steigert die Wirksamkeit der reparativen Behandlung der Folgen von Verletzungen der Lider zu Friedenszeiten. Zartere Narben nach der Operation lassen sich durch die Einwirkung eines stetigen magnetischen Feldes erzielen, das man nach der Operation mit Hilfe von Magnetoelasten anwendet.

RESUMEN

La blefaroplástica de las heridas de los párpados que no fueron causadas por un arma de fuego

Zajkova, M. V., Koroleva, J. V., Lubnin, V. G., Kochevoj, V. P.

Los rasgos clínicos más característicos de las deformaciones y defectos de los párpados en tiempos de paz (esto significa aquellos que no fueron causados por armas de fuego) son los siguientes:

1. La existencia predominante de las deformaciones queloidales de los párpados comparado con los defectos perforantes.
2. Frecuentes combinaciones — es decir existencia simultánea — de estas deformaciones con cicatrices en la cara y, con menor frecuencia, también con cicatrices en las órbitas.
3. Existencia, con regularidad, de defectos incompletos de los párpados.

La eficacia del tratamiento reparador de los defectos producto de heridas de los párpados depende en gran medida de la selección de un método adecuado de blefaroplástica. Las deformaciones queloidales pueden ser eliminados, en el fondo, por la plástica no combinada, los defectos perforantes, a su vez, por la combinada. Al aplicarse la blefaroplástica combinada no repetida junto con la allotransplantación de la dura mater, crece la eficacia del tratamiento reparador de los defectos que son producto de heridas en los párpados en tiempos de paz. Se puede conseguir que las cicatrices postoperacionales resulten más finas al someterse las referidas zonas, en el tiempo después de la operación, a la acción del campo magnético estable aplicado mediante los "magnetoelásticos".

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OUR EXPERIENCE WITH THE USE OF MUSCULOCUTANEOUS FLAPS IN TROCHANTERIC DECUBITUS ULCERS

D. STOCKAROVÁ, J. PILNÁČEK

The list of conventional, generally used methods of covering soft tissue defects in decubitus ulcers with rotation and transfer flaps has recently been augmented by new, more advantageous surgical techniques. These include, in particular, the use of muscular and musculocutaneous flaps.

The m. tensor fasciae latae (TFL) musculocutaneous flap (MCF) is best suited for the surgical closure of soft tissue defects resulting from the radical removal of decubitus ulcers in the pelvic girdle region (3, 7, 9, 10). This particular flap can be used for the reconstruction of soft tissue defects in the trochanteric, ischial and sacral regions just as well as for the reconstruction of the lower part of the abdominal wall (Fig. 1). In our clinical departments we took advantage of the TFL MCF for the closure of deep trochanteric ulcers.

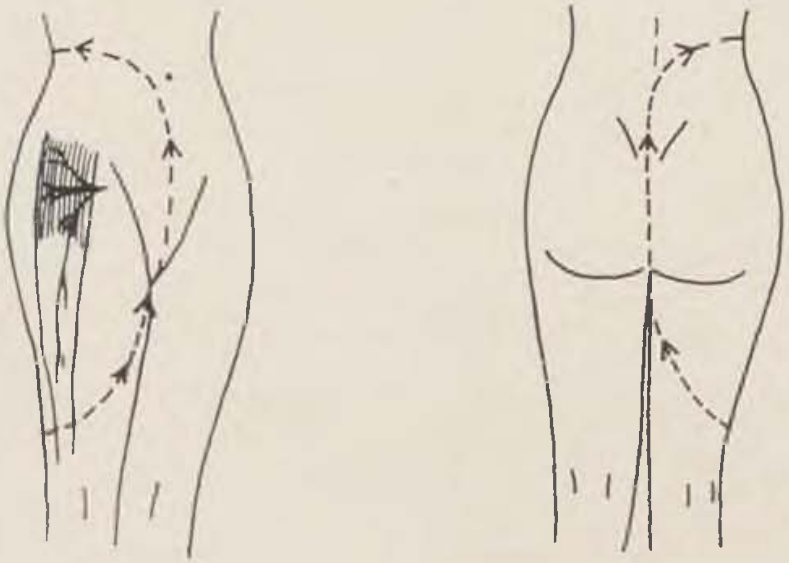

Fig. 1. Schematic representation of TFL MCF rotation arch. a — front view, b — rear view

Anatomical notes and surgical technique

The m. tensor fasciae latae (TFL) is a broad, flat muscle which takes its origin on the anterior superior iliac crest and is inserted through the fascia lata to the iliotibial band between the proximal and medial thirds of the thigh. Most of arterial supply come from the lateral circumflex femoral artery which enters the bottom surface of the muscle about 6 cm distal to the anterior iliac crest. The vessels of this dominant band are relatively large for a muscle that small in size (Fig. 2). Consequently even an MC flap benefiting from this

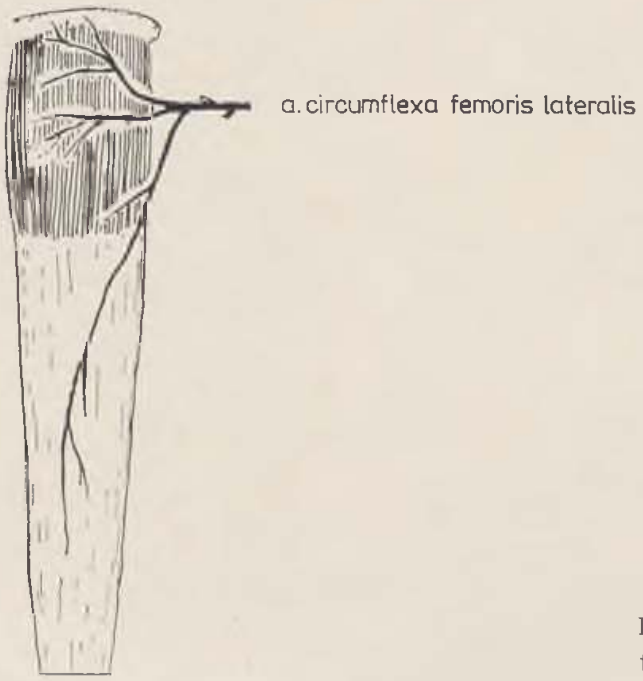

Fig. 2. Diagram of vascular supply to the tensor fasciae latae myocutaneous flap

particular muscle vascular supply is quite unusual. Making use of its vascular pedicle we can safely lift a large island of skin up to 15 by 40 cm in size. The cutaneous territory is three times as large as the muscle and includes not only the immediately overlying skin but also that on the antero-lateral side of the thigh above the fascia lata down to a distance of 6 to 8 cm above the knee joint.

Sensitive innervation is provided for by two nerves: the skin branch of the iliohypogastric nerve catering for a small area below the hip bone crest, and the n. cutaneus femoris lateralis taking care of the rest of the flap skin. One branch of the superior gluteal nerve serves the TFL motor innervation.

To achieve a surgical closure of chronic, deep decubitus ulcers in the trochanteric region, we choose the following procedure: preoperatively, we determine and sketch out the required length and width of the future island musculocutaneous flap depending on the envisaged size and localization of the defect planned for closure following the radical excision of the ulcer and the bone prominence, i.e. the greater trochanter. We lift the MC island flap by taking advantage of both its proximal musculocutaneous and its distal fascio-

cutaneous parts, starting from the distal edge of the flap. To prevent the skin being separated from the fascia lata we insert a few sutures to unite the fascia with the subcutis. The flap is easy to elevate and, unless we need to transfer it over a longer distance or with a major rotation, there is no need to expose with any great precision the vascular pedicle emerging at the typical site between the m. vastus lateralis and the m. rectus femoris.

Fig. 3. Photo — patient P. K. a — before operation — outer range of trochanteric ulcer on the left-hand side, b — after operation — soft tissue defect after radical removal of decubitus ulcer covered with TFL MCF

RESULTS

We used the TFL MCF in four cases to reconstruct soft tissues following the surgical closure of chronic, deep-seated decubitus ulcers in the trochanteric region:

Pat. No. 1: P. K., 25-year old paraplegic with bilateral trochanteric decubitus ulcers persisting for more than 12 months. Following an extensive excision of the ulcer and scars, after the radical removal of the whole subcutaneous bursa and the ablation of the greater trochanter, we replaced the soft tissue defect with a TFL MCP making use of both the proximal musculocutaneous and the distal fasciocutaneous portions of the flap. The donor site was closed

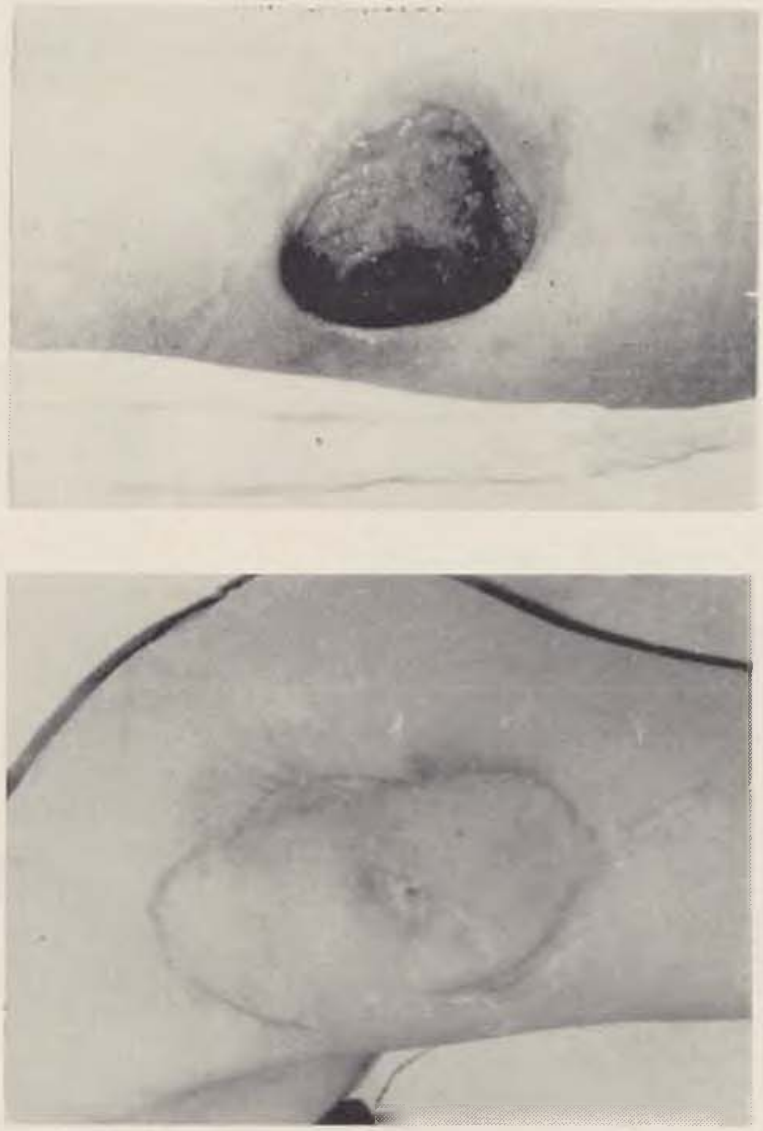

Fig. 4. Photo — patient P. K. a — trochanteric decubitus ulcer on the right-hand side prior to operation, b — after operation

by direct suture. Healing on both sides was achieved in 10 days. Two years after the operation now, the patient is healed and free from relapses (Fig. 3a, b, Fig. 4a, b).

Pat. No. 2: K. K., 22-year old male patient with post-injury quadruplegia and large decubitus ulcers in both trochanteric regions lasting 5 months. After

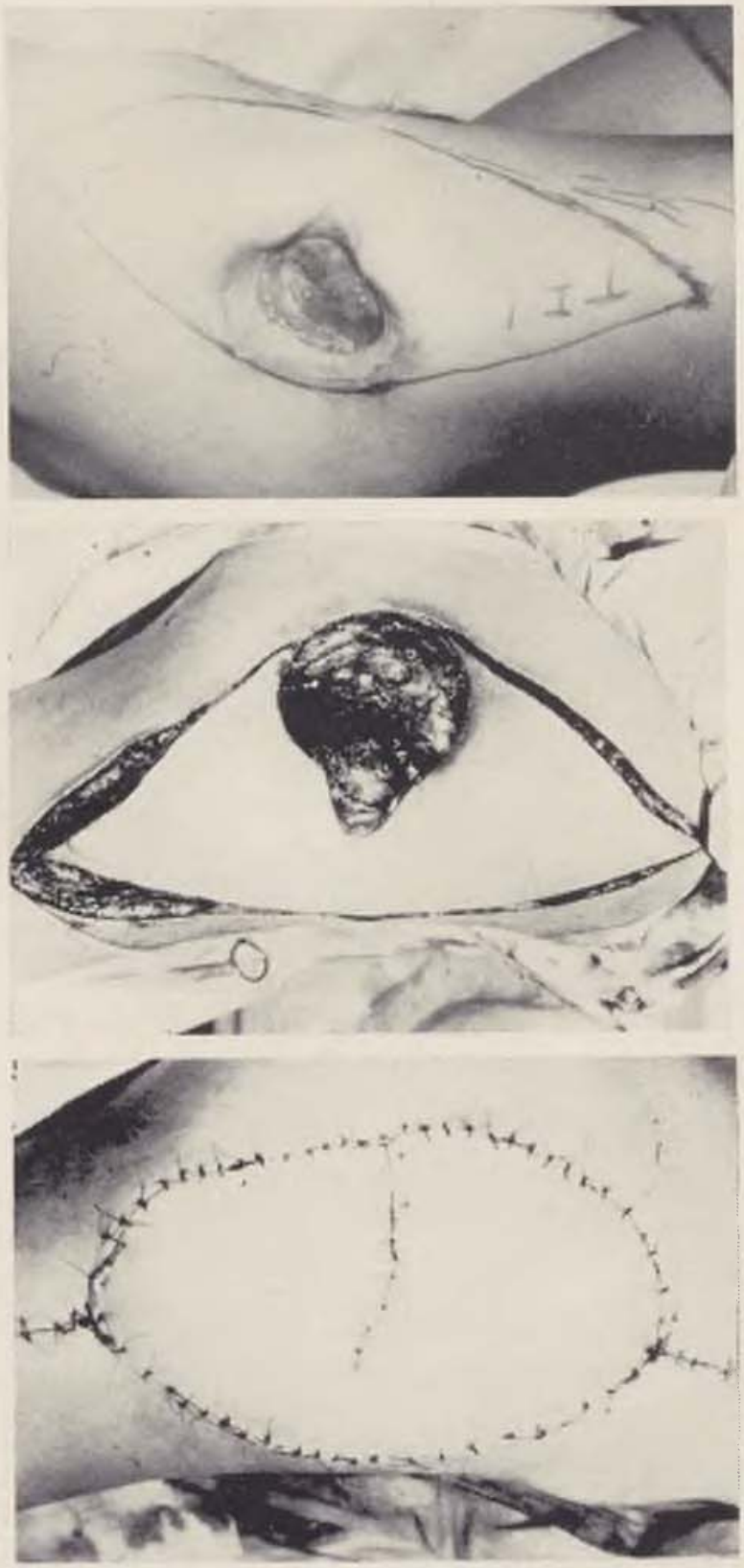

Fig. 5. Photo — patient K. K. a — trochanteric ulcer on the left before surgery with drawing of planned TFL MC flap, b — circumcision of TFL island MC flap, c — post-operative state

radical removal of the ulcers and ablation of the greater trochanters, soft tissue reconstruction was performed with TFL MC flaps. The donor site was closed by direct suture (Fig. 5a, b, c, Fig. 6a, b).

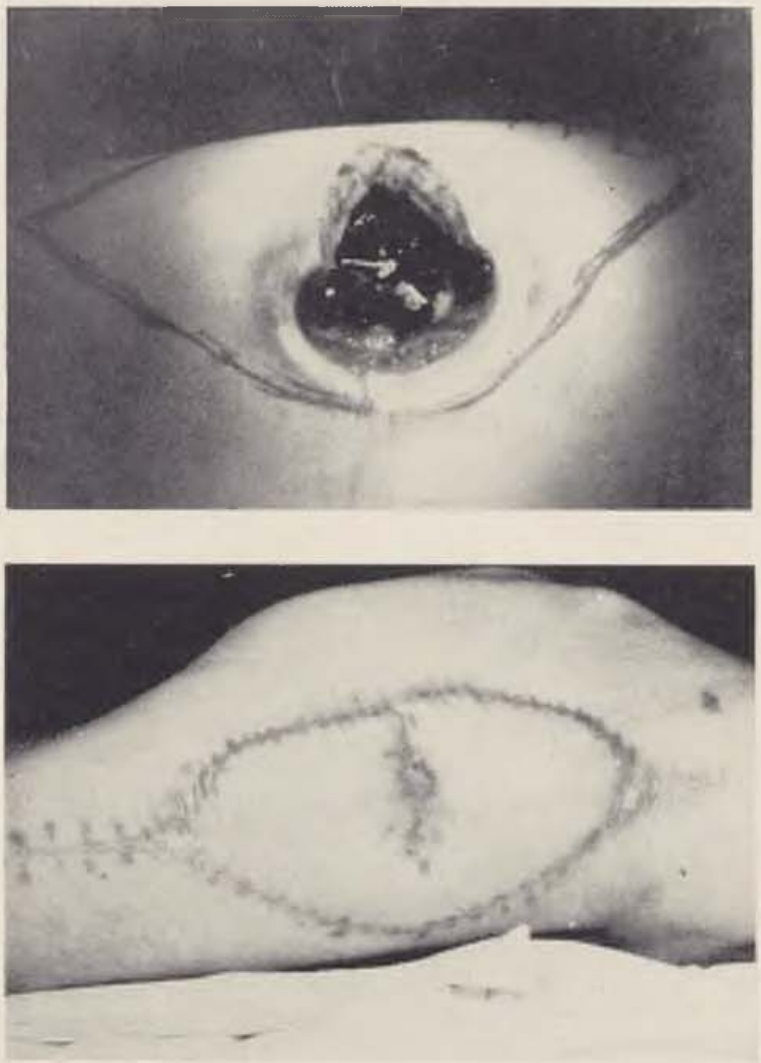

Fig. 6. Photo — patient K. K. a — trochanteric decubitus ulcer on the right before operation, b — after healing

The MC flap supplies the region with such an abundance of blood that Redon's drain must invariably be inserted in the flap for excessive capillary bleeding. From the operation on, the flaps were invariably without any signs of impaired circulation. The wound were healed by first intention so that intensive rehabilitation could be started within ten days of the operation.

DISCUSSION

The significance of muscle transposition for soft tissue defect reconstruction, particularly in decubitus ulcers, was stressed by Ger (1), Mathes (4)

and others (8, 10). The muscle provides the regions affected with increased blood supply, thus helping to prevent residual infection. Moreover, the muscle belly acts as an excellent cushion to relieve concentrated body weight pressure on the exposed sites. A certain disadvantage is in the need to retransplant muscular flaps with skin grafts. In paraplegic patiens with bedsores this means more healing time with the skin cover being ultimately of lesser quality.

This kind of disadvantage is absent in the new surgical methods based on the precise demarkation of arterial skin territories (5, 6) and permitting the successful use of independent myocutaneous units in the form of MC flaps (2, 3, 7, 9, 10). Thanks to their excellent blood supply the MC flaps offer advantages far surpassing other types of transplants. Unlike the rest of the flaps, their size is not limited by their dominant vascular pedicle.. The mobility of the flap as a whole depends on the point where the dominant vascular bundle enters the muscle. Sitting on this dominant vascular pedicle all of the MC flap can be separated from the surrounding area, elevated and rotated into the defect as a highly mobile island flap with a remarkably wide range of rotation.

The abundant blood supply permits the MC flaps to resist successfully infection. Consequently, the infection that is invariably present in chronic granulation surfaces of decubitus ulcers is regarded as an indication rather than a contra-indication for the use of MC flaps.

The dramatically rapid course of healing in those extremely difficult decubitus ulcers had an extremely beneficial effect on the patients and their relatives — in somatic as well as in psychic terms. The rapid and uncomplicated healing seen in the use of MC flaps is moreover, an economic advantage considering the marked reduction in hospitalization time and in the cost of treatment.

Our own experience with the uses of TFL MCF is too limited as yet to warrant any far-reaching conclusions but the safety of the skin island transfer from both over the m. tensor fasciae latae and from over the fascia lata, and the results obtained so far seem to justify us in recommending the TFL MCF as a flap of choice for the closure of trochanteric decubitus ulcers.

J. H.

SUMMARY

The m. tensor fasciae latae musculocutaneous flap is a reliable flap of multiple uses which the authors tested in the surgical closure of trochanteric decubitus ulcers. The abundant blood supply to the flap ensures its safety, while speeding up healing time and, consequently, facilitating post-operative nursing care.

RÉSUMÉ

Nos expériences avec l'utilisation des lobes musculocutanés chez des ulcères décubitaux trochantériens

Stockarová, B., Pilnáček, J.

Le lobe musculocutané de *musculus tensor fasciae latae* présente un lobe d'une utilisation multiple et d'une grande sûreté. Les auteurs l'ont examiné en recouvrant des

ulcères décubitaux trochantériens. L'assurance de sûreté du lobe consiste dans sa parfaite alimentation sanguine ce qui contribue à une guérison vite. Tout cela facilite des soins médicaux post-opératoires.

ZUSAMMENFASSUNG

Unsere Erfahrungen mit der Verwendung eines Muskuluokutanlappens bei trochanterischem Dekubitus

Stockarová, B., Pilnáček, J.

Der Muskulokutanlappen *m. tensor fasciae latae* läßt sich vielseitig verwenden und ist sehr zuverlässig, wie es die Autoren bei Verschlüssen eines trochanterischen Dekubitus mehrfach erprobt haben. Die ausgezeichnete Versorgung dieses Lappens mit Blut sichert dessen Gefahrlosigkeit, trägt zum raschen Verheilen bei und damit auch zur Erleichterung der Fürsorge der Krankenschwester nach der Operation.

RESUMEN

Nuestras experiencias con la utilización de lóbulos musculocutáneos en los decúbitos trocantéricos

Stockarová, B., Pilnáček, J.

El lóbulo musculocutáneo *m. tensor fasciae latae* es un lóbulo de utilización multifacética y de gran confiabilidad según los autores han podido verificar al cubrir los decúbitos trocantéricos. Una excelente alimentación de sangre de este lóbulo contribuye a una segura y rápida curación facilitando por tanto todo trabajo relacionado con la atención médica prestada por el personal sanitario.

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SURGICAL TREATMENT OF CHRONIC HIDRADENITIS SUPPURATIVA

T. TEMELKOV, K. TROSHEV

Methods of plastic surgery have come to be increasingly used in all the rest of surgical specialties. There are countries where plastic surgery emerged to meet exactly that kind of need, and continues to develop along those lines. Nevertheless, there are diseases, the treatment of which would be unthinkable without the plastic surgeon's close co-operation with specialists in the branch of surgery concerned. Advanced chronic hidradenitis suppurativa is one such disease.

Chronic hidradenitis is an embarrassing complaint as its chronic course threatens the whole of the body with the danger of complications. Its onset is usually one of acute inflammation which later turns chronic. At the beginning of the course of treatment many surgeons give little thought to the nature of the disease. Hence also why different authors give it different names: chronic perineal infection (4), perineal gangrene (3), chronic perianal fistulas or abscesses (7). Few seem to link the complaint with Verneuil's name (5).

Fig. 1. Unilateral perianal localization

The disease is characterized by a number of fistulas resulting from the chronic suppurative inflammation of the sweat glands in the perianal and perineal regions. The surgeon's effort is made increasingly difficult of frequent exacerbations and a multitude of suppurative foci. The patient's general con-

Fig. 2. Bilateral perianal localization

dition may become increasingly worse until, sometimes, sepsis develops. Antibiotic treatment may be found inadequate as sometimes it can only suppress acute inflammation. Suppurative foci are frequently found in other sweat gland localizations such as the axilla, the groin, scrotum, etc., and the inflammatory process may become generalized.

The disease is fairly frequent. Chrabot (2) treated 97 patients with 100 anorectal abscesses, thereof 38 patients suffered from chronic hidradenitis suppurativa. We ourselves treated 13 patients though we do not known the percentage they represented of all the anorectal abscesses treated at our unit. It is interesting to note that there was just one woman among that group of patients.

Depending on the localization and clinical condition the symptomatology can be classified as follows:

1. unilateral perianal localization,
2. bilateral perianal localization,
3. perianal localization with (unilateral or bilateral) spread to the groin and scrotum,
4. perianal and axillary localization.

Depending on the effect the disease has on the patiens's general condition we established the following classification:

— mild form with good general condition,
— medium form with deteriorated general condition,
— severe form with sepsis.

There can be no standard surgical treatment of the severe form, radical excision is invariably called for.

In the acute phase of the disease with non-drained suppurative foci, undelayed surgical treatment with incision and drainage is a necessity and so is, if need be, antibiotic therapy depending on the bacterial sensitivity. Some authors seem to prefer drug treatment [1], others [6, 7] insist on its invetiable combination with surgical operation.

Fig. 3. Perianal localization with spread to the groin and scrotum

Fig. 4. Patient as in Fig. 3 — cured. Free grafts on the scrotum and in the inguinal region are just visible

Fig. 5.—9. Perianal and axillary localization — before, during and after operation

Once the disease has reached the stage of chronicity, some authors advocate deep excision with primary suture, while others myocutaneous flaps from the thigh and the gluteal region to cover the wound areas resulting from the excision of perineal fistulas and abscesses. Other authors (6), while covering the wound areas with free skin transplants, bring in local remedies for secondary infection prevention to prevent relapses by inducing rapid healing.

To treat chronic hidradenitis, we prepared tissues for radical operation by means of excisions and discission of the suppurative foci. The radical operation involved skin excision from all over the region affected. The resulting defect was subsequently covered with flaps of different size or with free skin dermic grafts. In doing this, we prefer mesh grafts in view of the good drainage in primary focal infection and also with regard to the localization of the process and to the risk of secondary infection.

In the post-operative period, we choose not to rely on local antibiotic treatment only. The specificities of the perineal region and the need to maintain the conditions necessary for the normal physiological function of the natural body orifices and organs compel us to start with early antiseptic hydrotherapy. This is performed once or twice daily using sitz baths of various antiseptic solutions where we prefer permanganate followed by epithelialization-stimulating dressing. The dressing is essential because of the existence of non-epithelialized perforation in free graft, and also in order to avoid friction in the epithelial areas as these are of low functional value and easily vulnerable.

The treatment of all our patients resulted in complete cure, and there have been no relapses. Pathological cicatrization (hypertrophic or keloid scarring) was not observed in a single case of skin plastic operation regardless of the size or type. The skin used for the plastic operation took relatively little time to become adapted to the specific conditions of the part of the body concerned. The follow-up period was 2 to 14 years.

As our experience suggests, in all cases of chronic suppurative inflammation with protracted course and with localization in the perineal or perianal regions, symptoms of Verneuil's disease ought to be looked for, followed by the drafting of a comprehensive plan of radical surgical treatment.

J. H.

SUMMARY

The authors report on their experience with the treatment of 13 patients with Verneuil's disease, proposing a classification of different manifestations of the complaint depending on the localization and different forms of the clinical picture judged by the patient's general condition, listing the principles and results of surgical treatment, and stressing the need for general and plastic surgeons' co-operation whenever radical surgery is called for. Chronic hidradenitis suppurativa is far from being a rare complaint, and should consequently be thought of in any chronic suppurative inflammation in the perineum. Adherence to a comprehensive therapeutical strategy is essential. The authors followed up their patients for periods of 2 up to 14 years after complete cure was achieved without observing any relapses or post-operative complications.

RESUME

Traitement chirurgical de *hidroadenitis chronica suppurata*

Temelkov, T., Troshev, K.

Les auteurs rapportent ses expériences du traitement de 13 malades souffrants de la maladie Verneuil. Ils proposent une classification des symptômes différents de la maladie selon sa localisation et selon des formes variées du tableau clinique qui est présenté par l'état général du malade. Les auteurs allèguent les principes et les résultats du traitement chirurgical. Ils attirent l'attention sur la nécessité de coopération entre le chirurgien général et le chirurgien plastique pour exécuter un traitement opératoire radical. *Hidroadenitis chronica suppurativa* ne présent point une maladie rare, alors faut-il l'envisager toujours en rencontrant une inflammation suppurante du

périnée. Cette maladie exige que le plan complet du traitement soit strictement suivi. Les malades ont été observés au cours de 2—14 ans après leur guérison sans que des rechutes et des complications postopératoires soient aperçues.

ZUSAMMENFASSUNG

Die chirurgische Behandlung der *hidroadenitis chronica suppurata*

Temelkov, T., Troschev, K.

Die Autoren teilen ihre Erfahrungen mit der Behandlung von 13 Patienten mit der Verneuil'schen Krankheit mit. Sie schlagen die Klassifizierung der Äusserungen der Erkrankung je nach der Lokalisierung der Krankheit und den verschiedenen Formen des klinischen Bildes je nach dem Gesamtzustand des Patienten vor. Sie führen die Grundsätze und Ergebnisse einer chirurgischen Behandlung an. Sie machen auf die Notwendigkeit der Zusammenarbeit des allgemeinen Chirurgen mit dem plastischen Chirurgen bei radikaler operativer Behandlung aufmerksam. Die *hidroadenitis chronica suppurativa* ist keineswegs eine seltene Erkrankung, und es ist daher nötig, an sie bei jedem chronischen Eitern eines Geschwürs des Perineums zu denken. Die Erkrankung erfordert das Einhalten eines komplexen Behandlungsplans. Die Patienten wurden während 2—14 Jahren nach ihrer vollständigen Gesundung beobachtet, ohne daß Rezidiven oder Komplikationen nach den Operationen gefunden wurden.

RESUMEN

Tratamiento quirúrgico de *hidroadenitis chronica suppurativa*

Temelkov, T., Troshev, K.

Los autores dan a conocer sus experiencias con el tratamiento de 13 pacientes que padecen de la enfermedad Verneuil. Proponen la clasificación de diferentes manifestaciones de la enfermedad según su localización y diferentes formas del cuadro clínico según el estado general del paciente. Señalan los principios y los resultados del tratamiento quirúrgico. Llaman la atención sobre la necesidad que tiene la cooperación entre un cirujano general con el plástico para un tratamiento operativo radical. *La hidroadenitis chronica suppurativa* es una enfermedad poco frecuente por cuanto no conviene descartarla en cualquier caso de inflammación crónica suppurativa del perineo. Esta enfermedad requiere la observación de un complejo plan de tratamiento. Los pacientes se sometieron a controles durante 2 a 14 años después de su curación completa sin que se pudieran observar recidivas o complicaciones como resultado de las operaciones.

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STOP FOR A MOMENT AND CONSIDER YOUR HEALTH

DAY AFTER DAY AND YEAR AFTER YEAR YOU ARE CONSTANTLY CHASING SOME AIM OR ANOTHER, YOU STRETCH THE MAINSPRING OF YOUR HEALTH TO THE VERY MAXIMUM. AND HOW LONG DO YOU THING YOU CAN CONTINUE TO DO SO? REMEMBER THAT YOU HAVE ONLY ONE HEALTH AND FINALLY MAKE UP YOUR MIND TO GRANT IT, AT A VERY REASONABLE PRICE, WHAT IT DESERVES: COMPLEX TREATMENT AT ONE OF THE OLDEST AND THE MOST WIDELY RECOGNIZED SPAS IN EUROPE.

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