
ACTA CHIRURGIAE PLASTICAE

INTERNATIONAL JOURNAL OF PLASTIC SURGERY,
MAXILLOFACIAL SURGERY, HAND SURGERY AND BURNS

Vol.38 • 3/96



PUBLISHED BY THE CZECH MEDICAL ASSOCIATION J.E.PURKYNĚ

ISSN 0323-0414
INDEXED IN EXCERPTA MEDICA - EMBASE



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ACTA CHIRURGIAE PLASTICAE

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Acta Chirurgiae Plasticae is an international journal with a long-standing tradition respected by the professional public worldwide. It is published in English four times per year. The journal contains clinical, experimental and theoretic studies from the discipline of plastic, reconstructive and aesthetic surgery, surgery of the hand, craniofacial surgery, treatment of burns and allied surgical disciplines (traumatology, orthopaedics, gynaecology etc.). In the journal you will also find reviews, case-histories, innovations, comments, reports from study trips and congresses, reviews of books and various announcements.

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Price for a single issue: Kč 39,50 (Czech Republic), Sk 62,- (Slovak Republic) USD 24,-, DM 35,- (other countries).

1996 subscription rate: Kč 158,-, Sk 248,-, USD 96,-, DM 140,-, respectively.

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CHRONIC TRAUMATIC WOUNDS OF THE LEG

Z. Pros, M. Tvrdek, J. Kletenský, A. Nejedlý, S. Svoboda

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SUMMARY

The authors report the results of a retrospective study of the treatment of chronic defects of soft tissues and bones of the leg and foot with free muscle and musculocutaneous flaps. The study deals with the results of the use of the microsurgical techniques during the period of 11 years at the Department of Plastic Surgery of the 3rd Medical School in Prague. Discussed are the advantages and disadvantages of this technique as one of the possible therapeutic methods inclusive of the results obtained at the above mentioned department.

ZUSAMMENFASSUNG

Chronische traumatische Wunden des Beines

Z. Pros, M. Tvrdek, J. Kletenský, A. Nejedlý, S. Svoboda

Die Autoren präsentieren die Ergebnisse der retrospektiven Untersuchungen der Behandlung von chronischen Defekten der Weichteile und des skeletalen Teiles des Schienbeins und des Fusses mit freien muskulären oder mukokutanen Lappen. Die Untersuchungen umfassten die 11-jährige Periode der Anwendung der mikrochirurgische Technik an der Klinik für plastische Chirurgie der III. medizinischen Fakultät in Prag. Erörtert wurden die positiven und negativen Seiten dieser Methode als einer der möglichen Behandlungen und an der höher erwähnten Abteilung erzielten Ergebnisse.

Key words: chronic defect, free muscle flap, microsurgery

The development of the microsurgical technique and its routine introduction into the practice of the plastic and reconstructive surgeon marked a tremendous progress in the treating of chronic soft tissue defects and skeleton defects of the leg. The technique of free flap transfer allows the healing of chronic defects, which was surgically impossible at the time of the injury. One of the limiting factors that prevents the wound from healing is its bacterial settlement. In this case the free muscle or musculocutaneous flap transfer can be of great help since it is the site of chronic inflammation, and together with the surgical sanitation of the centre suppress infection.

MATERIAL AND METHOD

At the Department of Plastic Surgery in Prague, 57 free muscle or musculocutaneous flap transfers were carried out in the years 1984 - 1995 for chronic defects in 54 patients. The chronicity criterion was the defect time duration longer than 1 month. Reasons for the surgery are presented in

Table 1. Localization of lesions are depicted schematically in Fig. 1 and Figs. 2, 3, 4, 5. Muscle or musculocutaneous latissimus dorsi flap and serratus muscle flap are routinely applied (Table 2, Figs. 6, 7). Within the last half year also rectus abdominis muscle or musculocutaneous flaps were used but these were not included in our series.

Table 1: Reasons for free flap transfer

OSTEOMYELITIS	24
EXPOSED BONE ONLY	21
CHRONIC SOFT TISSUE DEFECT	9
TOTAL	54

Table 2: Free flap types

LATISSIMUS DORSI FLAP	44
SERRATUS ANTERIOR FLAP	13
TOTAL	57

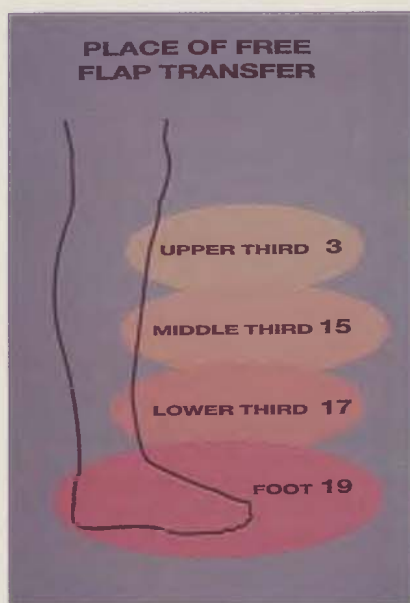


Fig. 1: Localization of lesions.



Fig. 2: Chronic defect of the foot.



Fig. 3: Chronic defect of the lower third of the leg.



Fig. 4: Chronic defect of the middle third of the leg.



Fig. 5: Chronic defect of the upper third of the leg.



Fig. 6: Harvested latissimus dorsi flap.



Fig. 7: Harvested serratus anterior flap.



Fig. 8: Necrosis of transferred latissimus dorsi flap.

RESULTS

The technical performance of the free flap transfer is sufficiently well known. At our clinic we prefer the use of trunk vessels, in arteries we prefer end-to-side anastomoses and in veins end-to-end anastomoses.

During the last month we invited all patients of the series for a check-up. Out of the 54 invited, 26 turned up. In the course of examination we were interested in the time duration of the defect prior to our surgical reconstruction, the actual flap condition, total time of healing, complications, functional constriction concerning the donor site as well as in the patient's subjective assessment. Our observations are presented in Tables 3, 4. In 7 patients early exploration of anastomoses was made for signs of vein thrombosis, in spite of it, we lost 4 flaps (Fig. 8). In three cases new free transfer from the other site was used to restore the original defect. The remaining 4 cases were treated in another manner.

Table 3: Duration of defects and healing period

DURATION OF DEFECTS	
AVERAGE 42 MONTHS	
IN RANGE OF 1 MONTH TO 40 YEARS	
HEALING PERIOD	
AVERAGE 51 DAYS	
IN RANGE OF 14 TO 240 DAYS	

Table 4: Complications

FLAP FAILURE	4
PARTIAL FLAP FAILURE	3
VESSEL THROMBOSIS	7
DONOR SITE MORBIDITY	3

CONCLUSION

Though the series is not very numerous, we wish to state the following:

1) In the great majority of cases, the treatment of a chronic defect of the leg by means of the free muscle transfer is successful and leads to a cure (Figs. 9, 10, 11, 12).



Fig. 9: Defect of the heel with exposed bone.



Fig. 10: One year after surgery - serratus anterior muscle flap transfer was performed.



Fig. 11: Osteomyelitis of the tibia.



Fig. 12: Three months after surgery before removing external fixation. Latissimus dorsi musculocutaneous flap transfer was performed.



Fig. 13: Donor site after harvesting serratus anterior flap - two years after surgery.



Fig. 14: Donor site after harvesting latissimus dorsi flap - two years after surgery.

2) None of the patients exhibits a functional constriction concerning the donor site. We did not find the scapula getting loose after harvesting serratus muscle as it is described in the literature, and neither is a mild deformity in the thorax contour perceived as an essential cosmetic problem (Figs. 13, 14).

To conclude, we wish to say that, of course, there are other methods of treating chronic defects of the leg. This method is usually applied as a final step, often as an alternative to amputation. As compared to other procedures, the free flap transfer is in the first phase a greater burden for the patient, in the majority of cases, however, it provides a faster recovery and can also treat defects where no other methods are applicable. That is why we think that the resultant effect exceeds the risks as well as the negative aspects

implicit in this method. Our conclusion is confirmed by the fact, that after experience of this type of surgery, 95 % of patients would undergo it again in case of need.

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TREATMENT OF DEFECTS AND INSTABLE SKIN SCARS ON HEAVILY EXPOSED PARTS OF THE LEG

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Department of Plastic Surgery, 3rd Medical Faculty, Charles University, Prague, Czech Republic

SUMMARY

The authors report a series of 41 patients subjected to a transfer of the sensitive fasciocutaneous flap to a defect or to instable skin scars on the leg. Described are immediate as well as longterm surgical results in relation to the sensitivity of the transferred flap and the condition of the donor site of the flap.

ZUSAMMENFASSUNG

Behandlung von Defekten und einer nicht stabilen Hautnarbe an den hoch belasteten Teilen der unteren Extremität

J. Kletenský, M. Tvrdek, Z. Pros, A. Nejedlý, S. Svoboda

Die Autoren berichten über ein Krankengut von 41 Patienten nach einer Übertragung eines sensitiven fasciokutanen Lappen auf den Defekt oder auf eine instabile Narbe an der unteren Extremität. Beschrieben werden unmittelbare bzw. spätere postoperative Ergebnisse mit Berücksichtigung der Sensitivität des übertragenen Lappen, als auch auf den Endzustand an der Stelle der Lappenentnahme.

Key words: microsurgery, defects and instable skin scars of the leg, sensitive flap

The treatment of soft tissue defects on the leg traditionally includes one of the problems closely concerning the field of plastic surgery. Routine introduction of the microsurgical technique allows the transfer of free tissue having the required properties, size and shape with its own vascular or neurovascular supply. Free flap transfer of fasciocutaneous or a musculocutaneous flap is a way that leads to the completion and thus the restoration of the integrity of the skin cover by means of full-value tissue, which, due to reinnervation, can be sufficiently sensitive.

MATERIAL AND METHOD

At the Department of Plastic Surgery in Prague, free flap transfer to the leg was effected in 41 patients in the period 1985 - 1995. It was either a defect (in 34 cases) or an instable skin scar (in 7 cases) that indicated the need of surgery. The localisation of the lesion is presented in Table 1. A radial forearm flap was used most frequently, followed by lateral arm flap, tensor fasciae latae flap and dorsalis pedis flap (Table 2, Figs. 1-2).

Table 1. Place for free flap transfer

INSERTION OF ACHILLES TENDON	5
HEEL	13
FOOT SOLE	15
FOREFOOT	7
DORSUM PEDIS	1

Table 2. Type of sensitive free flap

RADIAL FOREARM FLAP	34
LATERAL ARM FLAP	4
TENSOR FASCIAE LATAE FLAP	2
DORSALIS PEDIS FLAP	1
TOTAL	41

The limiting factors of a successful flap transfer with the microsurgical technique are generally well known. From the viewpoint of the technique of vessel anastomoses in arteries we favour the end-to-side anastomosis, in veins the end-to-end anastomosis to the respective comitant vein or to a suitable subcutaneous vein from the superficial system. Out of 41 transferred flaps, 38 showed a primary healing, early exploration of

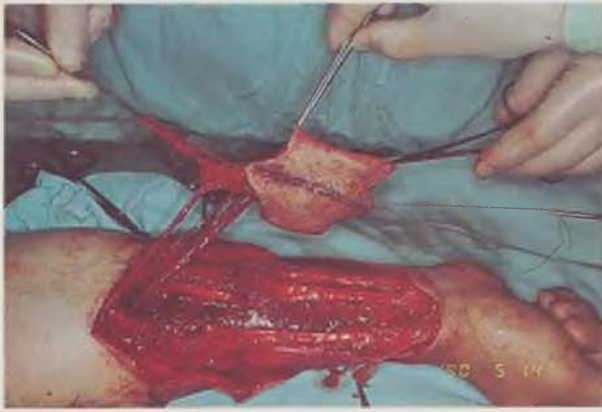


Fig. 1: Harvested radial forearm flap.

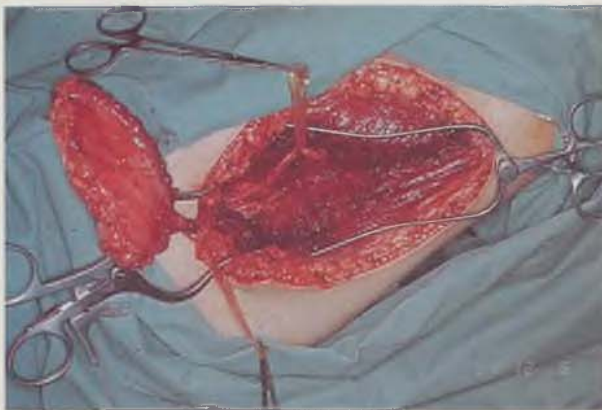


Fig. 2: Harvested lateral arm flap.

anastomoses was made in three cases so that no flap was lost. The most frequently used nerve was the sural nerve, in 35 cases, in the remaining 6 the superficial peroneal nerve was used. The average time of hospital treatment after the surgery amounts to 27 days.

RESULTS

All patients of the series were invited to a check-up, 21 of whom turned up. In the course of the check-up we were interested, among others, in the actual condition of the flap, its two-point discrimination, discrimination of cold and warm quality, and finally in the condition of the donor site (Table 3, Fig. 3). Though the series is not great in number, the following statements can be made:

1. The flap sensitivity was surprisingly good, the two-point discrimination ranged between 10-100 mm, even tactile hyperesthesia was established.

2. In 8 patients, persisting instabilities of the cutaneous cover - bruises, rhagades, scratches, were situated within the area of the scar or outside the transferred flap (Table 4, Fig. 4).

3. None of the patients reported functional constriction as a result of flap harvesting. Post-operative paraesthesias in the innervation area of the sensitive branch of the radial nerve, which are not unfrequently identified after the radial forearm free flap harvest, were totally stabilised. The interrogated patients do not perceive the donor site on the forearm as a significant cosmetic mutilation, either (Figs. 5-7).

Table 3: Follow up

NON-RESPONDERS	20
HYPERESTHESIA	6
TWO POINT DISCRIMINATION	
10-100 mm (mean 34 mm)	19
ANESTHESIA	2
TOTAL	41

Table 4: Long term results

NON-RESPONDERS	20
HEALED	13
TEMPORARY RECURRENCE OF	
SUPERFICIAL DEFECT	8
TOTAL	41



Fig. 3: Check-up of two-point discrimination.



Fig. 4: Example of instability of the cutaneous cover - superficial defect on the flap.



Fig. 5: Donor site after harvesting of radial forearm flap (three years after surgery).



Fig. 6: Donor site after harvesting of radial forearm flap (three years after surgery).



Fig. 7: Donor site after harvesting of lateral arm flap (three years after surgery).

DISCUSSION

The treatment of defects of soft tissues on the leg, of defects on heavily exposed parts of the leg by means of sensitive flap transfer is currently considered a standard procedure. In less extensive defects, whose shape allows it, we attempted in recent years to use lateral arm flap, which is of greater advantage in terms of healing and the resultant appearance of the harvested site.

The question remains whether or to which extent the possible hypersensitivity of the flap tissue may participate in the higher vulnerability of the ambient tissue. We have not enough knowledge of the functional importance of the relationship of deep sensitivity, which is usually preserved, and the sensitivity of the reinnervated flap tissue. An open, even though certainly a speculative question is, what sort of longterm effect would result from covering the same defects with identical flaps in which the nerves would not be attached. Nevertheless, we presume that the flap sensitivity is a contribution not only from the viewpoint of tactile and thermal perception, but also from the viewpoint of a favourable neurotrophic effect for both prevention and better healing of microtrauma which the tissue is subjected to on heavily exposed places.

We are naturally aware of the fact that the long-term effect of the surgery is substantially conditioned by e.g. the availability of adequate orthopaedic footwear, and, in particular, by the intellect and the attitude of the patient towards the problem.

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CAUDAL TRAPEZIUS COMPOSITE ISLAND FLAP FOR EXTENSIVE SHOULDER DEFECTS

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SUMMARY

The trapezius composite flap was first described by Demergasso in 1979 (2). The caudal trapezius island flap was described by Mathes and Nahai (4), in head and neck cancer reconstruction. Baek and Biller (1) described the descending branch of the transverse cervical artery, as a dominant blood supply. It is an useful flap for the reconstruction of defects around shoulder, neck and cheek regions. The anatomy of the trapezius muscle, its blood supply, vascular territories and its function is described in brief. Use of this flap in the reconstruction of compound extensive tissue defects in shoulder region of our patient is presented.

ZUSAMMENFASSUNG

Insel-komposite Lappen aus dem kaudalen Teil des M. Trapezius bei ausgedehnten Schulter Defekten

H. M. Bhathena

Der „trapezius composite“ Lappen wurde zum erstenmal von Demergasso in 1979 beschrieben (2). Der kaudale trapezius Inselappen wurde von Mathes und Nahai (4) bei der Rekonstruktion bei Kopf- und Halskrebs beschrieben. Baek und Biller (1) bezeichnen die absteigenden Äste der transversal cervical Arterie als die dominante Gefäßversorgung. Die Lappen eignen sich gut für die Rekonstruktion im Gebiet der Schulter, des Halses und des Kopfes. Die Anatomie des M. trapezius, seine Gefäßversorgung und sein Gefäßterritorium und seine Funktion werden kurz beschrieben. Die Anwendung dieses Lappen bei der Rekonstruktion vom ausgedehnten Gewebsdefekten in der Gegend der Schulter bei unseren Patienten wird erörtert.

Key words: trapezius composite flap, reconstruction of compound shoulder defects

The cranial trapezius flap was described by Demergasso (2) in 1979, and by Panje and Cutting (6) in 1980 incorporating medial two-third of the scapular spine for reconstruction of anterior mandibular defects. The caudal trapezius myocutaneous flap was described by Mathes and Nahai (4) in 1979 and Baek and Biller (1) in 1980 as an island flap for head and neck reconstruction after ablative cancer surgery. They identified the transverse cervical artery as the major blood supply to this lower trapezius region. Although myocutaneous flaps have been used extensively for reconstructive procedures, the caudal trapezius flap has been much less used for this purpose. The caudal trapezius flap can be raised either as a regular myocutaneous flap or as a pure island myocutaneous flap. In both instances donor area defects can, as a rule, be sutured primarily if the width of the flap does not exceed 8-10 cm.

Here is a case report, where a caudal trapezius composite island flap, on its fascio-vascular pedicle has been used to reconstruct the extensive

compound tissue defects around the shoulder region, after radical ablation for recurrent soft tissue sarcoma.

ANATOMY

The trapezius muscle is a flat triangular muscle, arising from the superficial tubercle of the occipital bone, the medial third of the superior nuchae, the spinous processes of the seventh cervical and all thoracic vertebrae, and intervertebral ligaments. At its other end the muscle inserts on the lateral third of the clavicle, on the acromion and the crest of the scapular spine. Blood supply is from superficial and deep descending branches of the transverse cervical artery. The transverse cervical artery enters trapezius muscle 6-7 cm medial of the acromion and then runs parallel to medial scapular border. Frequently superficial branch arises directly from the thyrocervical trunk and is then named super-

ficial cervical artery. In this event, the deep descending branch arises directly from subclavian artery and is termed dorsal scapular artery. Dorsal scapular artery runs under levator muscle deep to the superior angle of the scapula. The major branch penetrates between the rhomboidus and descends along the deep surface of the trapezius to supply the lower most trapezius muscle fibres (5). Venous drainage is via accompanying veins. The muscle is innervated by the accessory nerve. The main stem of which follows the descending branch of the transverse cervical artery or dorsal scapular artery if present. The muscle and overlying skin below the tip of the scapula receive their dominant blood supply from dorsal scapular artery or deep descending branch of transverse cervical artery.

CASE REPORT

Forty two year old male patient was first seen by bone and soft tissue service for recurrent, painful swelling of left shoulder region. He gave a history of first appearance of the swelling 10 year back, which was excised elsewhere. It recurred 5 years after the first surgery and was once more excised. It was reported as soft tissue sarcoma.

He has discomfort and pain in the same area since last 6 month. The swelling was noticed by him since 3 month, which has grown to its present size. Outside slide of previous excision was reviewed by our pathologist and found to be „dermatofibrosarcoma protuberance“. On examination, there was a 7 x 7 cm size swelling of firm to hard consistency and was fixed to deeper structures. The overlying skin was stretched and was having a scar of previous surgery. It was excised widely by bone and soft tissue service, and raw area was skin grafted by them. Histopathology report confirmed pathology of the dermatofibrosarcoma protuberance and base was found to be involved by tumor. Hence, it was decided to re-excise the residual disease and plastic surgery opinion was sought for the reconstruction.

At this stage on examination, there was a split thickness skin grafted area of 9 x 9 cm, with patches of granulation tissues and/or fungating, recurrent disease, over the right shoulder region. The acromioclavicular joint was involved clinically. Residual tumor was excised widely with removal of the acromion process, and lateral end of the clavicle. The defect was 10 x 7 cm including skin, deeper soft tissue and bone. The caudal trapezius flap of 11 x 8 cm dimension and based on the dorsal scapular or deep branch of transverse cervical vessels was raised to reconstruct the existing defect.

The histopathology report was satisfactory, showing base and cut margins negative for the tumor. The excised acromion process and the clavicle bone and overlying periosteum was not involved by tumor.

TECHNIQUE

Patient is positioned in the lateral or semi-lateral decubitus. The ipsilateral arm is kept free to allow its mobility during the procedure. Upper arm is rotated internally and abducted to provide the wide space between the medial edge of scapula and lateral vertebral edge. The caudal trapezius island myocutaneous flap is marked out over the lower medial trapezius fibres. The outlined skin island is incised and elevated over the deeper latissimus fibres from below, upwards. On reaching the lower border of the trapezius muscle, the muscle is raised from the underlying tissue bed. The flap is further elevated deep to the trapezius fibres until the lower border of the rhomboids muscles is identified. At this point deep descending branch of the transverse cervical artery or dorsal scapular artery (depending upon the anatomical variation), which is running in the deep fascia on the under surface of the trapezius muscle, is identified and mobilized. Rhomboidus minor may require to incise to get an extra pedicle length of the vessel especially when it is based on dorsal scapular artery and not on deep branch of transverse cervical artery. Perforating vessels from the inter-costal arteries are identified and divided. At the upper muscle border the superficial descending branch of transverse cervical artery or dorsal scapular artery when it is present, is identified and mobilized up to its origin to elevate the entire island composite flap on the longest available vascular pedicle as required. Sufficient muscle function is retained to leave almost no functional defect, by leaving behind a 4-5 cm wide portion of the muscle at its upper border. The flap is tunneled under these upper muscle fibres and brought to the shoulder region to cover the defect. The donor defect is closed primarily.



Fig. 1: Fungating, recurrent growth of the shoulder region.



Fig. 2: Wide excision completed. Caudal Trapezius island flap marked out.



Fig. 3: Composite flap being raised from below upward.



Fig. 4: Late post-op after 6 month. Contour and bilateral symmetry.



Fig. 5: Close-up of the reconstructed shoulder defect.

DISCUSSION

The trapezius composite flap is a very versatile flap for reconstruction of extensive, compound tissue defects. This can be used as the cranial trapezius composite flap with or without incorporation of the scapular spine, or the caudal trapezius composite island flap. The caudal trapezius composite flap is easy to handle and safe from the point of view of the circulation even in elderly patients. It is superior to the scapular island flap based on the circumflex scapular artery due to the available long vascular pedicle and the tissue bulk (3). The transverse cervical artery is the main arterial supply although the dorsal scapular artery may frequently be the dominant vessel (5). The tissue bulk of the flap is an asset for filling even such big defects as might arise even after radical excision of sarcoma. Before using the flap, however, it is important to establish whether the transverse cervical artery is intact or has been ligated or damaged by previous surgical procedure, i.e. a radical neck node dissection or by radiotherapy. In such cases caudal trapezius flap can still be used provided it has the dominant dorsal scapular artery blood supply.

In conclusion, the caudal trapezius composite flap is an useful alternative for reconstruction of defects on the shoulder and on the upper part of

the back. Using this technique, the upper portion of the trapezius muscle is left undisturbed to continue to perform its vital function. The change of decubitus is not necessary to raise this flap, which is an added asset. Long thin pedicle has an additional advantage of taking the flap at the distance. It can also be used as a free flap in different situation. The advantages of this flap are multiple. These include a wide rotation arc, required tissue bulk to cover the large soft tissue defects, good contour, primary closure of donor site and a short operative time needed to perform.

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CAPUT MANDIBULAE ACCESSORIUM

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SUMMARY

The presented anomaly consists of a doubled mandibular condylus in a boy aged 5.5 years. We report this case because of its rare localisation, shape, size and microscopic pattern. It represents a doubled articular process arising from the mandibular processus coronoideus. From the morphologic view the finding is very exceptional. We failed to find any similar case in the literature available. The findings of doubled articular processes (condylus bifidus) previously quoted are of different origin. In this case it was obviously disorder in the differentiation of the mandible within the period when the mandibular ramus basis was formed by the secondary cartilage.

ZUSAMMENFASSUNG

Caput mandibulae Accessorium

J. Ramba, M. Doskočil

Ein Bericht über die angeborene Missbildung eines verdoppelten mandibularen Kondyles bei einem 5,5 jährigen Jungen. Wir demonstrieren diesen Fall wegen seiner Rarität, seiner Lokalisierung, Gestaltung, Grösse und des erhaltenen mikroskopischen Befundes. Es handelt sich um eine Verdoppelung des Gelenkvorsatzes herausgehend von Processus coronoideus mandibulae. Aus morfologischer Sicht ist dieser Befund ganz eindeutig kurios. Ein analogischer Fall konnte in der Literatur nicht ermittelt werden. Die beschriebenen Fälle einer Verdoppelung der Gelenkvorsätze weisen eine unterschiedliche Entwicklung (condylus bifidus) auf. In unserem Fall geht es offensichtlich um eine Störung in der Differenzierung der Mandibula im Zeitabschnitt, als die Anlage des Ramus mandibulae aus einem Knorpel bestand.

Key words: mandible anomaly, condylus bifidus, accessory head, secondary cartilage

A rare anomaly - doubled articular process of the mandible was described for the first time by Hrdlička (1941) in 21 human jaws and in male gorilla. Schier (1948) presented the same anomaly in his patient, similar anomalies were reported also by Honee and Bloehm (1969), Stadnicki (1971), Lund (1974), Lysell and Orhberg (1975), Farmand (1981), Kim (1983), Forman and Smith (1984), Thomason and Yusuf (1986), Balciunas (1986), Quayle and Adams (1986), Edward (1989), To (1989) and Ramba (1990).

CASE REPORT

A) Clinical findings

A boy aged 5 and a half years was admitted to the Division of Maxillofacial Surgery of the Department of Pediatric Stomatology after the parents noticed (one month prior to the admission to the hospital) a painless, gradually enlarging mass in the right cheek, which moved with the mandible (Fig. 1). On palpation was observed a hard mass arising from the right processus

coronoideus of the mandible. On the x-ray film it had the shape of a cauliflower (Fig. 2). Clinical and laboratory studies showed no signs of malignancy but the mass affected the mechanical function and an esthetical aspect.

A resection of the involved muscular process was carried out in general anesthesia. The surgical specimen showed evidence that this mass showed a great similarity to the mandibular head with a resected part of the processus coronoideus. The shape of the head was obvious from the first sight. The surface was covered with whitish rather tough tissue, similar to an articular cartilage but its surface was not smooth. The cartilage was *connected with* the tissue similar to a joint capsule. The neck was bony (Figs. 3-5). The articular process arise from the anterior edge of the processus coronoideus 13.7 mm in caudal direction from its apex. The articular process had the shape of an irregular cylinder with a long axis laying in a slight dorsomedial direction. Since it was resected from the right half of the mandible its orientation was normal (Fig. 6).



1a)



1b)

Fig. 1a, b: The mass in the right cheek moving together with the mandible. A boy aged 5.5 years.



Fig. 2a: Posteroanterior x-ray film of the skull (section) - the cauliflowerlike mass in the area of the right processus coronoideus.



Fig. 2b: Topographical relationship of the mass to the neighbouring bone structures.



Fig. 3: The surgical specimen: the articular process - anterior view.



Fig. 4: The surgical specimen: the articular process with a part of processus coronoideus - external view.

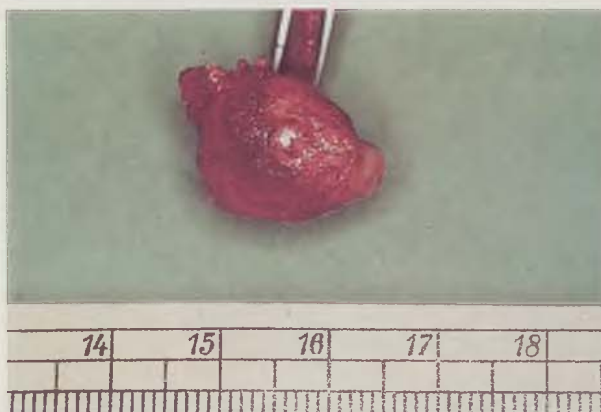


Fig. 5: The surgical specimen: the articular process - view from the top.



Fig. 6a: Orthopantomogram - extension in the area of the processus coronoideus.

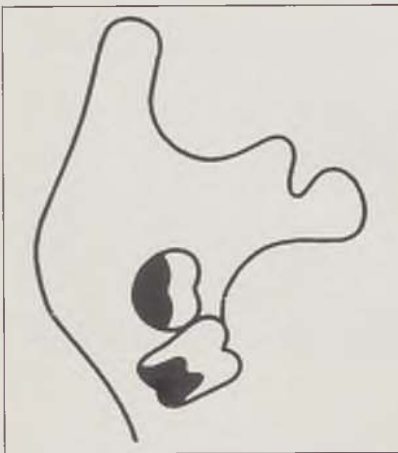


Fig. 6b: Relationship of the additional articular process to the mandibular ramus.

The width of the accessory head was 17.5 mm, the thickness 11.5 mm, the layer of cartilage on the surface of head reached in some places up to 4 mm. The neck arising from the head is 6.4 mm wide. Its thickness was 5.1 mm at the side of the origin from the processus coronoideus.

B) Microscopic pattern

The microscopic studies of the frontal sections (after decalcification, dehydration and fixation of the specimen in Paraplast showed the following:

1. On the surface of the specimen was a layer of thick collagenous connective tissue with a layer



Fig. 7: The cranial surface of the accessory head. Dense connective tissue on the surface (star), the anteroposterior (black arrow) and transverse (white arrow) systems of collagenous fibres. Abscissa = 0.1 mm.

of bundles situated in anteroposterior direction (this was demonstrated in cross-section of the specimen) and with a more deeply layer of connective tissue bundles situated in anterior direction (observed in oblique or longitudinal slices) (Fig. 7).

2. The largest volume showed the further layer of accessory mandibular head which consisted of young hyalinous cartilage with islands of chondroidal tissue. On the surface of the specimen, at the boundary between the connective tissue and the cartilaginous part of the accessorial head the vertical collagenous fibres undergo a change into horizontal fibres. (Fig. 8)



Fig. 8: Connective septa (arrows) situated in anteroposterior direction within the cartilaginous mandibular head of a normal newborn. Abscissa = 0.1 mm.

3. At the lower margin of the cartilaginous components of the accessorial head is present a typical growth cartilage with hypertrophic, calcified and degenerating cells and with capillary clips penetrating from the lower part of the specimen (Fig. 9).

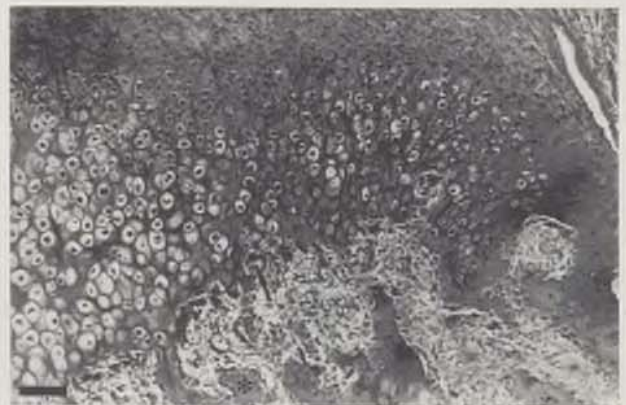


Fig. 9: A frontal section through the caudal segment of the accessory head of the mandible. The cartilaginous structure is similar to that of the growth cartilage. In the lower part eroding artery arising from the ossificated part of the specimen (arrows) and the newly developed bone trabeculae (stars). Abscissa = 0.1 mm.

4. The neck and the torso of processus coronoidei consist of normal trabecular bone with

a thin layer of a compact bone on the surface and with well developed trabeculae.

DISCUSSION

The doubled articular processes reported in the literature can be subdivided into two groups.

The first group includes cases where the deep connective septa develop in the basis of the mandibular head which divide the whole cartilaginous head into several parts - during a normal development the septa are always present (Figs. 8, 10). Breaking apart of the septa results in two separate mandibular heads in a typical position one besides the other and situated in a common articular fossa (Blackwood 1957, Moffet 1966).

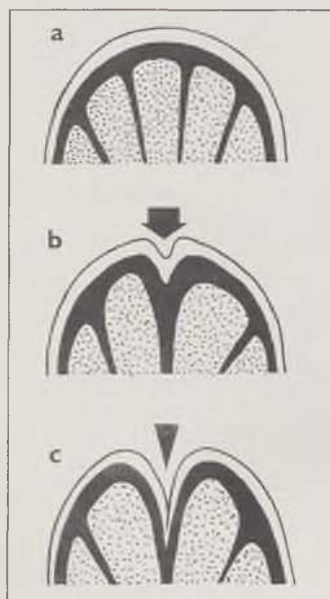


Fig. 10: The scheme of the hypothetical mechanism of the development of the condylus bifidus of non traumatic origin where two heads were situated in a typical localisation and in a normal articular fossa.

The second group includes findings which were discovered due to injuries. The head, i.e. articular process is either divided into a dorsal and ventral parts or into medial and lateral. In the first case the articular process, i.e. the head is dislocated ventrally in front of the articular tubercle. The second process, i.e. the head is secondary (Thomason and Yusuf 1986). The position of the articular process in front of the articular tuberculum due to an injury is not necessary permanent. The mandibular movements and remodeling processes together with a gradual overloading of the relevant half of the mandible can lead to a gradual shifting of the articular process over the articular tuberculum into articular fossa. At the same time the articular process will straighten itself. Our observations are in agreement with Weinberg and Taliano (1983). In the second case described by Hrdlička (1941) head was divided by varying deep impressions into two parts: lateral and medial. The same anomaly is presented by Lund (1974) in two girls after fracture of the articular process. In both children the anomaly oc-

curred during the remodeling of doubled articular head. The author explains this observation by an incomplete resorption of the dislocated original head where apposition during the growth process lead to the development of the secondary head, separated from the original by a notch on the articular surface.

We cannot exclude that cases described by Hrdlička represented anomalies which have also been known after a longterm follow up of facial skeletal fractures in children. It is the posttraumatic anomaly which can be explained as follows: Before the termination of the growth of the missing part of the articular process (mostly inclined medially) occurs a lower growth rate of the relevant part of the lower jaw which leads to the typical posttraumatic mandibular asymmetry, which is visible also on jaws on figures presented by Hrdlička. The doubled articular process occurs if the growth potency of the persisting part of the secondary articular cartilage (Doskočil 1988, 1989) exceeds the remodeling processes so that the secondary articular process is formed prior to the straightening of the dislocated process into its original position. Of function importance is obviously the slighter use of the injured side. Our experience shows that on the contrary the functional overloading promotes faster remodeling of the original articular process healed in an incorrect position.

The reported case does not belong to any of these groups for the following reasons.

1. The heads are situated one behind the other but between them is situated normal processus coronoideus with an insertion of m. temporalis.

2. The accessory head situated in front of the processus coronoideus is not in contact with an articular fossa or any other cartilaginous or bony structure imitating an articular fossa.

The described case is of interest because the head developed in a surprisingly good shape in an atypical localisation with a nearly normal structure in spite of missing contact with any solid fossa, i.e. without the possibility of a modelation due to functional mechanical factors as intermittent pressure, friction and similar.

Thus, it is possible to speculate why our patient developed an accessory head. Our proposed hypothesis is presented schematically on Figure 11. At the time when to the future upper end of the mandibular ramus attaches the basis of the insertion of m. temporalis it proceeds normally in front of the terminal part of the joint. If, for unknown reasons the basis of the insertion attaches to the future terminal part of the joint it may result hypothetically in the development of the two heads, one in front of and second behind the muscle attachment. A longitudinal splitting of the cartilaginous basis of ramus mandibulae could occur as well. The sequelae of both processes are identical. The cause is unknown and its occurrence could be determined within the end of first and



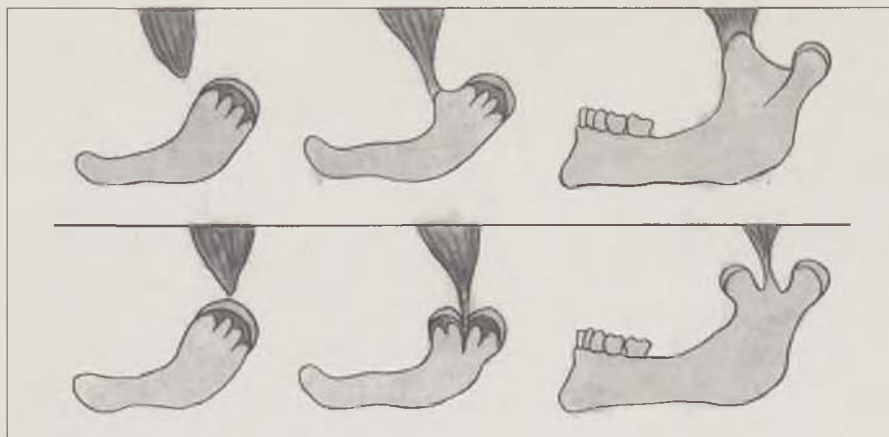


Fig. 11: The scheme of the hypothetical development of the two heads in our patient, where the heads were situated one besides the other and between them was inserted the temporal muscle. Only the posterior head was situated in a normal articular fossa. The brown spindle in upper parts of the scheme represents an anlage of the m. temporalis. The upper line of the scheme shows a normal development, the lower line shows the development of the reported case.

beginning of the second month of prenatal life. The development of accessory head occurs due to a higher growth rate of the child. One of these growth spurts occurs between the 5th - 7th year of age.

The corpus mandibulae is a desmogenous bone developing around Meckel's cartilage. The cartilage disappears without a trace in late foetal life due to enchondral ossification. Mandibular ramus is of rather different origin. Later than Meckel's cartilage the cartilaginous little column appears in the area of the future ramus mandibulae which is surrounded by bone tissue from the neighbouring connective tissue. The column itself undergoes enchondral ossification proceeding upwards (from angulus mandibulae). The ossification proceeds up to the area of the future mandibular neck, where it stoppes and within the space the cartilaginous cells change their direction so that the cartilaginous mandibular head is fixed by cartilaginous bends to the newly developed bone. The bends are like anchor ropes. The margin between the cartilage and the bone exerts function of growth cartilage due to which increases the height of the mandibular ramus. Contrary to the traditional opinion, it seems recently that the mandible is not entirely desmogenous bone. The so called secondary cartilages which so far were considered as more or less accidental findings within the region of angulus and ramus mandibulae represent actually the residue of a relatively large cartilage from which arises the largest part of the mandibular ramus. The mandibular head develops also from this cartilage and this explains how the cartilaginous head can occur on a desmogenous bone. The boundary between the cartilaginous head and a bony mandibular ramus (formed by the enchondral ossification) functions as a cartilaginous growth layer.

CONCLUSION

Reported is a boy aged 5.5 years in whom were observed two mandibular heads situated one besides the other and separated by a normal developed insertion of m. temporalis on un-

changed processus coronoideus of the mandible. The posterior head was situated in a normal articular fossa, while the anterior head exceeded into the soft tissues of the cheek. The microscopic pattern of the head was nearly normal but its articular surface was not smooth.

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CARE OF PATIENTS WITH FACIAL CLEFTS AT THE DEPARTMENT OF PLASTIC SURGERY IN PRAGUE

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SUMMARY

The multidisciplinary care of cleft defects in the Prague Department of Plastic Surgery has a long tradition. The authors describe the team care of patients including the timing of the surgery as well as the conservative therapy.

ZUSAMMENFASSUNG

Behandlung der Patienten mit Gesichtsmissbildungen an der Klinik der plastischen Chirurgie in Prag

J. Kuderová, J. Borský, M. Černý, Ž. Müllerová, M. Vohradník, J. Hrivnáková

Die komplexe Behandlung der Spaltmissbildungen hat auf der Klinik der plastischen Chirurgie in Prag eine langjährige Tradition. Die Autoren beschrieben die komplexe Teambehandlung der Patienten einschliesslich der Wahl, des Zeitpunktes der chirurgischen Behandlung und der konservativen Therapie.

Key words: cleft lip, cleft palate

The care of patients with facial clefts in the Czech Republic has a long tradition. Prof. F. Burian was involved in the treatment of cleft lip and palate already after the First World War. He soon managed to bring the care of patients with clefts to a high level, not only from the view of surgical treatment but also because he succeeded in obtaining the cooperation of specialists from related branches of medicine: foniatics - prof. Seeman and prof. Sovák, stomatology prof. Jesenský and prof. Kostečka and some others. This complete care of patients with cleft malformation was organised here one generation earlier than in other parts of the world.

After the Second World War prof. Burian used all present modern knowledge in Surgery, Pediatrics, Orthodontics, Foniatics and Psychology. In addition he used theoretic disciplines such as Anthropology, Genetics, Teratology, Histology, Anatomy and others for a relatively optimum care of cleft patients. The work that he had started has been carried on by others who headed this department - prof. Karfík, prof. Pešková, prof. Fára. The department of plastic surgery at the Faculty Hospital Královské Vinohrady in Prague headed by assoc. prof. Tvrdek continues in the care of patients with cleft together with a team of specialists.

Facial clefts are very common in our population (2 per 1000 new borns). That is why great attention is given to the research in the prevention of cleft malformations from the point of the individual, his family and the general population. In families with a high risk of these malformations a protective familial regimen was initiated. In principle it is an optimisation of condition of conception, to allow a spontaneous selection and the detection of malformations during the prenatal period.

Optimisation of conditions of conception starts 3 - 4 months prior to conception. The mother is tested for TORCH infection, boreliose, listeriose and EBV, urogenital infections are noted. With subsequent gynaecologic and hormonal studies (insufficiency of gestagens, hyperprolactinemia). A complete biological assessment is performed. Partners are recommended a varied diet and E vitamin and Acidum folicum in tablets. During the first trimester it is recommended to continue with complementary vitamins to eliminate unwanted embryotoxic factors.

Up to the 8th week of pregnancy it is not advised to maintain the pregnancy in cases of abortus imminens (spontaneous prenatal selection). During the second trimester attention is focused to the diagnosis of malformations with routine

Table 1. The incidence of clefts during 1990 - 1994

SUM: 607

SUM M: 353

SUM F: 254

Year	CL			CLP						CP					
	Cleft lip			Unilateral cleft lip and palate			Bilateral cleft lip and palate			Soft palate clefts			Hard palatal clefts		
	SUM	M	F	SUM	M	F	SUM	M	F	SUM	M	F	SUM	M	F
1990	40	21	19	48	31	17	12	9	3	29	18	11	19	5	14
1991	31	16	15	41	23	18	20	16	4	27	13	14	18	3	15
1992	26	23	3	24	17	7	25	19	6	23	13	10	22	5	17
1993	26	17	9	20	12	8	19	10	9	17	7	10	23	8	15
1994	26	19	7	30	23	7	8	6	2	13	7	6	20	12	8
Total	149	96	53	163	106	57	84	60	24	109	58	51	102	33	69

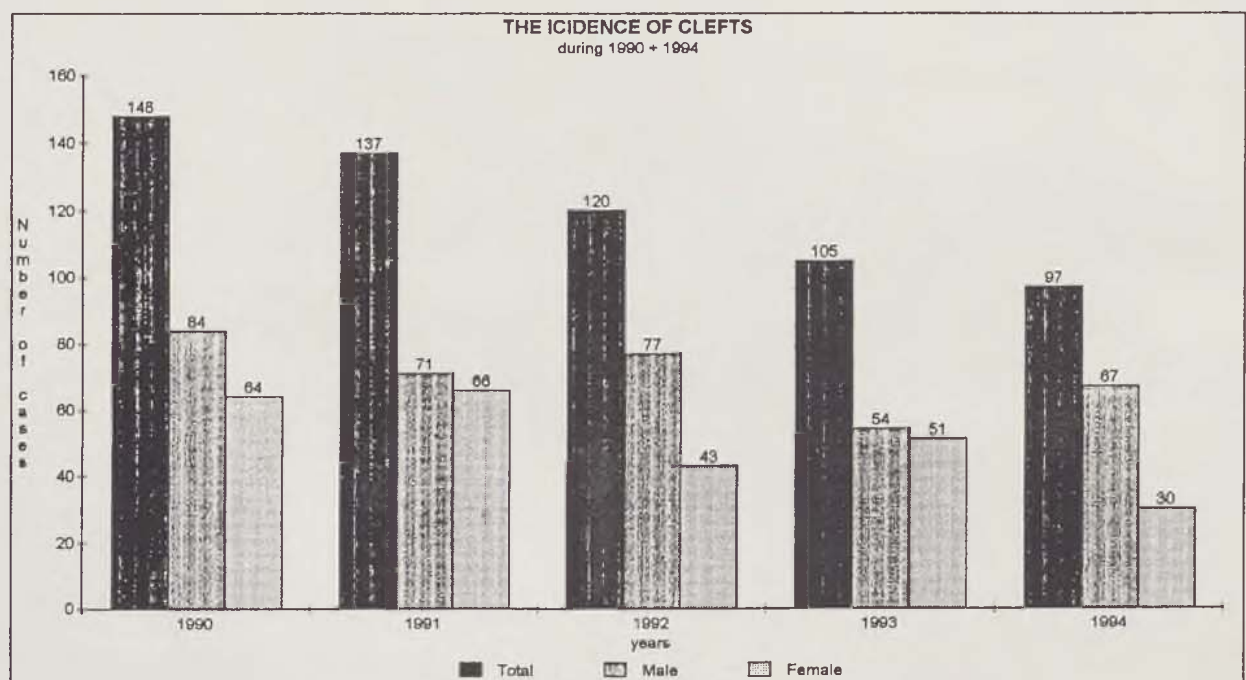


Fig. 1: The incidence of clefts.

methods. We are concentrating more and more on uninvase examinations.

The incidence of facial clefts is in newborns in spite of our effort about 2 per mille. The Table 1 shows the number of children treated at our department with individual types of clefts (1990 - 1994; Fig. 1). Due to a lower birth rate in the Czech Republic there are less children with the malformation.

Our task is to care for the patients not only in surgical view but also to provide a complete care which lasts from birth until adulthood. The aim of our care is not only a relatively optimum primary reconstruction of malformed structures but

also a reduction of the sequelae of a surgical procedure. This can be achieved with a correct and careful surgical procedure and also by correct timing of the operation and of the conservative treatment.

The patient is examined during the first week after birth when we inform parents about the situation and options of treatment. Furthermore, the family is examined by psychologists and geneticists.

Lip repair should be made within the first 4 - 7 months (Fig. 2). In complete clefts we use a modification of Tennison - Randal method (Figs. 3, 4), in incomplete Millard method. In complete

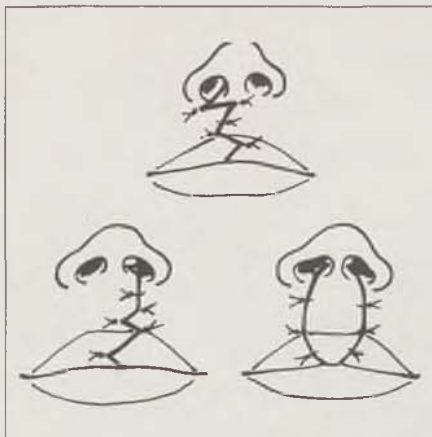


Fig. 2: Cleft lip operation.

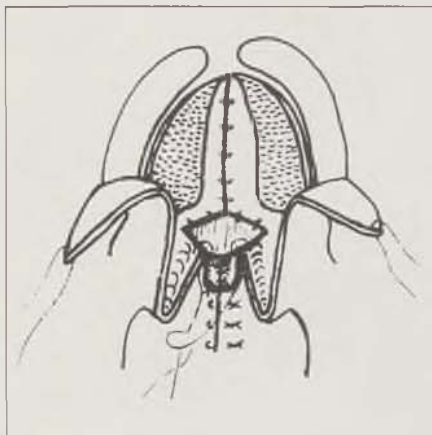


Fig. 7: Palate operation (2 flaps, retroposition, upper based tubulated pharyngeal flap).



Fig. 3: Complete unilateral cleft before operation.



Fig. 4: Complete unilateral cleft after operation.



Fig. 5: Complete bilateral cleft before operation.



Fig. 6: Complete bilateral cleft after operation.

bilateral cleft lips we mostly use arched sutures on both sides at the same time. (Figs. 5, 6). This age is also convenient from the foniatrists view. The child at this age begins to use vibrant consonants. This requires the lip suture and reconstruction of orbicular oris muscle.

In cleft lips we use the following surgery:

1. Turning down of stumps of the orbicular muscle with suture end to end.

The orbicular oris muscle is the most important functional part of lip and its correct dissection and reconstruction preserves the function of this muscle but even function of whole medial part of face. We bend it down into the horizontal level and use suture end to end.

2. The bridging of wide clefts with periosteal flap surgery.

The postoperative maxillary compression after primary lip suture used to be very common. Many procedures were tried to prevent this deformation. We can prevent this complication by creating a free lip and physiologically reconstructed oral muscle.

Different procedures were used. For example at our department primary bone grafting from

the rib together with a simultaneous lip suture. Because too early and solid maxillary sequence this operation can interfere with normal maxillary growth. Since 1973 we use in wide clefts less massive and more elastic periosteal flap.

The flap used to bridge the cleft is approximately 5-7 mm wide and 15-20 mm long and is obtained from the lateral maxillary segment. The flap is rotated around its medial pedicle and fixed to the posterior premaxillary edge. This flap is narrower than the original flap proposed by Skoog. Therefore, this method is not associated with an excessive exposure of the maxilla and at the same time it induces the growth of the bone across the cleft. The flap joins the cleft jaws firstly elastically, later by bone lamella (at 75 %) and achieves better and faster alignment of anterior intermaxillary segment with the lateral segments.

Apart from this improves the appearance of the lip and the nose by the creation of a solid base.

In complete bilateral clefts a bilateral periosteal flap contributes to the improvement of unfavourable shape of all 3 maxillary segments, specially of the intermaxillary protrusion.

3. Primary reposition of cartilaginous septum.

Another important prerequisite of development of the medial part of the face is to promote a normal development and growth of the cartilaginous septum. In all unilateral clefts the septum is dislocated to the healthy side. The septum is dissected from the healthy side of the maxilla with a blunt instrument then we mobilise the nasal apex and release the upper edge of the septum from the cartilage apexes which usually aligns spontaneously the septum. This prevents the earlier occurrence of nasal deformation and allows its normal development. In complete bilateral clefts the septum is prolonged with a fork flap usually at 4 - 6 years of age.

4. Creation a deep vestibulum.

Creating a deep vestibulum is an essential prerequisite for adequate function of lip muscle and allows the use of orthodontic appliances. With unilateral clefts we use a mucous flap from the medial margin of the cleft and displacement vestibular mucosa from the medial and lateral maxillary side. In complete bilateral clefts apart from the displacement of the vestibular mucosa from lateral sides we use 2 mucous flaps from the intermaxilla.

5. Palatal surgery.

Palatal surgery is performed at our department between 2 - 4 years of age (Fig. 7). At the age of 12 - 18 months the child is referred by foniatrists for logopedic care. With adequate pre- and postoperative care the majority of patients achieve normal vocal and speech ability before school age (6th year).

At the age of 2 years we operate on children with isolated palatal clefts by three flaps and push back.

About the age of 4 years children with complete clefts are treated with the technic of push back and two flaps method and with use of pharyngeal flap. Our more conservative approach is due to fact that we are aware of the untoward effect of the surgical trauma on the growth of bones and the retardation of the development of the facial structures affected by the cleft.

At the age of 4 years the growth of maxillary width shows a good progression and in a satisfactory rehabilitated child therapeutic exercises are easier. The Czech language demands good palatopharyngeal closure and so in cases of complete clefts we perform the upper based pharyngeal flap surgery.

The prerequisite for good anatomical development and satisfy function is the correct detaching of the palatal muscle from the compensatory attachment on the posterior margins of the plates, their folding down and end to end suture.

In complete clefts we use primary upperbased pharyngeal flap surgery with a tubulated pedicle.

The advantage is that the pharyngeal hiatus is reduced by flap and also made narrower by suturing the secondary defect at the posterior pharyngeal wall. The pedicle of pharyngeal flap sutured into the incision of the soft palate at the nasal side provides the additional tissue to the palate and facilitates stronger push back. During the first postoperative stage the muscle fibres within the tubulated flap maintain their contractibility.

Corrective surgery

After performing the use of the above mentioned procedures the medial part of the face can develop adequately and it is mostly not necessary to perform major surgical procedure essentially in the region of the nose. Check up examinations of the child allow to determine indications for surgical correction so that the anomaly in adulthood would be as little as possible. Dental orthodontic care is initiated at our department during the first decade of life and it continues until the age of 18 - 20 years. Due to variability of the malformations an individual approach is required in each patient.

During the first few years of life our orthodontists pay attention to care of dentition and observe the development of dentition and jaws. The treatment is initiated between the age of 5 - 7th years in the period of mixed dentition with removable, lingual and fixed vestibular appliances which give good correction of dentoalveolar anomaly and contributes to the correction of skeletal disproportions.

During the treatment the maxillofacial surgeon is consulted and his intervention is followed by prothetical treatment.

To conclude it can be said that the care of patients at our department of plastic surgery has been provided and carefully documented by a team of many specialists for more than 70 years. Therefore we can consider various operative and conservational methods and different timing of operations from the past and select the most convenient therapeutic procedures for the present.

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CONSTRUCTION OF NEOPHALLUS IN MALE PSEUDOHERMAPHRODITISM

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SUMMARY

Eight patients with male pseudohermaphroditism were treated between the years 1988 - 1994. They showed various physical-sexual anomalies. In 4 patients the existing penis was lengthened, the urethra was created and the split scrotum was fused. In the 4 remaining patients a new penis was created from lateral groin or abdominal tubed or skin-gracilis flaps, and made rigid by means of a silicon implant. The scrotum was reconstructed. The results were satisfying. On the basis of our own experience it may be said that the reconstruction of genitals must be planned individually, depending on the abnormalities in the physical-sexual development and the psycho-sexual orientation of the patient.

ZUSAMMENFASSUNG

Die Bildung eines Neophallus bei männlichen Pseudohermafroditen

J. Kruk-Jeromin

In den Jahren 1988-1994 wurden 8 Patienten mit männlichen Pseudohermafroditismus behandelt. Sie wiesen verschiedene körperliche sexuelle Anomalien auf. Bei 4 Patienten wurde der vorhandene Penis verlängert, mit der Bildung einer Urethra und der Fusion des gespaltenen Skrotum. Bei weiteren 4 Patienten wurde der Penislappe aus dem lateralen Gegend der Schaumleiste bzw. abdominalem Tubus, oder einem Hautlappen mit dem M. gracilis und seine Rigidität durch die Implantation von Silikon erreicht. Es erfolgte eine Rekonstruktion des Skrotum. Die Ergebnisse waren befriedigend. Anhand unseren Erfahrungen kann gesagt werden, dass die Rekonstruktion des Geschlechtsorganes je nach der Abnormalität der körperlichen - sexuell Entwicklung und der psycho-sexuell Orientierung des Patienten individuell geplant werden muss.

Key words: male pseudohermaphroditism, construction of neophallus

Sexual development of the man is very complex and depends on numerous processes. One of the basic factors determining sexual development is the chromosome constitution - XX in a female and XY in a male. Identifying the constitution makes it possible to establish the chromosomal sex. Sex chromosomes affect the differentiation of the primordial gonad. The presence of a testis or ovary allows us to establish the gonadal sex. The secretory function of the gonad (i.e. the hormonal sex) results in the differentiation of the internal and external genitals. After a baby is born, on the basis of the external genital appearance, the phenotypical gender is determined, which in turn is the basis for assigning the formal gender. A sense of belonging to a gender occurs between 2 and 3 years of age and is particularly strongly experienced at puberty. The psycho-sexual gender of the child is being formed then (10).

It is essential that the child be thoroughly examined after it is born and, if the phenotypical

gender raises doubt, that the child undergo genetic and hormonal tests, so that the formal gender is not assigned wrongly. Legal changes in the birth certificate are possible to introduce at any age, but this requires a long diagnostic process and involves many family and social complications. At any of the stages of the physical and sexual development there may occur various disorders which are sometimes a difficult diagnostic and clinical problem (9, 11, 13, 17, 18, 20).

The male pseudohermaphroditism occurs in patients who have male gonads (1 or 2 testes) and whose genitals and body build point to aberrations towards the female type. The range of anatomical malformations is very wide. There are patients of the male build, hypospadias, cleft scrotum and small vaginal fovea, or patients with fully female features (1, 2, 7, 9, 13, 15-18, 20). These defects are not very frequent, but are very often concealed. Surgical treatment of such patients is difficult and depends on clinical symp-

toms (3, 9, 15, 18, 20). It is important that hormonal treatment begins early and lasts long (7, 15-17).

MATERIAL AND METHODS

Between the years 1988-1994 at the Department of Plastic Surgery, Medical University in Lodz, 8 patients with male pseudohermaphroditism were observed. The age of the patients treated surgically ranged between 14 and 38 years. They were directed to us from endocrinology clinics of other Medical Academies or the Department of Sexuology and Pathology of Human Relations, where they had undergone a wide range of diagnostic tests. All of them were of male chromosomal sex (46 XY). Their psycho-sexual gender was also male. Six of them had male gonadal sex (1 or 2 testes): in the case of the remaining two - this was ambiguous, as in their childhood they had undergone an operation of inguinal hernia, where a body similar to an underdeveloped testis was removed. In all patients endocrinological tests showed various abnormalities in the levels of sex hormones. Four patients were registered as boys after they were born, the other four had their birth certificates changed - one when he was still an infant, three after they were 25 years of age. All patients were of male build, three of them had a breast reduction performed, and two of them were obese. They were of me-



2a)



2b)



1a)



3a)



1b)



3b)



4a)



4b)

Figs. 1-4: Four patients from group 1, who had the penises lengthened by means of local plastic surgery, the urethra and scrotum reconstructed: a - before surgical treatment, b - after surgeries.

dium height or tall, any they had male hair. In all patients the scrotum was split and similar to the labia. In five patients both testes were situated in the upper part of the scrotum (2 of them had underdeveloped testes), one patient had only one testis, and two had no testes at all. In four patients the penis was 4 cm long and the prepuce was split, in four patients it was similar to the clitoris. four patients had an underdeveloped vagina about 6 cm in length and two patients had a vaginal fovea in the vault of which there was urethral orifice to be found. In two patients with hypospadias the urethral orifice could be found between the split scrotum and the anus.

Surgical treatment was based on the Ombredanne's principle (1939): „if there is no doubt that the person is a male, the penis should be lengthened and the urethra reconstructed“. According to the assumed treatment strategy, the patients can be divided into two groups. The first one is constituted by the 4 patients with small penises, the other one - by the remaining 4 patients with penises similar to the clitoris.

In the first group, at the beginning of the treatment the connective tissue tract which contracts the penis was removed and the penis was lengthened. That was combined with the anasto-

mosis of the split scrotum. Various methods of local plastic surgery were used („V-Y“, „Z“) in one or two stages (Figs. 1-4).

In patients with a penis similar to the clitoris no attempt to lengthen it was made, but it was reconstructed with the following the lateral groin flap (1 patient), the abdominal tubed flap (2 patients) or the skin - gracilis flap from the thigh (1 patient). In the next stage the penis was made rigid with a plastic implant (one of the two silicon sticks used to treat impotence). Simultaneously the lower surface of the flap was joined with the dorsum of the underdeveloped penis and the split scrotum was fused (Figs. 5-8).

The next task is the reconstruction of the urethra - from the orifice at the perineum or vagina to the apex of the natural or artificially created penis. So far such an operation has been performed only on 4 patients with a lengthened natural penis. In the remaining patients with surgically created penises, the operation has not been performed. In order to reconstruct the urethra, 15 cm in length, we used the Denis-Browne technique with certain technical modifications of our own. The most difficult part is linking the natural orifice of the urethra with an urethra created surgically. In 2 patients with hypospadias the reconstruction of the urethra was completed during one surgery. In 2 patients fistulas within the vagina had to be closed twice. It must be remembered that, irrespective of the method of re-



5a)



5b)



6a)



6b)



7a)



7b)



8a)



8b)

Figs. 5-8: Four patients from group 2, who had the penises created from lateral groin or abdominal tubed or skin-gracilis flaps and the scrotum recreated: a - before treatment, b - after reconstruction.

construction, the urethra tends to shrink. Clinical symptoms can occur a long time after surgery. In one of our patients difficulties in urination occurred 2 years after the reconstruction of the urethra and disappeared after the inflammation of the urinary tract had been stopped.

RESULTS

In 4 patients with a penis about 4 cm in length and hypospadias, multiple corrective surgeries of the penis (straightening and lengthening), as well as a reconstruction of the urethra were performed. In all cases good results were achieved, the penis being lengthened up to 8 cm. The erection was normal, erotogenic stimuli were received. The scrotum after anastomosis, with two testes, looked natural. The completely reconstructed urethra (in 2 patients after one surgery, in 2 patients - because of fistulas - after two surgeries) enables patients to urinate in the upright position.

In 4 patients with a penis similar to the clitoris, the penis was reconstructed with lateral groin, abdominal tubed and gracilis flaps, in two

or three stages. The penis created surgically is 14 - 16 cm in length. Joining the dorsum of the underdeveloped penis with the base of the flap reconstructing the penis, makes it possible to receive erotogenic stimuli. Providing the rigidity of the penis by means of a silicon implant makes sexual intercourse possible. After surgery the scrotum has a natural shape and in patients with no testes it can be filled with silicon implants. Removing the underdeveloped vagina prevents possible inflammation or cancer. The reconstruction of the urethra is not performed as there are fears that the implant providing rigidity of the penis may be rejected. Also there may occur a narrowing and inflammation of the area where the orifice of the natural urethra joins the surgically created urethra, which is about 20 cm in length.

DISCUSSION

Literature on male pseudohermaphroditism is scarce and mainly refers to morphological anomalies in 1-16 patients. What is being pointed out is the ambiguity of the patients' gender, the necessity to introduce early hormonal treatment, as well as individual consideration of surgical procedure - towards the male or female type (1, 2, 7, 9, 13, 15-18, 20).

I believe that at present every child that was diagnosed immediately after it was born as showing abnormalities in the physical and sexual development, should be taken under all-round specialist care in order to be diagnosed further and treated. In case of doubts, assigning the gender should be based on genetic tests. An early hormonal treatment should depend on the state of development of the genitals and on the psychological identification with a gender. The necessity to make a formal change in the birth certificate must be taken into consideration. Under no circumstances can the reconstruction be done towards the female type only because the procedure is easier or the expected results better.

All authors point out that the results of the surgical correction of an underdeveloped penis are not satisfying because of its small size (7, 11, 15, 17, 18, 20).

On the basis of the presented material I believe that only those cases qualify for lengthening the penis, where it is at least 4 cm in length. The excision of the connective tissue tract and multiple lengthening of the penis by means of local plastic surgery must be performed before the reconstruction of the urethra. Worse results are obtained in adult patients who have not been treated hormonally.

Hypospadias is corrected with known techniques, involving one or two stages. It is often reoperated because of fistulas occurring in the long track of the urethra (3, 6). The Denis-Browne technique we use, modified by the use of

modern absorbable suture which make stitching several layers of tissue possible, is very useful in recreating a very long urethra. In order to create it we use both the penis skin and the wall of the underdeveloped vagina, where the urethra orifice is located.

There exist many descriptions of the penis reconstruction in men by using skin flaps from the abdomen, thigh or arm fitted on tissue pedicled or free grafts. Blood vessels are joined by means of microsurgery, the urethra is created and various techniques providing penis rigidity are used (4, 5, 8, 12, 14, 19).

In patients with underdeveloped penis similar to the clitoris, we create the whole penis from abdominal tissues (in one or more stages, by transferring lateral groin or bi-pedicle tubed flaps) or thigh tissues skin-gracilis flap. In such cases we base on the experience of reconstructing the penis in transsexuals of the female-male type and in patients with post-traumatic loss of genitals. The choice of abdominal flaps and, less frequently, grafts from the thigh, is justified by the fact that the donor site is close, the tissue sufficient and the operation simple. The penis is made rigid by means of a silicon implant used for impotents and the patients may have normal intercourses. Linking the pedicle of the flap with the underdeveloped penis has a good cosmetic effect, facilitates the reception of erotogenic stimuli and is a preparatory stage for future creating of the urethra along the reconstructed penis. The reconstruction of the urethra is difficult because of the required length, as well as complications occurring after joining the surgically created canal with the natural urethra orifice which can be found near the anus or in the underdeveloped vagina.

On the basis of the presented data (from literature and own experience) we can contend that the procedure of reconstructing genitals in male pseudohermaphroditism must be planned individually, depending on the abnormalities in the physical and sexual development and the psychosexual orientation of the patient.

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SOUHRNY

Chronické defekty bérce a nohy

Z. Pros, M. Turdek, J. Kletenský, A. Nejedlý, S. Svoboda

Autoři předkládají výsledky retrospektivní studie léčení chronických defektů měkkých tkání i skeletu bérce a nohy volnými muskulárními nebo muskulokutánními laloky. Sestava zahrnuje 11leté období užívání mikrochirurgické techniky na klinice plastické chirurgie III. lékařské fakulty v Praze. Diskutována jsou pozitiva i negativa této metody jako jedné z možných. Předloženy jsou výsledky výše uvedeného pracoviště.

Léčba defektů a nestabilních jizev na silně zatěžovaných místech nohy

J. Kletenský, M. Turdek, Z. Pros, A. Nejedlý, S. Svoboda

Autoři předkládají soubor 41 pacientů, u kterých byl proveden přenos senzitivního fasciokutánního laloku na defekt nebo nestabilní jizvu na dolní končetině. Jsou uvedeny jak bezprostřední, tak i dlouhodobé pooperační výsledky, se zřetelem na senzitivitu přeneseného laloku, i na výsledný stav místa odběru laloku.

Složený kaudální ostrůvkovitý trapezový lalok používaný pro rozsáhlé defekty ramene

H. M. Bhatena

Trapezový složený lalok byl poprvé popsán Demergassonem v r. 1978 (2). Kaudální ostrůvkovitý trapezový lalok byl popsán Mathesem a Nahaiou (4) při rekonstrukci defektu hlavy a krku v důsledku rakoviny. Baek a Biller (1) popsali sestupnou větev příčné krční arterie jako dominantní cévní zásobení. Tento lalok je užitečný pro rekonstrukci defektů v oblasti ramene, krku a tváře. Stručně je popsána anatomie m. trapezius, jeho cévní zásobení, cévní oblast a funkce. V práci je prezentováno užití tohoto laloku při rekonstrukci rozsáhlého tkáňového defektu v oblasti ramene u pacienta.

Caput mandibulae accessorium

J. Ramba, M. Doskočil

Uvádíme vývojovou anomálii zdvojeného mandibulárního kondylu u 5,5letého chlapce. Případ demonstrujeme, protože je lokalizací, tvarem, velikostí i mikroskopickým nálezem raritní. Jde skutečně o du-

plicitní kloubní výběžek, vycházející z processus coronoideus mandibuly. Z morfologického hlediska je tento nález naprosto kuriózní, a ani vzdálenou analogii jsme v literatuře nenašli. Dříve citované nálezy zdvojených kloubních výběžků (condylus bifidus) jsou vývojově něco jiného. V našem případě jde zřejmě o poruchu v diferenciaci mandibuly v období, kdy základ ramus mandibulae byl tvořen sekundární chrupavkou.

Péče o pacienty s rozštěpovými vadami obličeje na klinice plastické chirurgie v Praze

J. Kuderová, J. Borský, M. Černý, Ž. Mullerová, M. Vohradník, J. Hrivnáková

Péče o pacienty s rozštěpovými vadami má na klinice plastické chirurgie velkou tradici. Tým odborníků pečuje o pacienty od narození do dospělosti.

První návštěva na klinice bývá od 3 měsíců věku, kdy dítě vyšetří plastický chirurg, psycholog a genetik.

Operace rtů provádíme kolem 6. měsíce věku modifikovanou metodou dle Tennison-Randala, u oboustranných rozštěpů rtů provádíme obloučkovou suturu oboustranně.

Operace rozštěpu patra provádíme mezi 2. - 4. rokem věku. Indikace je vždy individuální podle typu rozštěpu a stavu dítěte. Provádíme operaci typu 2 - 3 laloky, retropozici, u pozdějších operací s faryngofixací.

Další operace provádíme dle potřeby do dospělosti. O dítě pečují dále ortodont, foniatr, psycholog, event. stomatochirurg a protetik.

Komplexní péče umožňuje pacientům s rozštěpovými vadami návrat do plnohodnotného života.

Vytvoření neofallu u mužského pseudohermafroditismu

J. Kruk-Jeromin

V letech 1988 - 1994 bylo léčeno 8 pacientů s mužským hermafroditismem. Tito pacienti vykazovali různé fyzicko-sexuální anomálie. U 4 pacientů byl prodloužen stávající penis, vytvořena uretra a upraveno rozpolcené skrotum. U 4 zbývajících pacientů byl penis rekonstruován z laterální oblasti třísla, pomocí abdominálního laloku nebo kožního laloku doplněného m. gracilis a vyztužen pomocí silikonového implantátu. Poté bylo rekonstruováno skrotum. Výsledky byly uspokojivé. Na základě zkušenosti autorů lze shrnout, že rekonstrukce genitálií musí být plánována individuálně, v závislosti na fyzicko-sexuálním vývoji a psycho-sexuální orientaci pacienta.

BOOK REVIEW

Anatomy of the Paranasal Sinuses

Jack B. Anon, Michael Rontal, S. James Zinreich, Georg Thieme Verlag, Stuttgart, New York, 1996

The authors of the monograph selected a very interesting and useful combination to make readers familiar in detail with the anatomy of paranasal sinuses. The first 40 pages of the publication are devoted to embryology and a detailed description of individual sinuses, their mutual relations, their relation to the orbit and the neurovascular supply. Every description is supplemented by references to illustrations. In the description of the orbit the reader will find very useful Tables which contain data on the distance in millimetres between individual important structures of the orbit. In the part of the publication devoted to illustrations, which form the dominant part, on 158 pages the reader will find detailed pictures of the anatomy of these structures. For these illustration drawings are used as well as reproductions of sections of cadaverous material. The sections are in a coronary, axial and parasagittal plane and record the anatomy of sinuses in the foetus, as well as anatomical relations in adults. This is supplemented by bone preparations, overviews as well as detailed and parasagittal sections from fresh cadavers. A

unique feature of the publication is that the reader can confront the findings in cadavers with X-ray images based on CT, 3DCT and MRI. In this part of the publication there are pictures of different cavities and the orbit, incl. several pathological findings such as mucocele and encephalocele. The monograph does not provide any instructions how to carry out surgical operations, despite this it is very useful for safe surgery because it draws attention to the great variability of these anatomical spaces which display lateral differences even in individual subjects. The area is very complicated from the anatomical aspect and operations in this area may be associated with haemorrhage and damage of nerve structures. So far not all departments are equipped with navigation systems which make safer surgery possible and therefore profound anatomical knowledge is the basic prerequisite of safe surgery. The publication is particularly suitable for otolaryngologists and specially those concerned with endoscopic methods, but also for specialists of allied disciplines, maxillofacial surgeons, neurosurgeons and ophthalmologists.

J. Kozák, M.D.

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Books and monographs: the name of authors, title of publication, place of issue, publisher, year of issue and - maybe -

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Vedoucí role v léčbě popálenin

Složení: sulfadiazin stříbrný/sulfadiazin stříbrný a cerium.

Indikace: profylaxe a terapie ranných infekcí po popáleninách, opáření a poleptání kůže, dekubity a bérkové vředy, kolonizované nebo sekundárně infikované mikroby citlivými na sulfadiazin stříbrný. **Kontraindikace:** přípravek se nedoporučuje užívat

v případě přecitlivělosti na sulfonamidy. Použití přípravku v době gravidity a novorozeneckém věku je možné pouze ze zvlášť závažných důvodů. **Nežádoucí účinky:** v ojedinělých případech se může vyskytnout lékový exantém, leukopenie, zvýšená exsudace z chorobných ploch. **Dávkování:** 1-2x denně 2-3 mm silná vrstva.

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