ACTA CHIRURGIAE PLASTICAE

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

Vol.39 • 4/97

PUBLISHED BY THE CZECH MEDICAL ASSOCIATION J. E. PURKYNĚ

ISSN 0001-5423

INDEXED IN EXCERPTA MEDICA - EMBASE, INDEX MEDICUS-MEDLINE, BIOLOGICAL ABSTRACTS

Nakladatelské a tiskové středisko České lékařské společnosti JEP vám nabízí k odběru následující publikace:

- suplementy časopisů:

  Počítačová elektroencefalografie (Čes. a Slov. Neurol. Neurochir.)
  /36,- Kč, 49,- Sk/
  Etické a právní normy v psychiatrii (Čs. Psychiat.)
  /32,- Kč, 43,- Sk/
  Psychostimulancia v psychiatrii a neurologii (Čs. Psychiat.)
  /34,- Kč, 50,- Sk/
  Nabumeton - nesteroidní antirevmatikum (Čes. Revmatol.)
  /39,- Kč, 52,50 Sk/
  Stres lékaře (Prakt. Lék.)
  /23,- Kč, 31,- Sk/
  Medicína a sexualita (Prakt. Lék.)
  /25,- Kč, 40,50 Sk/
  Psychiatrický pacient v nepsychiatrické ordinaci (Prakt. Lék.)
  /25,- Kč, 40,50 Sk/
  Ke vzniku II. oční kliniky LF UK v Praze (Čs. Oftal.)
  /35,- Kč, 51,- Sk/
  Mezioborová spolupráce v medicíně (Prakt. Lék.)
  /26,- Kč, 40,50 Sk)

- Lewit: Manipulační léčba v myoskeletální medicíně
  /598,- Kč/

- Katalog kongresů, konferencí ... 1997
  /55,- Kč/

Všechny ceny jsou včetně DPH a připočítává se k nim poštovné.

Objednávka:

Objednávám závazně publikaci .....

Jméno .....

Firma ..... IČO ..... DIČ .....

Adresa vč. PSČ .....

Podpis ..... Razítko .....

Prosím fakturu – složenku *(nehodící se škrtněte)*

Objednávky zasílejte na adresu:

Česká lékařská společnost JEP - NTS
Sokolská 31, 120 26 Praha 2
Tel./fax: 02-249 11 420

ACTA CHIRURGIAE PLASTICAE

No. 4, 1997

CONTENTS

SCOPE AND LIMITATIONS

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.

ACTA CHIRURGIAE PLASTICAE

SUBSCRIPTION AND FEES

Price for a single issue: Kč 44,- (Czech Republic), Sk 62,- (Slovak Republic).
1997 subscription rate: Kč 176,-, Sk 248,-, respectively.
Information on subscription rate for other countries provides: CMA JEP, Sokolská 31, 120 26 Prague 2, Czech Republic.
Subscription orders should be sent to the Publishing Division of the Czech Medical Association JEP, Sokolská 31, 120 26 Prague 2, Czech Republic, or by fax No.+4202/ 249 11 420.

I hereby subscribe to Acta Chirurgiae Plasticae

Name ..... Date .....

Full address .....

.....

..... Signature .....

ACTA CHIRURGIAE PLASTICAE

Editorial board: M.Tvrdek, chairman, Z. Šmahel, vicechairman , L.Brož, J.Kozák, R. Könige vá, A. Nejedlý, J.Válka, J. Veselý, members. Published four times a year by the Czech Medical Association J.E.Purkyně, Sokolská 31, 120 26 Prague 2, Czech Republic. Printed by MTT, Ostrovní 30, 110 00 Prague 1. Distributor for the Czech Republic and Slovak Republic: ADLEX System, Pravoúhlá 26, 150 00 Praha 5, distribution abroad: ABONT s.r.o., Chlumova 17, 130 00 Praha 3. Price for a single issue: Kč 44,- (Czech Republic), Sk 62,- (Slovak Republic). 1997 subscription rate: Kč 176,-, Sk 248,-, respectively. Subscription orders should be sent to the Publishing Division of the Czech Medical Association JEP, Sokolská 31, 120 26 Prague 2, Czech Republic, or by fax No.+4202/ 249 11 420. Manuscripts should be sent to ACTA CHIRURGIAE PLASTICAE, Šrobárova 50, 100 34 Prague 10, Czech Republic. Advertisements and inquiries concerning conditions of advertising should be sent to Advertisement Department of the Czech Medical Association J. E. Purkyně, Vršovická 17, 101 00 Prague 10, Czech Republic. Podávání novinových zásilek povoleno Ředitelstvím pošt Praha č.j. NP 1558/1994 ze dne 13. 7. 1994. Registrační značka MK ČR F 4844. Indexed in Excerpta Medica, Embase, Index Medicus, Medline, Biological Abstracts.

ACTA CHIRURGIAE PLASTICAE 39, 4, 1997, pp. 109 - 112

EPIDEMIOLOGY OF CLEFT LIP AND PALATE IN LODZ, POLAND, IN THE YEARS 1981 - 1995

B. Antoszewski, J. Kruk-Jeromin

Department of Plastic Surgery, Institute of Surgery,
Medical University of Łódź, Poland

SUMMARY

Over 132,783 newborns from 1981 - 1995 have been analysed revealing 267 infants with cleft lip and/or palate resulting in a mean frequency of clefts at 2:1000. Additionally, the forms and sides of clefts, and sex of the children with clefts have been defined. The comparison of the studies in Lodz from 1951 - 65 and 1981 - 95 indicates a slight increase in the occurrence of clefts.

ZUSAMMENFASSUNG

Die Epidämiologie der Lippen- und Gaumenspalte in Lodz, Polen, in den Jahren 1981-95

B. Antoszewski, J. Kruk-Jeromin

Von den 132 783 Neugeborenen (1981-95) wurde bei 267 Kindern die Lippen- oder Gaumenspalte festgestellt. Dies ist das durchschnittliche Vorkommen der Splaten 2:1000 Neugeborenen. Ferner wurde die Form, die Seite der Spalte und das Geschlecht des behinderten Kindes definiert. Der Vergleich der Studien aus Lodz aus den Jahren 1951-65 und 1981-95 zeigt auf die milde Erhöhung des Spaltensvorkommens.

Key words: cleft lip and palate, epidemiology

Two percent of the liveborn infants are found to have congenital malformations. They constitute about 40% percent of all later observed developmental disturbances. Knowledge of the frequency of the occurrence of congenital defects is important for both scientific and practical purposes.

It is unattainable to record all the data. Mistakes arise in the case of a wrong diagnosis, differences in terminology, lack of information, or information transmitted unsuitably. There are malformations that are difficult to overlook in newborns, for example, encephalocoele or cleft lip, whereas dysplasia of the articulatio coxae or cleft soft palate can be missed. The data on the prevalence of congenital defects can be misleading if they come only from obstetric hospitals while in the given region children are also born at home. The smaller the population under examination, the longer time should be given for study. The authoritative data on the prevalence of these malformations can be obtained from the investigation of about 50,000 succeeding newborns. It should be considered that the occurrence of congenital malformations varies in accordance with the place and time. WHO carried out investigations in 24 centres in 16 countries that covered half a million births and from which a list of the most frequent congenital malformations appearing in every thousand of liveborn infants was produced. Cleft lip and palate were among the top ten of the most common congenital malformations occurring in various regions of the world. A mean frequency of this malformation was calculated as 1.21:1000 ranging from 0.42 to 1.77 (16, 26). In the literature on the treatment of the children with cleft lip and palate, the data are given, generally, without qualification of the collecting methods (3, 11, 12, 19, 22-24, 29).

Thirty years ago Bardach (6) analysed the prevalence of cleft lip and palate in over 44,000 children that had been born in the Department of Gynecology and Obstetrics in Medical University of Lodz in the years 1951 - 1965. There were 79 cleft newborns among them. On the basis of that study it was calculated that every year 1.7 births with this malformation per 1000 liveborn infants may be expected (6, 17). Considering the increas-

ing impact of ecological problems, we decided to estimate if they have any influence on the frequency of births of children with clefts in the area of Lodz.

MATERIAL AND METHODS

An analysis of the births was carried out in all five Obstetric Departments in Lodz in the years 1981 - 1995. To collect materials we used the hospital casebooks and the case histories of the development of newborns of the Neonatal Departments and the statistical elaborations from Provincional Centre of Analyses and Health Promotion (8).

During the analysed period, the children were born, generally (100%), at the hospital.

During 15 years 132,723 live infants were born and 267 cases the cleft lip and/or palate were observed. All the children with cleft lip and palate were directed to the Centre for Treatment of Congenital Defects, at the Department of Plastic Surgery in the Medical University of Lodz, where special documentation and an evidence card of a disabled child were established. This card was sent to the Mother and Child Health Care Co-operative in Lodz for further elaboration of the information about children with congenital malformations.

The data about the newborns with cleft, obtained in the Neonatal Departments, were compared to the documentation from the Centre for Treatment of Congenital Defects. An analysis of the type and side of clefts and of the cleft newborns sex was carried out.

RESULTS

In the years 1981 - 1995, 267 children out of 132,723 newborns in Lodz, were born with cleft lip and/or palate. The highest number of births of children with clefts occurred in 1981 and the lowest in 1995. The range of cleft occurrence was 1.18 - 2.74:1000. The analysis of all births within 15 years made the mean prevalence 2:1000 (Table 1). As for the type of cleft, the findings revealed that isolated cleft palate occurred most frequently (112 cases), whereas cleft lip and palate, and especially cleft lip only were less frequent (104 and 51 cases, respectively). The cleft palate only, occurred more often in girls than boys (68:44), complete cleft lip and palate was more frequent in boys (66:38), whereas isolated cleft lip was observed to be equal in girls and in boys (26:25). Unilateral clefts, regardless of the type of cleft and child's sex occurred at a significantly higher rate than bilateral ones (115:40), and boys were affected more often than girls (67:48). Clefts appeared more on the left side than on the right (79:36).

Tabulka 1.

Table 1. The prevalence of cleft lip and (or) palate in liveborn infants in the years 1981 - 1995

Years / Number of liveborn infants	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1981 - 1995
	11101	10965	11911	10427	9902	8271	8236	8405	7337	8177	8462	7487	7415	7385	7242	132723
clefts	21	30	14	21	26	18	15	15	11	21	15	12	17	18	13	367
clefts per 1000 infants	1,9	2,74	1,18	2	2,6	2,17	1,82	1,78	1,5	2,57	1,77	1,6	2,3	2,4	1,8	2,01
	2,06					1,98						1,97				

DISCUSSION

The mean prevalence of clefts in children of Lodz in 1981 - 1995 that we calculated as 2:1000 is close to those reported from former Czechoslovakia, the Scandinavian countries, Great Britain, Saudi Arabia and Japan, where the means were reported to be from 1.9 to 2.16:1000 (1, 4, 7, 11, 12, 18, 25, 28, 29). Different values were given from Colorado and Bulgaria - 0,8 - 0,9 : 1000 (2, 3) and Iran - 3.7 :1000 (27). Comparing with former studies in which the mean prevalence was 1.7 - 1.8:1000, we can notice a slight increase in the number of cleft children (1, 6, 14, 15, 17, 23, 26, 28). The studies in USA in 1948-67 revealed a prevalence of 1.8 - 2.5:1000 live births (16), however recently it has been noted to have decreased to 0.81 - 1.04:1000 (2, 10). The various values obtained in the last decades may be explained in terms of increasing environmental pollution and racial differences that affect congenital factors but also may depend on the numbers of analysed infants and the methods of collecting data (2, 5, 7, 9, 10, 12, 13, 20, 21, 27, 30). The best documented studies from Denmark, Finland (18, 25) and Lodz (current as well as those made 30 years ago) (6, 17) indicate the systematic but slight increase in births with clefts. The forms of clefts which were observed by us and the other authors seem similar, but differences appear during the detailed divisions. The cleft lip and cleft palate together constitute 58.73% of the cleft forms (1, 3, 4, 6, 11, 14, 16, 17, 19, 24, 27, 28). Only Rintala (25) and Fitz et al. (12) reported that cleft palate was as frequent as cleft lip and palate. When analysing cleft lip only, isolated cleft palate and cleft lip and palate, bigger variations in their prevalence can be noticed. Most of the studies reveal that cleft lip and palate is the most frequent, whereas cleft lip is less frequent, and isolated cleft palate the least frequent (1, 6, 9, 11, 18, 27). Some reports present different orders of frequency of their occurence: cleft lip and palate; isolated cleft palate; and cleft lip only (24, 28). Our research revealed that isolated cleft palate occurs the most frequently, cleft lip and palate less frequently, and cleft lip the least frequently. Similar data were reported by Gursu (14). Unilateral cleft lip and palate formed the majority of clefts in all the studies (60 - 80%). Bilateral clefts were observed as the most frequent by Tolarova (28) and as the least frequent by Jensen (18). In our material, the bilateral clefts occurred in 25% of children. The authors who dealt with unilateral clefts found that the left side was affected more often, and that was confirmed by our research (6, 9, 11, 19, 24). The analysis of children's sex performed by us and the others revealed that cleft lip only and cleft lip and palate occur mostly in boys, whereas isolated cleft palate is more frequent in girls (6, 11, 14, 18, 24, 28). The results presented indicate the persisting regularity of the greater prevalence of cleft lip and cleft lip and palate in boys, left side clefts over right side ones, and unilateral over bilateral.

CONCLUSIONS

1. The mean prevalence of clefts in liveborn infants in Lodz in 1981 - 95 was 2:1000.
2. The comparison of the studies in Lodz from 1951 - 65 and 1981 - 95 indicates a slight increase in the occurrence of clefts.
3. The results of research on the prevalence of cleft lip and /or palate, type and side of cleft and sex of the infants with clefts who were born in Łódź in the years 1981-1995 are consistent with the data from global studies.

REFERENCES

1. Abyholm, F. E.: Cleft lip and palate in Norway (part I and II). Scand. J. Plast. Reconstr. Surg., 12: 29-34, 1978.
2. Amidei, R. L., Hammon, R. F., Kassebaum, D. K., Marshall, J. A.: Birth prevalance of cleft lip and palate in Colorado by sex distribution, seasonality, race/ethnicity, and geographic variation. Spec. Care. Dentist., 14: 233-240, 1994.
3. Anastasow, K., Georgiew, E.: Multidisciplinary management of cleft lip and palate in Bulgaria. In: Bardach, J., Morris, H. L. (eds.): Multidisciplinary management of cleft lip and palate. Philadelphia, W. B. Saunders Co, 1990, 95-98.
4. Asher, C., Shaw, W.: Multidisciplinary management of cleft lip and palate in the United Kingdom. In: Bardach, J., Morris, H. L. (eds.): Multidisciplinary management of cleft lip and palate. Philadelphia, W. B. Saunders Co, 1990, 10-18.
5. Baird, P. A., Sadovnick, A. D., Yee, I. M.: Maternal age and oral cleft malformations: data from a population - based on series of 576,815 consecutive livebirths in British Columbia. Teratology, 49: 448-451, 1994.
6. Bardach, J.: Rozszczepy wargi górnej i podniebienia. Warszawa, PZWL, 1967: 37-49.
7. Borkar, A., Mathur, A., Mahaluxmirala, S.: Epidemiology of facial clefts in the central province of Saudi Arabia. Br. J. Plast. Surg., 46: 673-675, 1994.
8. Bulletin Provincional Centre of Analyses and Health Promotion. Łódź: 1981 - 1995.
9. Chow, K.: Survey of 300 Chinese cleft palate patients presenting for recall to a dental department in Hong Kong. Cleft Palate Craniofac. J., 31: 146-147, 1994.
10. Das, S., Runnels, R. S. Jr., Smith, J. C., Cohby, H. W.: Epidemiology of cleft lip and cleft palate in Mississippi (USA). South Med. J., 88: 437-442, 1995.
11. Fára, M., Müllerova, Ž., Šmahel, Z. et al.: Multidisciplinary management of cleft lip and palate in Praque, Czechoslovakia. In: Bardach, J., Morris, H. L. (eds): Multidisciplinary management of cleft lip and palate. Philadalphia, W. B. Saunders Co, 1990, 45-57.
12. Fitz, P., Raine, P., Boorman, J.: Facial clefts in the west of Scotland in the period 1980-1984: epidemiology and genetic diagnoses. J. Med. Genet., 31: 126-129, 1994.
13. Gregg, T., Boyd, D., Richardson, A.: The incidence of cleft lip and palate in Northern Ireland from 1980-1990. Br. J. Orthod., 21: 387-392, 1994.
14. Gursu, K. G.: Multidisciplinary management of cleft lip and palate in Turkey. In: Bardach, J., Morris, H. L., (eds): Multidisciplinary management of cleft lip and palate. Philadelhpia, W. B. Saunders Co, 1990, 69-80.
15. Gylling, K., Soivio, A. J.: Frequency, morphology and operative mortality in cleft lip and palate in Finland. Acta Chir. Scand., 123: 1-5, 1962.
16. Hay, S.: Incidence of selected congenital malformations in Iowa. Am. J. Epidemiol., 94: 572-584, 1971.
17. Januszewska, W.: Częstość rozszczepów wargi i podniebienia u dzieci łódzkich. Pol. Tyg. Lek., 17: 3-11, 1962.

18. Jensen, B. L., Kreiborg, S., Dahl, E.: Cleft lip and palate in Denmark 1976-1981: Epidemiology, variability and early somatic development. Cleft Palate J., 25: 258-269, 1988.

19. Malek, R., Martinez, H., Mousset, M. R. et al.: Multidisciplinary management of cleft lip and palate in Paris, France. In: Bardach, J., Morris, H. L., (eds): Multidisciplinary management of cleft lip and palate. Philadelphia, W. B. Saunders Co, 1990, 1-10.

20. Marazita, M. L., Hu, D. N., Spence, M. A. et al.: Cleft lip with or without cleft palate in Shanghai, China; evidene for an autosomal major locus. Am. J. Hum. Genet., 51: 648-653, 1992.

21. Milan, M., Astolf, G., Volpato, S. et al.: 766 cases of oral cleft in Italy. Data from Emilia Romagna (IMER) and northeast Italy (NEJ) registers. Eur. J. Epidemiol. 10: 317-324, 1994.

22. Monasterio, F. O., Micolo, I. T.: Multidisciplinary management of cleft lip and palate in Mexico. In: Bardach, J., Morris, H. L. (eds).: Multidisciplinary management of cleft lip and palate. Philadelphia, W. B. Saunders Co, 1990, 57-68.

23. Möller, P.: Cleft lip and palate in Iceland. Arch. Oral. Biol., 10: 407-410, 1965.

24. Perczyńska-Partyka, W., Kruk-Jeromin, J.: Multidisciplinary management of cleft lip and palate in Łódź, Poland. In: Bardach, J., Morris, H. L. (eds).: Multidisciplinary management of cleft lip and palate. Philadelphia, W. B. Saunders Co, 1990, 80-88.

25. Rintala, A. E.: Epidemiology of orofacial clefts in Finland: a review. Ann. Plast. Surg., 17: 456-459, 1986.

26. Stevenson, A. C., Johnson, H. A., Steward, P. et al.: Congenital malformations. A report of a study of series of consecutive birts in 24 centers. Bull. World Health Organ., 34: (suppl): 36-41, 1966.

27. Taher, A. A.: Cleft lip and palate Tehran. Cleft Palate Craniofacial. J., 29: 15-16, 1992.

28. Tolarova, M.: Orofacial clefts in Chechoslovakia. Scand. J. Plast. Reconstr. Surg. Hand Surg., 21: 19-25, 1987.

29. Wada, T.: Multidisciplinary management of cleft lip and palate in Osaka, Japan. In: Bardach, J., Morris, H. L. (eds): Multidisciplinary management of cleft lip and palate. Philadelphia, W. B. Saunders Co, 1990, 37-44.

30. Wu, Y., Zeng, M., Xu, C. et al.: Analyses of the prevalences for neural tuba defects and cleft lip and palate in China from Birth Defects Monitoring. Hua Hsi I. Ko. Ta. Hsueh Hsueh Pao, 26: 215-229, 1995.

Address for correspondence:

Prof. Julia Kruk-Jeromin
Klinika Chirurgii Plastycznej
Akademia Medyczna w Łodzi
ul. Kopcińskiego 22, 90-153 Łódź
Poland

ERRATA

In the computer printing process of Acta Chirurgiae Plasticae num. 3 / 97 in the paper Peterka, Peterková, Likovský: Different embryotoxic effect of vitamin A and B-carotene in the chick embryo working symbols mmmg for μm and mmml for μl were left. Figures 3a, 3b were changed. In the paper Ellitsgaard, Ellitsgaard: Hyperthropic scars and keloids working symbols aaa-1-antitrypsin for alpha-1-antitrypsin and aaa-2-macroglobulin for alpha-2-macroglobulin were left. Editor apologizes for these errors.

ACTA CHIRURGIAE PLASTICAE 39, 4, 1997, pp. 113 - 116

INFLUENCE OF PRIMARY SEPTAL CARTILAGE REPOSITION ON DEVELOPMENT OF THE NOSE IN UCLP

M. Tvrdek, J. Hrivnáková, J. Kuderová, Z. Šmahel, J. Borský

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

This study was supported by a grant from the grant Agency of the Czech Republic No 308/96/0252.

SUMMARY

The preceding study (Šmahel, 1987) showed that after the abolishment of osteoplasty and introduction of primary reposition of nasal septum base in the 1970's the nasal deviation and asymmetry of nasal wing length in patients with unilateral cleft lip and palate had been reduced. The present study shows that this reduction continues after the introduction of total septum reposition. The deviation of septal base (columella) from the median plane and asymmetry in nostril position is reduced as well. The surgeon's experience however is the decisive factor determining the final shape of the nose.

ZUSAMMENFASSUNG

Der Einfluß der Reposition des primären septalen Knorpels auf die Entwicklung der Nase bei der einseitigen Lippen- und Gaumenspalte

M. Tvrdek, J. Hrivnáková, J. Kuderová, Z. Šmahel, J. Borský

Die vorläufige Studie (Šmahel, 1987) zeigte, daß nach dem Verlassen der Methode der Osteoplastik und der Einführung der primären Reposition der Base des Nasenseptums in den 70-rn Jahren, vermiderte sich bei den Patienten mit einseitiger Lippen- und Gaumenspalte die Nasendeviation und die Asymetrie in der Länge der Nasenflügel. Die gegenwärtige Studie zeigte, daß nach der Einführung der Reposition des ganzen Septums dieser Trend fortgesetzt hatte. Es verminderte sich auch die Deklination der Base des Septums (Kolumels) aud der Mittelebene und die Asymetrie in der Stellung der Nasenlöcher. Der entscheidende Faktor für die resultierende Bildung der Nase stellt jedoch dei Erfahrung des Chirurgen dar.

Key words: unilateral cleft lip and palate, septal reposition, nose development

The important factor in development and formation of the nose is the position of the nasal septum. In complete unilateral clefts the nasal septum is deformed in S-shape and its base is deviated to the unaffected side (Fig. 1).

Our department has been routinely performing complete reposition of the septum as an integral part of primary lip surgery since 1983 (Fig. 2).

Fig. 1. Deviation of the nasal septum in UCLP

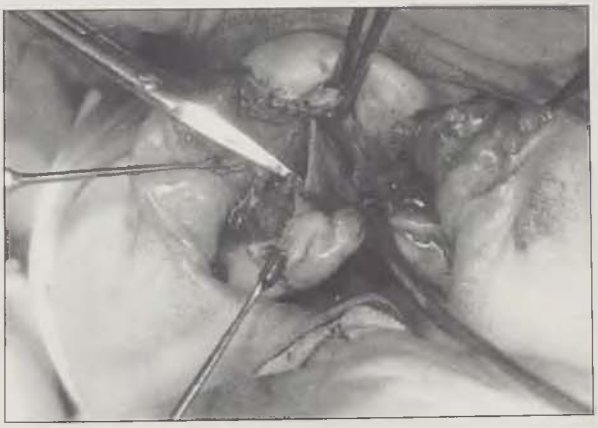

Fig. 2. Reposition of the septum

The septum is liberated off the jaw in the full extent up to the apex and off the apical cartilages. Thus the septum is in course of the primary surgery put into the median position (Fig. 3).

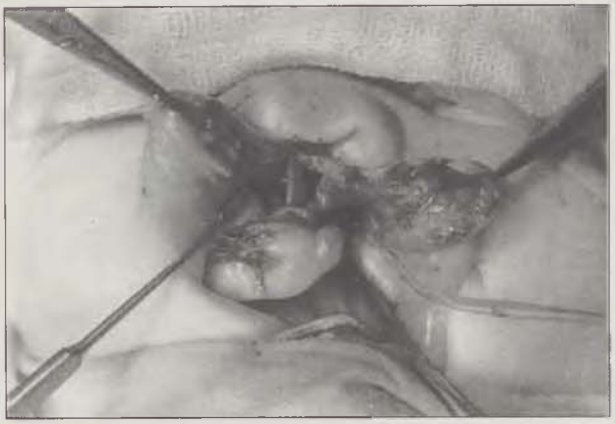

Fig. 3. The septum is repositioned into medial position

The aim of the study was to evaluate the influence of complete primary reposition of the nasal septum on the development of nose and oronasal region in patients with complete unilateral cleft lip and palate. We examined 53 children aged 7-10 years (born in 1986-90) prior to corrective surgery (Fig. 4a-c). The study followed the same protocol and the measurements were taken by the same person as in a study performed more than ten years before. The previous study examined a group of 29 patients with the same typ of cleft, born in 1974 - 1978 and treated by single reposition of the lower edge of the septum (Fig. 5a-c). Other surgical techniques were also identical, i.e. section following the Tennison method with primary periosteoplasty and retroposition of palate with pharyngofixation. The average age was 8 years which matches the present set. There are differences in the representation of surgeons. While in the preceding study two surgeons were performing cheiloplasty, eleven surgeons participated in the present one. This group of surgeons was therefore divided into two subgroups, the first one consisting of four senior surgeons including the two who had operated in the preceding study, the other one made of junior surgeons. We consider the first subgroup adequated for comparison, nevertheless both were needed to assess the importance of a surgeon's experience. The first group of patients was composed of 24 children of average age 8 years 3 months, the second one of 29 children aged 8 years 2 months on average.

The deviation of nose (apex) and columella were measured by means of a transparent semicircular protractor, the deviation of columella

4a - preoperative appearance

4b - postoperative view

4c - 8 years postoperative

Fig. 4. Complete reposition of the septum has been performed during primary lip surgery.

base off the median facial plane was taken in millimetres after determination of the median plane by the long arm of the sliding ruler. Using a specially designed sliding device, the following features were measured on both sides: length of the nasal wing, width of the nostril base, height of the upper lip under the insertion of the nasal wing toward the edge of labial red (Fig. 6). A difference between the healthy and affected sides in

5a - preoperative appearence

5b - postoperative view

5c - 8 years postoperative

Fig. 5. Reposition of the lower part of the septum has been performed during primary lip surgery.

each of these features was established individually and results were used for statistical calculations. The position of both nostrils was assessed in categories according to Topinard and evaluation of the difference between the healthy and affected sides was also made. The difference in

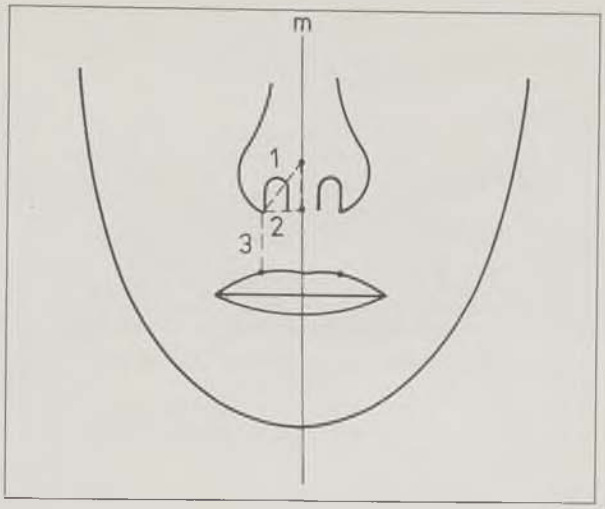

Fig. 6. Measured characteristics used in the study:

1. Length of the nasal wing
2. Width of the nostril treshold
3. Height of the upper lip

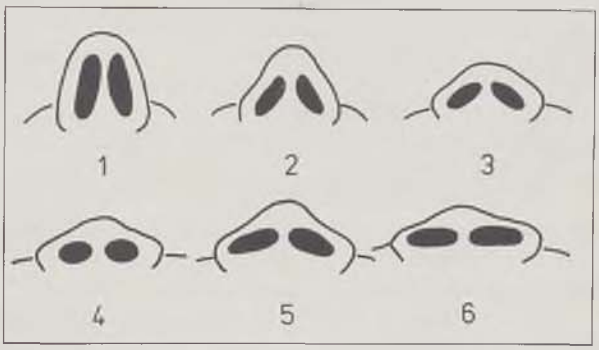

Fig. 7. Topinard's classification of the nostril types and position

location of the nasal wing insertion on a healthy and affected sides in vertical and anteroposterior planes was taken in millimetres. Results were analysed using a t-test.

Tab. 1. Frequency % - UCLPc

born in	1974 - 78 control	1986 - 90	
		group 1	group 2
nose deviation	58.6+	25.0xx	65.5
sept. base dev.	86.2++	45.8x	82.1
columell. dev.	31.0	29.2	41.4
nares position asym.	92.9	91.7	86.2
wing length asym.	72.4+	41.7	41.4!
threshold width asym.	75.9	83.3	82.8
lip height asym.	55.2	58.3	62.1

+ = significant difference between group 1 and controls at $p < 0.05$
++ = $p < 0.01$
! = significant difference between group 2 and controls at $p < 0.05$
x = significant difference between group 1 and 2 at $p < 0.05$
xx = $p < 0.01$

Tab. 2. Mean values - UCLPc

born in	1974 - 78	1986 - 90		character of changes
	control n = 29	group 1 n = 24	group 2 n = 29	
nose deviation deg	2.31	1.75	2.76	towards noncleft side
sept. base dev. mm	1.17	0.71x	1.36	towards noncleft side
columell. dev. deg	0.62	0.29	0.52	towards cleft side
nares position dif.	1.57 (+)	1.04(x)	1.43	cleft side more oblique
wing length dif. mm	0.48	0.29	0.55	cleft side larger
threshold width dif. mm	1.16	1.94x	2.59!!	cleft side larger
lip height dif. mm	0.72++	0.13x	0.16	cleft side smaller

++ = significant difference between group 1 and controls at $p < 0.01$
(+) = $p < 0.1$
!! = significant difference between group 2 and controls at $p < 0.01$
x = significant difference between group 1 and 2 at $p < 0.05$
(x) $p < 0.1$

RESULTS

1. **The influence of nasal septum reposition:**

The deviation of the nasal apex occurred in only 25% of patients with total reposition of nasal septum (tab. 1) as compared to those with partial reposition where it was present in 59% of individuals. The difference is significant ($p < 0.05$). The difference in columella (septum) base deviation is even more apparent - 46% of the present study set vs. 86% of the preceding one. This is of a high significance ($p < 0.01$). There were no differences noted in the frequency of columella deviation (around 30%) or asymmetry in nostril position (around 90%). The asymmetry in the length of nasal wings is less frequent in patients with total reposition perhaps due to a less frequent nose deviation (42% vs. 72%, $p < 0.05$). No similar difference was noted concerning the width of nostril base and asymmetry of upper lip height.

The average values (tab. 2) of all features are slightly better in the set with complete septum reposition but the differences are not significant. This is partly due to the smaller number of subjects (n = 24 and 29) along with a higher variability of features naturally associated with the defect. The difference in nostril position on healthy and affected sides is near the level of significance as in the set with complete reposition it constitutes the category after one according to Topinard's classification (Fig. 7) as compared to the preceding set with a category of 1.5 ($p < 0.1$). From the comparison of percentages with no difference we can see that the asymmetry in nostril position is almost always present (in more than 90%) but it is smaller in the set with complete reposition. The only significant difference between the two sets was found in absolute values of lip height asymmetry (which is equally frequent) which are on average smaller on the affected side in the preceding set. This is likely due to a more extensive recent experience than to a reposition of septum. No differences were found in the dislocation of nasal wing insertions in vertical or anteroposterior planes.

2. **The influence of surgeon's experience:**

A significant difference between the two groups of surgeons was found in the frequency of nose deviation (25% vs. 65%, $p < 0.01$) and columella base deviation (46% vs. 82%, $p < 0.05$, tab. 1). Though the frequency of asymmetry of other studied features is the same, the differences in the average values exist and they are often significant (tab. 2). An important difference was found in the size of columella base deviation associated with asymmetry of nostril base width (both $p < 0.05$). A similar difference is obvious in the asymmetry of upper lip height under nasal wing insertions ($p < 0.05$) and asymmetry of nostril position ($p < 0.1$).

REFERENCES

1. Šmahel, Z.: Effects of primary osteoplasty and periosteoplasty on the configuration of the nose in unilateral cleft lip and palate. Acta Chir. Plast., 29: 201-208, 1987.

Address for correspondence:
M. Tvrdek
Šrobárova 50
100 34 Prague 10
Czech Republic

ACTA CHIRURGIAE PLASTICAE 39, 4, 1997, pp. 117 - 120

NOMOGRAM FOR ASSESSMENT OF RESTORATION OF A POSITIVE OVERJET IN UNILATERAL CLEFT LIP AND PALATE

Z. Šmahel

Chair of Anthropology, Faculty of Natural Sciences, Charles University and Institute of Experimental Medicine, Academy of Sciences of the Czech Republic, Prague, Czech Republic

This study was supported by a grant from the grant Agency of the Czech Republic No 308/96/0252.

SUMMARY

In 92 patients with unilateral cleft lip and palate investigated on a long-term basis correlation-regression analysis of the development of overjet according to the development of interalveolar relations assessed in a defined method from X-ray films at the ages of 5, 10, 15 years and in adult age was implemented. The limits comprising 95% of the assembled data were also defined. Based on this analysis a formerly elaborated nomogram for age 10-15 years was extended for the whole postnatal period. Nomogram makes it possible to estimate from a single X-ray cephalometric parameter the risk of failure of the restoration of a positive overjet according to the age of the patient. The system defines critical boundaries which must be achieved for safe restoration of a positive overjet and makes it possible to check the course of treatment. The simple work with the nomogram and readily obtainable baseline data (age and X-ray cephalometric parameter on the interalveolar relations) make its application in clinical practice possible. It can serve as part of the documentation of the patient's therapy.

ZUSAMMENFASSUNG

Das Nomogram für die Schätzung der Eneuerung des Overjets bei der einseitigen Lippen- und Gaumenspalte

Z. Šmahel

Bei 92 Patienten mit der einseitigen Lippen- und Gaumenspalte, die langfristig beobachtet werden, wurde die korelativ-regressive Analyse der Abhängigkeit der Bißentwicklung von der interalveollaren Beziehungen durchgeführt. Diese Beziehungen werden auf deifinierter Weise aufgrund der Teleröntgenaufnahmen im Alter von 5, 10, 15 Jahren und im erwachsenen Alter gemessen. Es wurden auch die Grenzen bestimmt, die 95% der abgemessenen Daten einschließen. Aufgrund dieser Analyse wurde das Nomogram erarbeitet, das mit Rücksicht auf das Alter des Patienten und nach einem röntgenkefalometrischen Parametr die Schätzung des Risikos des Mißerfolges bei der Bemühung um die Erneuerung des Overjets ermöglicht. Das System gibt die kritischen Grenzen an, die man für die sichere Erneuerung des Overjets erreichen muß und dieses System ermöglicht auch den Behandlungsverlauf zu kontrollieren. Die Einfachkeit der Arbeit mit dem Nomogram und die leichte Erwerbung der Eintrittsdaten (des Alters und der rönthenkefalometrischen Angaben über die interalveollare Beziehung) ermöglicht seine Verwendung in der klinischen Praxis als Teil der Dokumentation der Behandlung des Patienten.

Key words: unilateral cleft lip and palate, overjet, prediction, nomogram, interalveolar relations, X-ray cephalometry

In a previous study we published a nomogram (Šmahel, 1994) which with regard to the age of the patient with unilteral cleft lip an palate makes it possible, according to a readily assessed X-ray cephalometric parameter, to evaluate the risk of failure when attempting to restore a positive overjet. This parameter is the interalveolar relations expressed as the anteroposterior difference between the boundary of the upper and lower alveolar processes (anthropometric points Pr and Id) after their perpendicular projection on the so-called modified occlusal plane (Fig. 1). This plane passes through the centre between the cusps of the upper and lower incisors during centric occlusion and the peak of the angle formed by the plane of the palate and the plane of the base of the mandibular body (PL/ML). It is less affected by the eruption of the permanent teeth, dental anomalies and orthodontic therapy as the actual occlusal plane and rotation of the mandible

during development is transmitted in a certain ratio into its slope as the peak of the PL/ML angle shifts. The rotation of the mandible is thus transformed into the slope of the occlusal plane on which the difference after perpendicular projection of the edges of both alveolar processes (Pr+Id) reflects the magnitude of anterior growth of both jaws and the magnitude of dentoalveolar retroinclination of the maxilla. All these parameters, which proved in previous studies important for the development of sagittal intermaxillary relations and occlusion of incisors are thus expressed by a common parameter. Dependence of overjet on this parameter reached a correlation coefficient value of 0.8 which makes prediction possible.

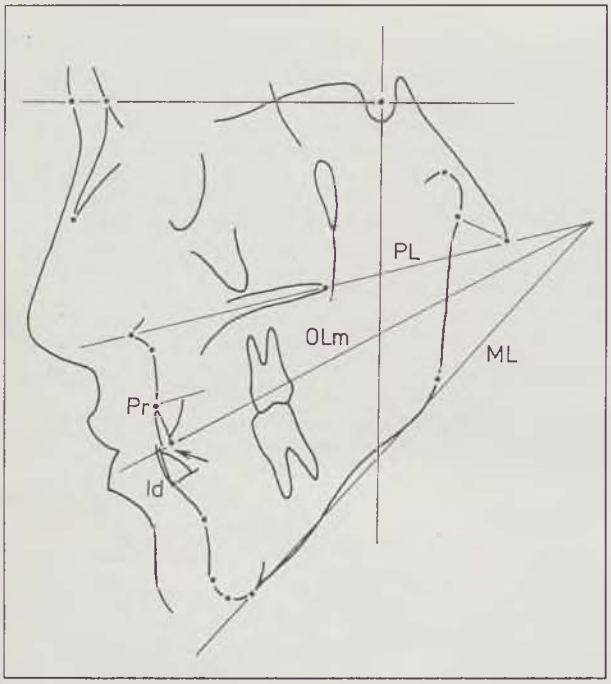

Fig. 1. Method of measurement of interalveolar relations (see text): Pr (prosthion) point of gingival contact with upper central incisors, Id (infradentale) point of gingival contact with lower central incisors, PL = line through anterior and posterior nasal spine, ML = tangent to the mandibular body through gnathion (lowest point of symphysis), OL_m = modified occlusal line (plane); arrow = measured overjet.

However, the nomogram applied only to the adolescent period. It was elaborated on the basis of correlation-regression analysis of dependence of overjet on the development of interalveolar relations in 92 patients examined repeatedly at the age of 10 and 15 years. Therefore is was not certain how far the regression lines could be prolonged beyond that period, as was done in the nomogram. As some patients were followed up on a long-term basis, it was possible to obtain X-ray films of the head in adult age from 62 subjects of the original group and make the same analysis as in the previous study (Šmahel, 1994). In 41 patients of the original group there were also films available which were taken at the age of 5 years. Both groups were used to make the nomogram more accurate and to modify it for the prepubertal and postpubertal periods.

MATERIAL AND METHOD

The original group was formed by X-ray films of the head of 92 patients with unilateral cleft lip and palate examined repeatedly at the age of approximately 10 and 15 (± 6months) years. 82 subjects had a complete cleft, in the remaining 12 there was a soft bridge within the treshold of the nostril (Simonart's band). The lip was operated on during the 7th month, mostly according to Tennison (in 27 subjects according to Veau). In 52 patients primary periosteoplasty was performed at the age of 4-5 years, and in 40 patients osteoplasty. The two groups were combined as no differences were found in the pursued correlation-regression analysis in relation to the type of operation. More detailed data were presented in the previous study (Šmahel, 1994). In 62 patients X-ray films taken in adult age were also available, and in 41 at the age of five years. As to the sex ratio and surgical methods they did not differ notably from the basic group.

The X-ray films were taken under standard conditions with the patient's head fixed in a cephalostat in centric occlusion. Overjet (Is - Ii) was measured as the distance between the cusps of the upper and lower central incisors, parallel with the occlusal plane, interalveolar relations (Pr+Id) as described above. The relationship between overjet and the interalveolar relations was in all age groups (5, 10, 15 years and adult age) expressed by linear regression with defined boundaries which comprise 95% of the assessed data of the overjet.

RESULTS

The correlation between overjet and interalveolar relations at different age levels are apparent from figs. 2-5. The correlation coefficients range from 0.785 - 0.840. The boundaries which comprise 95% of the assessed values are in all instances within the range of 3mm (± 0.5 mm) of the magnitude of the overjet from the appropriate regression line. At the age of 5 years an anterior crossbite occurs already when the value of interalveolar relations is +1mm, at the age of 10 when the value is -1mm, at the age of 15 years and also in adult age when the value is -3mm (arrow K). The exceptions marked by numbers imply a slight crossbite caused mostly by retroinclination of the upper incisors. By their subsequent proclination it proved possible to restore a positive overjet. With the exception of the first age group the number of patients is sufficient to ascribe real value to the findings. The above age differences of interalveolar relations when crossbite develops correspond to the shift of regression lines. The

lines for age 5, 10, and 15 years have an almost parallel course (Fig. 6) but are shifted by less than 2 mm to lower values of interalveolar relations between ages 5 and 10 years and by 2.3mm between ages 10 and 15 years. This means that with age (up to 15 years) it is possible to achieve the same overjet while the interalveolar relations are deteriorating. This is no doubt the result of compensations due to changes in the inclination of incisors. After the age of 15 years this process is probably exhausted, the regression line in adult age does not shift further after the age of 15 years. Although the line have somewhat different slope, the difference is not significant. A less steep slope indicates further compensation (better overjet) during greater impairment of interalveolar relations (Pr+Id).

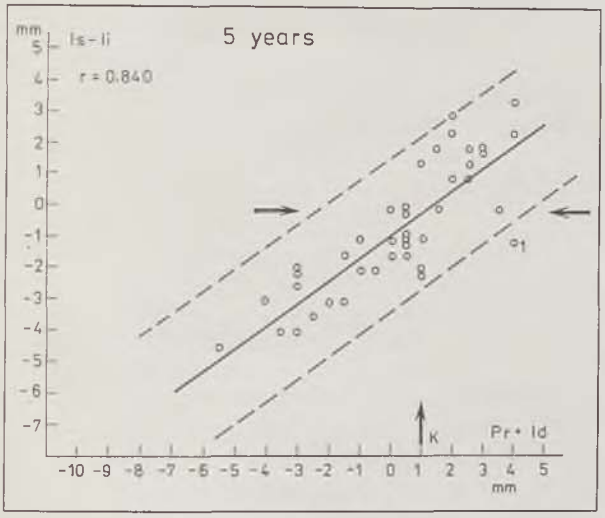

Fig. 2. The relation of overjet (Is-Ii) to the interalveolar relations (Pr+Id) at the age of 5 years. Distribution of the data and the regression line with intervals which comprise 95% of the measured data (arrow K designates critical boundary below which occurs an anterior crossbite, horizontal arrows designate an edge to edge bite).

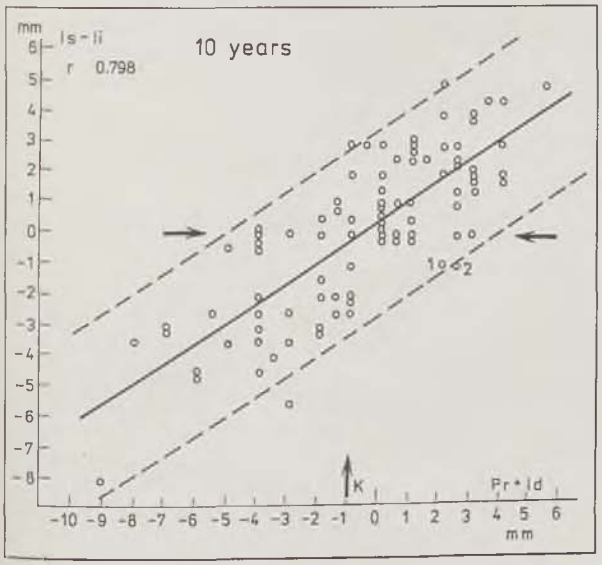

Fig. 3. The relation of overjet (Is-Ii) to the interalveolar relations (Pr+Id) at the age of 10 years (explanatory notes see Fig. 2)

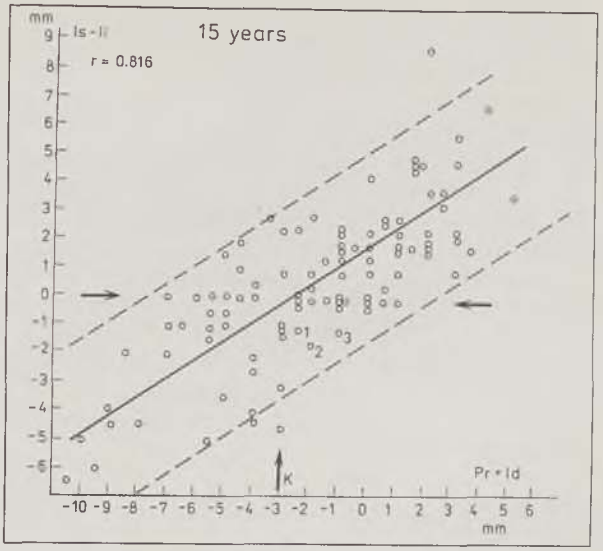

Fig. 4. The relation of overjet (Is-Ii) to the interalveolar relations (Pr+Id) at the age of 15 years (explanatory notes see Fig. 2)

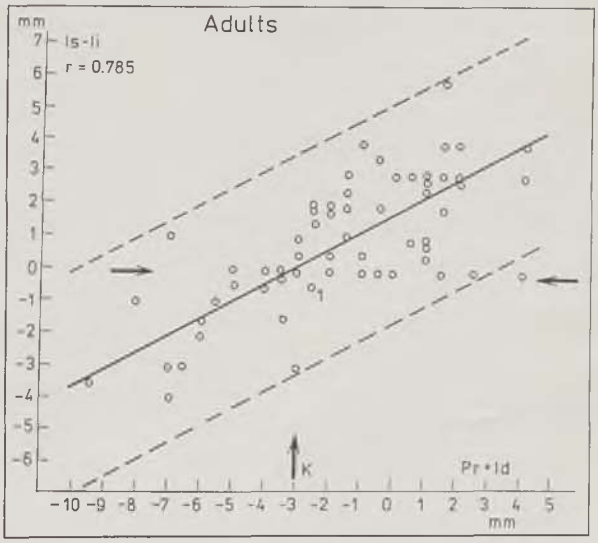

Fig. 5. The relation of overjet (Is-Ii) to the interalveolar relations (Pr+Id) in adult age (explanatory notes see Fig. 2)

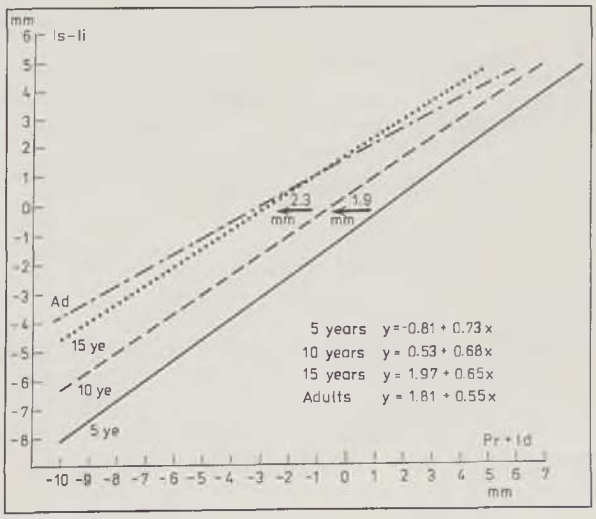

Fig. 6. The relation of overjet (Is-Ii) to the interalveolar relations (Pr+Id) at the age of 5, 10 and 15 years and in adult age. Regression lines.

Based on all these data and confidence limits defining the area which includes 95% of experimental data we modified the formerly elaborated nomogram for the 10-15 year age bracket and extended it for the whole postnatal period (Fig. 7). The nomogram is based on one X-ray cephalometric parameter and defines the probability (risk) of not being able to restore a positive overjet. The critical boundary K defines in relation to age (ordinate) the area of values of interalveolar relations (abscissa), where a positive overjet can be safely restored. Treatment should attempt to get these relations in front of the mentioned critical boundary to the right. The outlined zones then indicate the amount of risk of therapeutic failure. Little changes occur after the age of 15 years. In every patient it is thus possible to estimate from the assessed data of interalveolar relations and age the perspective of treatment: e.g. in an 8-year-old patient with an interalveolar relationship of 0 mm, the risk that it will not be possible to restore a positive overjet is 25-50%, similarly as in a 12-year-old child with an interalveolar relationship of -2mm. More severely affected patients and those where treatment is more difficult will occur more to the left in the nomogram, less affected patients and those who had better treatment will occur more on the right side.

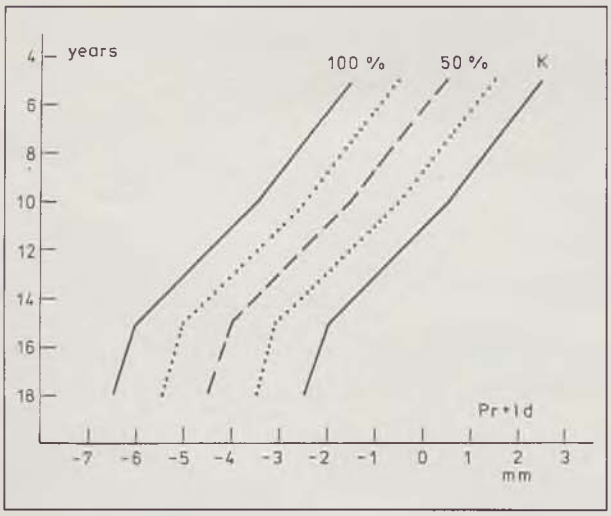

Fig. 7. A nomogram for the estimation of the possibility to restore a positive overjet in patients with clefts (see text).

DISCUSSION

We must repeat that the nomogram was elaborated on the basis of the therapeutic results of our patients. Due to more effective therapy as a result of new methods and better technical and material equipment the critical range can be shifted more to the left. This shift may cause the impression that treatment will be easier and it will be necessary to test it in new groups of patients. The problem depends on the mechanical capacity and the magnitude of difference in the anteroposterior position of the margins of the two alveolar processes when a positive overjet can still be restored. This depends not only on the possible proclination of upper and retroclination of the lower incisors but to a great extent also on the possibility of changing the position of the mandible. The latter possibility will have to be defined more accurately as it implies a certain inaccuracy of the prediction.

The values entered in the nomogram are empiric and represent the average risk which may differ from the position of a true patient, not only due to the inability of the system to estimate changes in the position of the lower jaw. The development of every patient can be however recorded in the nomogram and followed up to note whether his position improves or deteriorates in relation to the critical borderline. In case of deterioration, treatment can be intensified or modified.

Interalveolar relations evaluated as described were used to elaborate the nomogram as they have the closest relation to overjet. One of the advantages is that in healthy subjects they do not change with age and are identical for both sexes. In childhood and adult age they are approximately 2mm (Šmahel, 1994). The interalveolar relations expressed by the angle Pr-N-Id depend on the length of the anterior base (position of point N) and correlate less closely. Sagittal intermaxillary relations expressed in different ways correlate even less closely with the overjet (Šmahel, 1994).

The nomogram was elaborated on the basis of examinations of a large number of patients. We therefore consider it relevant, but it must be verified in clinical practice. It can serve as part of the patient's documentation.

REFERENCES

1. Šmahel, Z.: The prediction of restoration of a positive overjet in unilateral cleft lip and palate. Acta Chir. Plast., 36: 42-47, 1994.

Address for correspondence:

Z. Šmahel
Viničná 7
128 44 Prague 2
Czech Republic

ACTA CHIRURGIAE PLASTICAE 39, 4, 1997, pp. 121 - 124

DEVIATIONS IN CRANIOFACIAL MORPHOLOGY IN PATIENTS WITH COMPLETE UNILATERAL CLEFT LIP AND PALATE EVALUATED BY JARABAK'S ANALYSIS

M. Drahorádová[1], Ž. Müllerová[2]

[1]Chair of Anthropology, Faculty of Natural Sciences, Charles University, Prague, Czech Republic
[2]Department of Cleft Defects, Charles University Hospital Královské Vinohrady, Prague, Czech Republic

SUMMARY

The study is based on evaluation of X-ray films of the head of 29 boys aged 5 years and 34 males aged about 20 years with complete unilateral cleft of the lip and palate. Deviations in the craniofacial morphology were assessed using the Jarabak's analysis. Most linear dimensions were smaller in both children and adult patients. The exception was the posterior part of the cranial base the length of which was the same as in controls. The anterior part of the cranial base and the mandibular body were significantly shortened only in 5-year-old individuals while the maxillary body was shortened only in adult patients. The anterior facial height was elongated in adult patients. The mandible showed a posterior rotation, the gonial angle was increased in its lower part. The maxilla and mandible were retrusive with impaired vertical - and in adults also sagittal - jaw relations. Both upper and lower incisors showed retroinclination. In 5-year-old patients an anterior crossbite developed, a trend to open bite was evident in adult patients. The upper lip was retrusive while the lower lip was protrusive. Jarabak's method is not sufficient for an accurate analysis of the soft profile in patients with clefts.

ZUSAMMENFASSUNG

Abweichungen in der Gestaltung des Schädels bei Patienten mit totalen Lippen- und Gaumenspalten nach der Jarabak-Analyse.

M. Drahorádová, Ž. Müllerová

Die Arbeit beruht auf der Wertung der Röentgenaufnahmen des Kopfes bei 29 Jungen im Alter von 5 Jahren und bei 34 Männern im Alter von ungefährt 20 Jahren mit totalen einseitigen Lippen- und Gaumenspalten. Die Jarabak-Analyse gelangte zur Abwendung in der Wertung der Abweichungen der Schädelgestaltung bei diesen Patienten in Vegleich zur gesunden Population. Die meisten linearen Dimensionen waren verkürzt sowohl bei Kindern wie auch bei Erwachsenen. Eine Ausnahme bildet der hintere Teil der Schädelbasis, der eine normale Länge aufgeweist. Der vordere Teil der Schädelbasis und die Länge des Unterkieferkörpers waren signifikant Kürzer nur im Kinderalter, dem gegenüber war die Länge des Oberkieferskörpers nur im erwachsenen Alter verkürzt. Die vordere Gesichtshöhe war im Gegeteil im erwachsenen Alter grösser als bei der Norm. Der Unterkiefer befand sich in einer rück-wertigen Rotation, der untere Teil des Gonialen-Winkels war vergrössert. Beide Kiefer befanden sich in einer Retrusion mit der Störung der vertikalen und im erwachsenen Alter auch der sagitelen gegenseitigen Beziehungen. Es bestand eine rückwertige Inklination der Schneidezähne. In Alter von 5 Jahren wurde Kreuzbiss festgestalt. Die Tendenz zu einem offenen Biss wurde im erwachsenen Alter beobachtet. Die Oberlippe wies eine Retrusion auch, die Unterlippe war im Gegenteil in einer Retrusion. Die Jarabak-Analyse kann nicht zu der Wertung des Gesichtsprofiles angewandt werden.

Key words: X-ray cephalometry, unilateral cleft lip and palate, Jarabak's analysis

The aim of the present study was to assess craniofacial deviations in patients with complete unilateral cleft of the lip and palate by the Jarabak's method. This method is used in the Prague Cleft Centre to analyse X-ray films of the head for the purposes of orthodontic therapy. Nevertheless, data on extensive numbers of patients allowing to clearly see advantages and disadvantages of the method in case of serious facial malformations due to clefts, are not available. In our study only data on individuals aged 5 and 20 years were taken into account as the respective norms were based on the values really measured, the norms for the other age groups were calculated by linear interpolation (Šmahel et al., 1995).

MATERIAL AND METHODS

The study is based on evaluation of 29 and 34 X-ray films of patients with complete unilateral

cleft of the lip and palate aged 5 years (mean age 5.25 years) and 20 years (mean age 20.17 years), respectively. X-ray films obtained both in childhood and adulthood were available for 8 patients.

Lip suture according to Tennison was performed in all patients when aged about 7 months. Twenty patients (born between 1966 and 1968) underwent osteoplasty and thirty-five (born between 1973 and 1978) periosteoplasty. The effects of these two surgical procedures, which were used in the same proportion in both groups of patients, were not studied. The palate surgery consisting in pushback with pharyngeal flap surgery was performed in patients with bone grafts at the age of 4 years and in those with periosteal flaps at the age of 5 years.

The data on patients with clefts were compared with the norms for the Czech population (Šmahel et al., 1995). X-ray films of 27 normal boys aged between 4 and 6 years (mean age 5.17 years) obtained within a study conducted in the late 1960's in kindergartens and those of 36 adult males, volunteers treated for minor injuries and students, aged between 20 and 30 years, were used as controls.

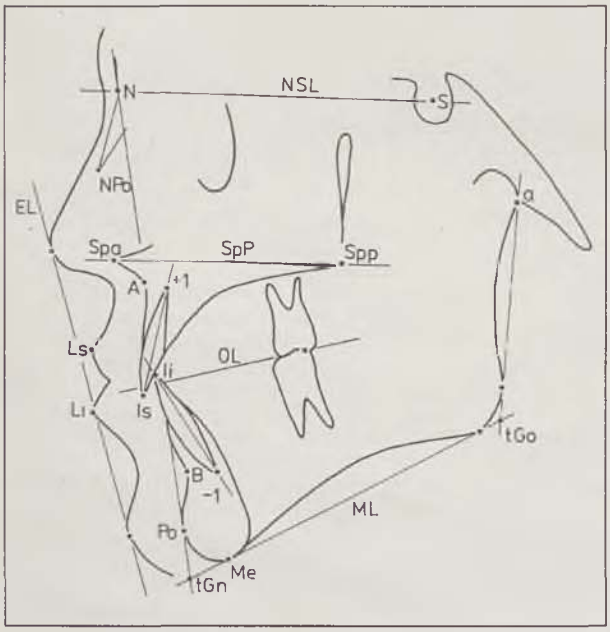

Fig. 1. Cephalometric points and reference lines used in the present study.

Points: N -nasion, S - sella, a - articulare, tGo - gonion obtained as intersection of tangents to the mandibular body and ramus, Me - menton, tGn - gnation obtained as intersection of lines ML and NPo, Po - pogonion, Spa - spina nasalis posterior, A - subspinale, Is - incision superius, Ii - incision inferius, B - supramentale, Ls - labrale superius, Li - labrale inferius. Reference lines: NSL - line through N and S, ML - tangent to the mandibular body through Me, SpP - line through Spa and Spp, OL -line through the midpoint between the tips of the upper and lower incisors and the point on the top of the posterior tubercle of the first lower molar (line of occlusion), +1 - axis of the upper central incisors, -1 - axis of the lower central incisors, NPo - line through N and Po (facial line), EL - tangent to the top of the nose and to the soft tissue contour of the chin.

X-ray films were made under standard conditions at centric occlusion with the head fixed in a cephalostat. To evaluate the X-ray films the Jarabak's analysis, the most frequent method to be used for the purposes of orthodontic diagnosis and treatment in the Czech Republic, was employed. Characteristics and explanations of different points, lines and angles used in the Jarabak's analysis are given in Figure 1. The data were measured by the digitiser and processed by usual statistical procedures.

A negative value of the angle ANB means that the point A is located posterior to the point B. Patients were divided according the size of this angle into three skeletal classes (0 to 5° = class I, more than 5° = class II, less than 0° = class III).

Facial growth rotation is given by the posterior to anterior facial heights ratio (S-tGo:N-Me). If this ratio is lower than 59%, the condition is considered as a posterior rotation (CW), if this ratio is higher than 63%, the condition is considered as an anterior rotation (CCW), and if this ratio varies between 59 and 63%, the growth is considered as neutral.

The degree of the facial convexity is expressed as the difference between the angle N-A-Po and 180°. The angle calculated this way has a negative value if the point A is located posterior to the line NPo.

A negative value for the overjet means an anterior crossbite. Negative values for the distances between the tips of the lower central incisors and the facial plane (Ii-NPo) and for the distance of the upper and lower lips from the aesthetic line (Ls-EL, Li-EL) mean that these structures are located posterior to the respective lines.

RESULTS

The results obtained are given in Table 1. In patients with cleft aged 5 years, the cranial base was significantly shortened only in its anterior part (N-S). In adult patients, the lengths of the anterior and posterior (S-a) parts of the cranial base were the same as in controls. There were no changes in the cranial base curvature (N-S-a), in both children and adult patients. The length of the maxilla (Spa-Spp) was markedly shortened in adult patients while the mandibular body (tGo-Me, tGo-tGn) was shortened only in children with clefts. The deterioration of the sagittal jaw relations (ANB) in adult patients was attributable to the upper jaw retrusion (SNA). The retrusion of the mandible (SNB, S-N-Po) was significant already in children with clefts but in adults it was less marked than that of the maxilla. The retrusion of the maxilla led to face flattening (N-A-Po) evident in adult patients. The inclination of the upper jaw base (NSL/SpP) corresponded to the norms.

The most marked differences in patients with cleft were found for the mandibular ramus (a-tGo) and consequently for the posterior face

Table 1. Mean values of cephalometric characteristics in patients with clefts and in controls and their differences.

age	5 years			20 years		
variable	clefts	controls	diff.	clefts	controls	diff.
N-S	63,45	65,90	-2,45**	74,68	74,78	-0,10
S-a	27,53	28,69	-1,16	38,22	38,12	0,10
a-tGo	36,93	39,77	-2,84**	50,96	57,61	-6,65***
tGo-Me	53,08	55,52	-2,49**	74,84	76,41	-1,57
tGo-tGn	59,76	62,69	-2,93**	82,26	84,20	-1,94
Spa-Spp	46,93	47,54	-0,60	54,31	57,95	-3,64***
N-tGo	96,88	100,58	-3,70**	128,29	130,45	-2,16
S-tGn	102,19	106,15	-3,96**	138,71	139,42	-0,71
S-tGo	60,29	64,25	-3,96***	85,57	90,68	-5,11***
N-Me	99,55	100,33	-0,78	134,09	129,26	4,83**
S-tGo/N-Me	60,53	64,03	-3,50***	63,83	70,28	-6,45***
growth rotation	N	CCW		CCW	CCW	
N-S-a	126,84	124,98	1,86	124,97	126,65	-1,68
S-a-tGo	138,62	139,37	-0,75	147,35	142,18	5,17***
a-tGo-Me	134,37	130,71	3,76**	125,78	120,91	4,87**
a-tGo-N	57,28	56,94	0,34	47,93	48,70	-0,77
N-tGo-Me	77,19	72,73	4,46***	77,79	72,15	5,64***
NSL/ML	39,90	34,98	4,92***	38,18	29,74	8,44***
SpP/ML	32,14	28,37	3,77**	31,56	21,46	10,10***
NSL/SpP	8,02	6,87	1,15	6,82	8,43	-1,61
SNA	77,34	79,04	-1,70	72,06	80,84	-8,78***
SNB	72,17	74,81	-2,64**	73,40	78,20	-4,80***
ANB	5,22	4,31	0,91	-1,37	2,64	-4,01***
skeletal class	II.	I.		III.	I.	
N-S-tGn	71,62	68,56	3,06***	73,07	68,31	4,76***
S-N-Po	72,14	74,56	-2,42**	75,56	79,74	-4,18***
N-A-Po	10,03	8,51	1,49	-6,84	1,95	-8,79***
OL/ML	20,71	14,17	6,54***	23,26	13,05	7,21***
+1/-1	165,45	151,13	14,32***	141,09	135,35	5,74**
-1/ML	80,36	86,62	-6,26***	83,72	95,23	-11,51***
+1/NSL	74,14	87,08	-12,94***	96,99	99,77	-2,78
Ii-ML	34,31	34,13	0,18	46,06	44,82	1,24
Is-NPo	0,66	4,08	-3,42***	0,26	4,70	-4,44***
Ii-NPo	1,21	2,02	-0,81	-0,70	2,16	-1,49***
Overjet	-0,59	1,98	-2,55***	1,01	2,50	-1,49**
Overbite	0,53	0,94	-0,41	0,22	2,61	-2,39***
Ls-EL	-1,02	-0,67	-0,35	-8,32	-5,16	-3,16***
Li-EL	0,78	-0,67	1,45*	-2,56	-3,97	1,41*

Significant differences between clefts and controls at *p < 0,05, ** p < 0,01, *** p < 0,001

height (S-tGo). Both dimensions were significantly lower already in 5-year-olds and the adult patients showed even higher deviations from the norm. Conversely, the anterior face height (N-Me) exceeded the norm in 20-years old patients. This is caused by a steeper position of the mandibular body which showed significant posterior rotation (N-S-tGn, NSL/ML) already in 5-year-old patients with cleft. The posterior rotation of the mandible leads to a steeper position of the mandibular ramus (S-a-tGo) in 20-year-old patients. The increase in the gonial angle (a-tGo-Me) in both 5- and 20-year-old patients is entirely attributable to the lower part of the angle (N-tGo-Me). The upper part of the gonial angle (a-tGo-N) was the same as in controls.

The posterior to anterior face heights ratio (S-tGo/N-Me) was markedly lower in patients with cleft compared to the norms: this is indicative of a limited anterior growth rotation.

The upper central incisors were markedly retroclined (+1/NSL) in 5-year-old patients. Their lower incisors were also significantly more inclined lingually (-1/ML). The orthodontic therapy improved the inclination of the upper incisors while the retroinclination of the lower incisors was larger in 20-year-old patients. This is attributable mainly to the persistent steepness of the mandibular body and partly to orthodontic therapy. Due to retroinclination of incisors, the interincisal angle (+1/-1) was markedly increased in 5-year-old patients. The adult patients showed a substantially slighter increase in this angle. The tips of the upper and lower incisors exceeded the facial plane in the anterior direction (Is-NPo, Ii-NPo) in normal population. The 5- and 20-year-old individuals with cleft showed markedly lower distances for the tips of the upper incisors; the tips of the lower incisors did not reach the facial plane in patients aged 20 years.

The 5-year-old patients had, on the average, an anterior crossbite, while in adults a positive overjet was restored but it did not attained the norm. The trend towards open bite was evident mainly in adult patients.

The analysis of the soft profile in the Jarabak's method includes only the distances between the upper/lower lips and the Ricketts's aesthetic

line (Ls-EL, Li-EL). The larger upper lip distance in 20-year-old patients was given by the retrusion and a shortened maxillary body, while the lower lip in 5-year-old patients showed protrusion, slightly exceeding the aesthetic line.

DISCUSSION

Craniofacial deviations in patients with cleft were repeatedly described. Most of them were confirmed in our study. Šmahel and Brejcha (1983) found shortening of the anterior cranial base in both children and adult patients while Hayashi et al. (1976) did not record any deviations. Hayashi et al. (1976) reported flattening of the cranial base in patients with cleft.

A shortened maxillary body represents one of the most serious deviations in patients with cleft. It is responsible for retrusion of the central part of the face, its flattening and impairment of the sagittal jaw relations. The shortening was not observed in our series of 5-year-old individuals with cleft. Šmahel and Müllerová (1991) reported maxillary shortening only after palatoplasty. This surgery is followed by ossification of the hard palate without growth sutures, which leads to limitation of growth (Šmahel et al., 1993).

Mandibular deviations are rather independent of the extent of cleft and maxillary defects and therefore seem to be due to primary growth deficiency (Šmahel and Brejcha, 1983). Hayashi et al. (1976) did not find a significantly shortened mandibular body in children while Šmahel et al. (1993) and Dahl (1970) recorded this shortening in both children and adult patients.

A significant retroinclination of the mandibular ramus might have been caused by orthodontic therapy which displaced the mandible under the cranial base with the aim to restore a positive overjet. After its restoration further displacement of the mandible may follow (Šmahel et al., 1993).

Only the lower part (N-tGo-Me) of the gonial angle (a-tGo-Me) was flattened while its upper part (a-tGo-N) did not differ from the norm. This flattening is attributable to the steeper position of the mandibular body, causing impairment of vertical jaw relations and sometimes open bite. The marked retroinclination of the upper incisors in children with cleft results from an increased tension of the restored lip (Hayashi et al., 1976). Retroinclination of lower incisors is evident particularly in adult patients, but this deviation is attributable to a great extent to the steepness of the mandibular body (Šmahel et al., 1993).

Most craniofacial deviations in patients with clefts could be satisfactorily described with the Jarabak's analysis. Nevertheless, certain characteristics such as the position of the posterior nasal spine with reference to the cranial base, anterior heights of the lower and upper face, chin angle, anterior height of the mandibule, inclination of the mandibular ramus, etc. should be additionally taken into account to allow more accurate diagnosis. The lip distances from the aesthetic line may be distorted due to the deviations in the nose region (e.g. apex flattening) and to the chin retrusion. The method does not include evaluation of nose parameters (e.g. depth and length), lip length and thickness and evaluation of the soft profile.

REFERENCES

1. Dahl, E.: Craniofacial morphology in congenital clefts of the lip and palate. Acta Odont. Scand., 28, Suppl. 57, Copenhagen, 1970.
2. Hayashi, I., Sakuda, M., Takimoto, K., Miyazaki, T.: Craniofacial growth in complete unilateral cleft lip and palate: A roentgeno-cephalometric study. Cleft Palate J., 13: 215-237, 1976.
3. Šmahel, Z., Brejcha, M.: Differences in craniofacial morphology between complete and incomplete unilateral cleft lip and palate in adults. Cleft Palate J., 20: 113-127, 1983.
4. Šmahel, Z., Müllerová, Ž.: Změny v utváření krania při celkovém jednostranném rozštěpu před operací patra. Česko-Slov. Stomat., 91: 80-89, 1991.
5. Šmahel, Z., Betincová, L., Müllerová, Ž., Škvařilová, B.: Facial growth and development inunilateral complete cleft lip and palate from palate surgery up to adulthood. J. Craniofac. Genet. Dev. Biol., 13: 57-71, 1993.
6. Šmahel, Z., Tomanová, M., Müllerová, Ž., Škvařilová, B.: České normy pro Jarabakovu analýzu dálkových snímků hlavy. Česká Stomat., 95: 97-104, 1995.

Address for correspondence:

M. Drahorádová
Dept. of Anthropology
Viničná 7
128 44 Praha 2
Czech Republic

ACTA CHIRURGIAE PLASTICAE 39, 4, 1997, pp. 125 - 131

CONTEMPORARY STATE OF SURGICAL TREATMENT OF FACIAL NERVE PARESIS. PRELIMINARY EXPERIENCE WITH NEW PROCEDURES

J. Kozák, P. Voska, M. Tichý

1. Dept. of Maxillofacial Surgery, University Hospital Motol, Prague
2. Dept. of Maxillofacial Surgery, Central Military Hospital, Prague
3. Dept. of Child Neurosurgery, University Hospital Motol, Prague, Czech Republic

This study was supported by a grant from the Ministry of Health of the Czech Republic No 2867-3.

SUMMARY

Treatment of paresis of the facial nerve is a serious problem which has advanced greatly during the past three decades. The possibilities of surgical treatment are very extensive - from excisions, implantations of springs and weights, to passive and active supports, muscle transposition, transposition and suture of regional nerves to nervous and muscular transplants. The authors demonstrate their experience with transposition of the temporal muscle and methods of transplants of nervous grafts taken from the sural nerve and in the second stage transplants of a portion of the m. latissimus dorsi or m. serratus ant. in five patients. According to the authors the problem is that patients come for reconstruction operations after long time intervals and sometimes already after several operations. The most suitable surgical procedure must be selected on a strictly individual basis with regard to various mentioned criteria.

ZUSAMMENFASSUNG

Der gegenwärtige Zustand der chirurgischen Behandlung der Lähmung des Backennervs Die vorläufigen Erfahrungen mit den neuen Methoden

J. Kozák, P. Voska, M. Tichý

Die Behandlung der Lähmung des Backennervs stellt ein wichtiges Problem dar, das in den letzten drei Dekaden einen bedeutenden Fortschritt machte. Die Möglichkeiten der chirurgischen Behandlung sind sehr umfangsreich von den Exzisionen, Implantationen der Federn und Gewichte, über die passive und aktive Fixierung, die Transposition des Muskels, die Transposition und Suture der regionalen Nerven bis zu den Nerv- und Muskelübertragungen. Die Autoren demonstrieren ihre Erfahrungen mit der Transposition des Muskels temporalis und mit der Methodik der Übertragungen von den Nervenfasern, die aus dem Nerv suralis entnommen wurden und in der zweiten Etappe mit den Übertragungen eines Teiles des Muskels latissimus dorsi oder des Muskels serratus ant bei 5 Patienten. Den Autoren nach ist das Problem das, daß die Patienten zu den rekonstruktiernden Operationen mit großen Zeitabständen kommen und manchmal schon nach einigen weiteren Operationen. Das beste Operationsverfahren muß streng individuell mit Rücksicht auf eine ganze Reihe hier eingeführten Kriterien gewählt werden.

Key words: paresis of the VIIth nerve, reconstruction, nervous transplantation, muscular transplantation

Paresis of the facial nerve is a serious functional, psychic and cosmetic impairment for the patient. The patients appearance may be even grotesque with the mouth contracted to the healthy side and it is absolutely impossible for the patient to express emotions adequately. The functional disorder is due to loss of muscular balance and alteration of three specific sphincteric mechanisms: ocular, oral and oropharyngobuccal.

Problems which arise in pareses of the facial nerve pertain therefore to three main spheres:

- 1. function
- 2. symmetry of the face at rest
- 3. facial expression

Functional disorders are most serious and therefore have priority when preparing the therapeutic plan. Next comes restoration of the facial symmetry and subsequently the mobility of the

face. Charles Bell (1) was the first who in 1814 recognized the importance of the facial nerve for the function of the facial musculare. Mobius (14) described in 1888 congenital facial paralysis as part of the syndrome which bears his name.

The causes of paresis are congenital, neonatal, iatrogenic, neurological, traumatic, infectious, metabolic and neoplastic. Denervation of the muscle leads to gradual loss of the integrity of myoneural end-plates, atrophy and degeneration of muscle fibres. These degenerative changes become irreversible within 6-18 months but the time range is relatively wide. In irreversibly damaged nerves surgical treatment should be considered.

Surgical treatment may involve either minor operations which in the majority pertain to the palpebral fissure and comprise tarsorrhaphy, wedge-shaped excisions, the use of springs, weights. Moreover there are static and dynamic supports. A static support was developed simply to support the paretic facial musculature and to improve facial symmetry. Dynamic supports, described by Rubin (18) and Conley (4), should make also active facial movement and closing of the eye possible.

A dynamic support is controlled by the function of the Vth nerve and it requires a certain amount of training to establish symmetrical facial movements. The best reconstruction of the damaged VIIth nerve is reinnervation of the paretic facial musculature by ipsilateral restoration of the nerve.

In 1927 Bunnel (2) described reconstruction of the nerve along the temporal bone. Millesi (13) reconstructed the facial nerve extracranially by means of a nervous graft. In many patients it is the proximal nerve stump cannot be used and under these circumstances it is possible to use and transpose some regional nerves - in particular the hypoglossal, phrenic, accessory nerve. The common problem is that mimics and the mobility of the facial muscles are not controlled by the facial nerve and thus do not respond to emotions and other impulses. Smiling and other types of motility require hard training and therefore are suited only for intelligent and cooperative patients. The mobility of the face depends directly on movements of the tongue, shoulder, cough, inspiration etc. For reconstruction of spontaneous laughing and other activities it is essential to use bridging by means of a nervous graft from the contralateral sound side of the face to the paretic side (Smith 20), (Scaramella 19). The time of growth of axons on the paretic side varies round eight months. If the facial musculature is already in such a state of atrophy and degeneration that its regeneration is impossible, it is indicated to transplant a portion of a skeletal muscle such as the m. gracilis, m. serratus ant. or m. latissimus dorsi and to anastomose the motor nerve of the muscle with the nervous graft from the sound side and to ensure thus spontaneous symmetrical activity controlled by the facial nerve.

Harii (16) transferred in 1973 the m. gracilis into the paretic face and anastomosed the nerve of the muscle with the motor nerve for the m. masseter. Later only a nervous graft from the sound side controlled by the VIIth nerve was used as a motor source.

Since that time this technique was intensively developed and various portions of skeletal muscles were transferred and revascularized and innervated by means of nervous grafts (3, 16, 17, 20, 21).

MATERIAL AND METHODS

During the period between 1993 - 1996 we operated 15 patients with irreversible unilateral pareses of the VIIth nerve. The patients age was between 9 and 65 years with as mean of 45 years. The group comprised 8 women and 7 men. The causes of paresis are apparent from table 1.

Table 1. Causes of paresis

Inborn defect	Tumour of parotid gland (after surgery)	Injury	Neurinoma of acoustic n. (after surgery)
3	4	2	6

The minimal period of the affection was two years.

Thirteen of the 15 patients had all branches of the nerve affected, two patients had only a partial paresis. From the group of patients where the paresis was the consequence of extirpation of a neurinoma of the acoustic nerve in four patients after surgery a hypoglossofacial anastomosis was performed which ensured a certain tonisation of the face without affecting the function of the m. orbicularis oculi.

The patients were treated by various reconstruction procedures: in eight patients we used consecutively transposition of the m. temporalis and its fascia in Rubin's modification or with the periosteum in Conley's modification. With these methods we have a long and good experience (15).

In these patients we mobilized from the incision on the temple the temporal fascia which remained cranially attached to the muscle and then we mobilized part of the musculature of appropriate width, depending on whether we wanted to restore only the function of the eyelids - in that case a 1.5 cm wide strip of musculature was sufficient (figs 1, 2, 3) - or whether the area of the commissure was involoved - in that case a 3-4 cm wide strip was needed. We tunnelled the subcutaneous portion of the upper and lower eyelid and the fascial support was slid underneath the lig. palpebrae med. and joined the two strips of fas-

ciae. The method of treatment is demonstrated in table 2

Fig. 1. Patients with partial paresis of the upper branch of the VIIth nerve and lagophthalmos

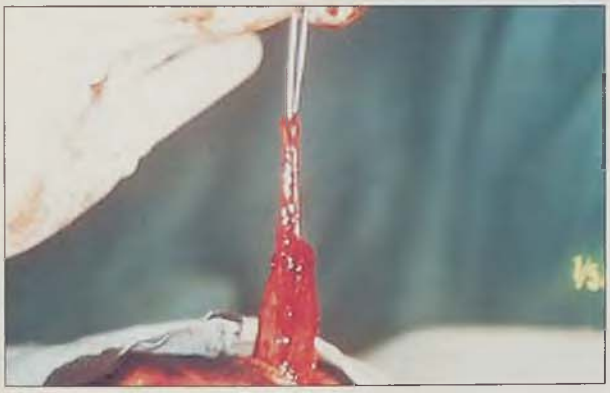

Fig. 2. Isolated portion of the temporal muscle with fascia

Fig. 3. Condition after reconstruction and rehabilita-

Table 2. Type of operation

Transposition of m. temporalis	Nervous graft	Free muscle transfer
8	7	5
complete 2 partial 6		m. lat. dorsi 4 m. serratus 1

In two patients we used a nervous graft from the n. suralis which was interposed between the nerve stump and its periphery in those cases where the nerve was severed on its pathway in the parotid gland.

In five patients we used a two-stage reconstruction. In the first stage we isolated the n. suralis and joined it with the peripheral branch of the sound side. In the second stage we transferred part of the m. latissimus dorsi or serratus ant., made a vascular anastomosis and nervous anastomosis between the transplanted nerve and the motor nerve of the muscle. Before the operation all patients were examined thoroughly. The examination involved a so-called analysis of the simile, as described by Rubin (18) and we assessed whether a „Mona Lisa smile", „Canine smile" or

„Full denture smile" is involved. An EMG examination was made and the patient was examined while speaking and during emotional gesticulation. We focused attention on the possible use of the ramus marginalis mandibule as a motor source.

Along the assumed pathway of the nerve we instilled a local anaesthetic and thus eliminated

Fig. 4. Isolated n. suralis in one of the patients before passing it through the subcutaneous layer of the chin

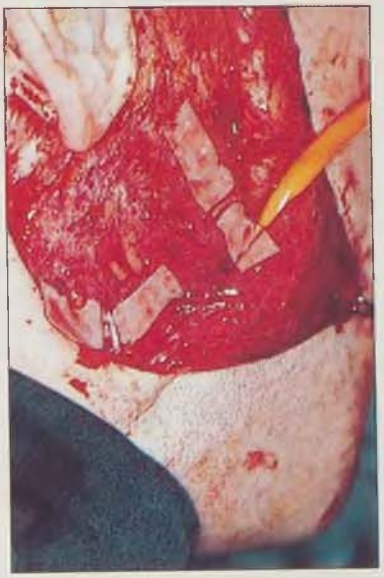

Fig. 5. Introduced catheter facilitating insertion of nervous graft

Fig. 6. 50-year-old female patient with paresis of facial nerve as a result of removal of a neurinoma of the acoustic nerve

Fig. 7. Isolated muscular flap from the latissimus dorsi muscle on a neurovascular bundle

its function and were able to follow whether its elimination will have an impact on the facial motility and symmetry. In the majority of these patients hyperfunction of the sound side develops. A certain elimination of function is useful for the general balance and harmony of the face. The positive result of this test made it possible to make in some patients only a small submandibular incision instead of the usual larger preauricular one. The nerve was detected by means of magnifying glasses and a stimulator. Concurrently the other surgical team isolated on the same side 20 cm of the n. suralis. On the paretic side we made a small praeauricular incision. This was followed by tunnelling of the subcutaneous layer of the lower lip. Into the subcutaneous layer a rubber catheter was inserted (figs. 4, 5) through which a steel wire was drawn to which the nervous graft was fixed in such a way that its position was reversed as compared with the position in the leg. We use the lower lip to avoid possible later damage of the nervous graft during fixation of the transplanted muscle in the nasolabial ridge. We severed the ramus marginalis mandibuli and sutured, using a 1/10 thread the branches of the VIIth nerve and the nervous graft.

In one patient we transposed during this stage also part of the m. temporalis and its fascia into the eyelids.

In all patients this first stage of the operation was free from any complications. Patients were regularly checked and Tinnel's signs of reinnervation of the nervous graft were monitored. The latter developed within 8 - 12 months. After an average period of 10 months the second stage of the operation was performed which involved transplantation of a part of the m. latissimus dorsi (4x)

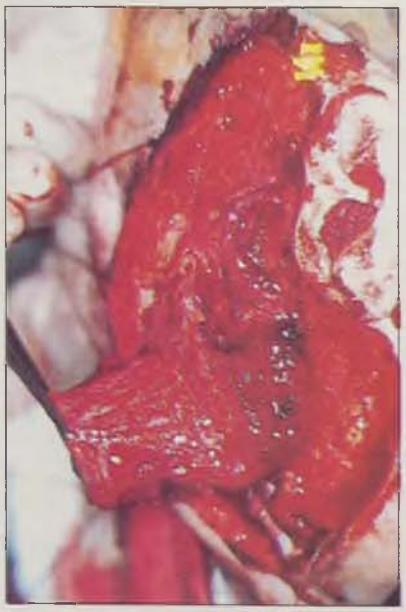

Fig. 8. Condition after vascular anastomosis before neural anastomosis

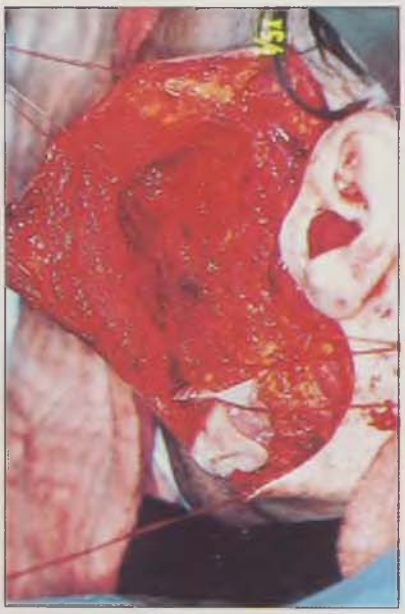

Fig. 9. Condition after neural anastomosis and spreading of the flap

Fig. 10. Condition after completed rehabilitation

and serratus anterior (1x). From the latissimus dorsi we used only the muscle segment innervated by one branch of the n. thoracodorsalis (figs. 6, 7, 8, 9, 10). Part of the muscle used - about 10 cm - were thinned. The isolated part of the muscle was stimulated to assess the muscular contractility and then we anastomosed the vessels of the flap. the thoracodorsal artery and vein with the superficial temporal artery and vein (4x) and the facial artery and vein (1x). Before suture of the nerve we assessed by rapid histological examination signs of regeneration of the nerve, which were, however, apparent also on clinical examination. In transplantations of the m. serratus ant. we used three caudal strips of the muscle and the n. thoracicus longus as the motor nerve.

In one female patient the postoperative course was complicated by an extensive haematoma which developed as a result of antiaggregation therapy with subsequent diffuse haemorrhage from the muscle. The haematoma was evacuated and the residue was absorbed. The successful implementation of vascular anastomoses was tested by means of Doppler's detector and it was positive in all patients. After discharge the patients were recomended to have electrostimulation treatment of the muscle for prolonged periods. This rehabilitation treatment, however, was not quite satisfactory in all patients due to the long distance of their domiciles from the rehabilitation centre. The patients were regularly checked and in all operated patients within 4-6 months on the EMG signs of muscular activity were detected which in one patient (see fig. 10) were apparent on clinical inspection. However, due to the short time which has elapsed after the muscle transfers we cannot classify all these results quite unequivocally and our paper is therefore only preliminary.

Case-records:

1. Patient 17 years where at the age of 1 month a paresis of the upper branch of ther VIIth nerve on the upper branch of ther VIIth nerve on the left side was detected, probably of post-partum origin.

At the age of 16 years we isolated part of the temporal muscle and its fascia, width 1.5 cm. We divided the fascia and inserted both parts in the subcutaneous layer of the upper and lower eyelid and beneath the lig. palpebrae mediale and joined them by a suture (fig. 2).

The patient learnt very quickly to close the palpebral fissure by the temporal muscle controlled by the Vth nerve (fig. 3).

2. 50-year-old female patient operated eight years ago on account of a neurinoma of the acoustic nerve on the left side. After operation only tarsorrhaphy was performed (fig. 6).

From the left leg a nervous graft of the n. suralis - length 20 cm - was taken and from a short incision beneath the lower jaw on the right the n. marginalis mandibulae was detected and stimulated. Preoperative examination revealed a predominance of depressors of the lower lip and thus the functional loss was not of clinical importance. Ten months after the first operation, after development of positive Tinnel signs, from the left side of the chest part of the latissimus dorsi m. (10 cm long, 4 cm wide) was isolated on a vascular pedicle of the thoracodorsal artery and vein and nerve (fig. 7).

On the paretic side we made from the preauricular incision a pocket, fixed the muscle to the nasolabial ridge and temporal fascia and anastomosed the vessels of the flap with the superficial temporal artery and vein (fig. 8). After anastomosis we sutured the n. suralis with visible axons with the thoracodorsal nerve (fig. 9). The postoperative course was complicated by a haematoma which was evacuated. The patency of the vessels was tested by Doppler.

DISCUSSION

In our opinion there is no entirely unequivocal surgical method of treatment. When selecting the optimal surgical solution we must respect various circumstances. One of them is the etiology of the disease. For instance in a patient with a tumour and unclear prognosis we shall selected rather a static or dynamic support and not a long-term and pretentious reconstruction by means of a nervous graft and muscle transplant where the period of treatment amounts to at least two years. Another important criterion is the patient's age. Older patients require usually a one-stage or short-term solution, in particular by means of static or dynamic supports. Kumar (9) suggests in this context a one-stage transplantation of the m. gracilis with a sufficiently long nerve (some 10 cm) which can be passed through the upper lip and anastomosed with a branch of the facial nerve on the sound side. The rehabilitation period is thus reduced to 12 months. Jones (8) used for a similar single-stage reconstruction in a young girl the m. latissimus dorsi with a satisfactory result. Another problem which is controversial is wheter it is possible to activate successfully the musculature of the whole face by a single muscle transfer and nervous graft or whether two different methods should be used. Authors who use for reconstruction usually the m. serratus ant., i.e. Whitney, Oliva, Buncke and others (23, 17) spread it into individual strips. Óbrien, Manktelow, Zuker (16, 12, 24) divided the m. gracilis into strips for the eye and lower portion of the cheek. Others prefer to use a free muscular transplant only for the lower portion of the face and resolve the closure of the eye by transposition of part of the m. temporalis (Fereirra 15). We agree with the latter author.

A relatively serious and fundamental problem under our conditions is the organization of treatment and proper planning of the reconstruction operations. - Almost half our patients developed

a paresis of the VIIth nerve after removal of a neurinoma of the acoustic nerve. Some of them had a hypoglossofacial anastomosis. The latter helped to achieve a certain tonisation of the face but did not influence in any of the patients the function of the m. orbicularis oculi and the motility of the face was mnimal.

Concepts how to initiate treatment and achieve best results as quickly as possible differ. One of them is a procedure which should include transplantation of the n. suralis from the sound side to the paretic one concurrently, in an attempt to eliminate the patient's discomfort, Mc Laughlin's operation (10) which involves osteotomy of the processus muscularis mandibulae using an intraoral approach. The processus remains attached to the temporal muscle and is fixed to the facial sling passed through and pulled to the oral commissure. The fascia is taken from the gastrocnemius muscle when isolating the nervous graft from the n. suralis. Concurrently also a partial transposition of the m. temporalis is implemented and thus at least partial elimination of the lagophthalmos is achieved. After positive Tinnel signs are detected, part of a selected muscle is transferred to the paretic side and at the same time the McLaughlin support is abolished. Another, in our opinion very tactical solution, is that suggested by Terzis (22), so-called „baby setting", which implies that not very long after the injury of the nerve a partial hypoglossofacial anastomosis is performed and stimultaneously implantation of a nervous graft from the n. suralis on the healthy side. Thus a certain tonisation of the face and contractility of the muscle is achieved. When positive Tinnel signs develop on the paretic side the hypoglossofacial anastomosis is abolished and a facio-facial anastomosis using a nervous graft is established and thus perfect synkinesis is achieved. It is, however, difficult to apply this procedure in patients who had an anastomosis for a prolonged period and have experienced complicated and pretentious training and learnt to control the mobility of the face by movements of the tongue. These patients are no longer interested in a further operation with a long waiting period and a not quite unequivocal result. In these patients we were in the majority of cases satisfied with restoration of activity in the area of the palpebral fissure by transplantation of a part of the m. temporalis and its fasciae (Rubin 18). Views on the selection of a suitable muscle are also very controversial. Most frequently used muscles are the m. gracilis, m. serratus anterior and m. latissimus dorsi. Less frequently the m. pectoralis minor (Terzis 21), which is deep and thus its isolation is difficult and its neurovascular bundle is short. Each of the mentioned muscles has advantaged on account of which it is preferred and sometimes used to replace more than one muscle group. Mackinnon and Dellon (11) use the principle of division of the muscle into neuromuscular units also when transplanting the m. latissimus dorsi. As a possible serious complication of muscle transplants an irreversible contracture of the m. gracilis was described which developed two months after transplantation he mentions that ipsilateral transplants were involved, while this contracture did not occur in contralateral transplants.

The problems associated with paresis of the facial nerve are very extensive. Although it is not a life threatening disease, the sequelae are very serious for the patient and frequently influence his mental state and thus his attitude to life. It is quite unequivocal that further intensive research is essential for finding an optimal solution.

CONCLUSION

In our departments we have longstanding experience with static and dynamic supports based on the transposition of a portion of the temporal muscle. The achieved results, in particular as regards reanimation of the lower third of the face where theoretically it was necessary to restore the function of some 10 mimetic muscles, however, did not satisfy us completely and therefore we focused attention on other methods of facial reanimation which ensure symmetrical function of the facial muscles.

Our hitherto achieved positive results must be, however, with regard to the number of patients, evaluated only as preliminary.

Based on our own results as well as data in the literature we must repeat that there is no universal method for reanimation of the face and that the method must be selected with regard to a series of above mentioned criteria.

REFERENCES

1. Bell, C.: On the nerve giving an account of some experiments on their structure and functions, which leads to new arrangement of the systems. Tr. Roy Soc., London, 1821, p. 395.
2. Bunnel, S.: Suture of facial nerve within temporal bone with report of first succesful case. Surg. Gynecol. Obstetr., 45: 7, 1927.
3. Cohen, M.: Mastery of Plastic and Reconstructive Surgery. Little Brown and Company, 1994, Boston, p. 10045.
4. Conley, J.: Facial rehabilitation with temporal muscle. Arch. Otolaryngol., 104: 423, 1978.
5. Ferreira, M. C.: Discussion to O'Brien et al.: Results of management of facial palsy with microvascular free-muscle transfer. Plast. Reconstr. Surg., 86: 23, 1990.
6. Harii, K., Ohmori, K., Torii, S.: Free gracilis muscle transplantation with microneurovascular anastomoses for treatment of facial paralysis: A preliminary report. Plast. Reconstr. Surg., 57: 133, 1976.
7. Chuang, D. C. C., Devaraj, V. S., Wei, F. C.: Irreversible contracture after functioning free muscle transplantation using the ipsilateral facial nerve for reinervation. Br. J. Plast. Surg., 48: 83, 1995.
8. Jones, B. M.: Letters to the Editor: Cross face reanimation of the paralysed face with a single stage microvascular gracilis transfer without nerve graft. Br. J. Plast. Surg., 48: 519, 1995.
9. Kumar, P. A. V.: Cross-face reanimation of the paralysed face, with a single stage microneurovascular gracilis

transfer without nerve graft: A preliminary report. Br. J. Plast. Surg., 48: 83, 1995.

10. McLaughlin, C. R.: Surgical support in permanent facial paralysis. Plast. Reconstr. Surg., 2: 302, 1953.

11. Mackinnon, S. E., Dellon, L.: Technical consideration of the latissimus dorsi muscle flap: A segmentaly innervated muscle transfer for facial reanimation. Microsurgery, 9: 36, 1988.

12. Mantkelow, R. T.: Facial paralysis reconstruction. In: Mantkelow, R. T. (Eds.); Microvascular reconstruction anatomy, aplication and surgical technique. Springer-Verlag, Heidelberg, 1987, pp. 157-162.

13. Millesi, H.: Nerve suture and grafting to restore the extratemporal facial nerve. Clin. Plast. Surg., 6: 33. 1979.

14. Mobius, P. J.: Ueber angeborene doppelseitige Abducens-Facialis Lähmung. Münch. Med. Wschr., 35: 91, 1888.

15. Németh, T., Kozák, J.: Contribution to Treatment of Facial Nerve Paralysis. Čs. Stomat., 84: 429, 1984.

16. O'Brien, B., McC., et al.: Results of management of facial palsy with microvascular free muscle transfer. Plast. Reconctr. Surg., 86: 12, 1990.

17. Oliva, A., Buncke, H. J., Buncke, G. M., Lineaweaver, W. C.: Facial reanimation. In: Buncke, H. J.: Microsurgery. Lea a Febiger, Philadelphia/London, 1991, pp. 457-505.

18. Rubin, R. L.: Reanimation of the paralyzed face. The C. V. Mosby Company, Saint Louis, 1977.

19. Scaramella, L. F.: Preliminary report of facial nerve anastomosis. Paper presented at the second international symposium on facial nerve surgery, Osaka, Japan, 1970.

20. Smith, J. W.: Microsurgery: Review of literature and discussion of microtechniques. Plast. Reconstr. Surg., 37: 227, 1966.

21. Terzis, J. K.: Pectoralis minor a unique muscle correction of facial palsy. Plast. Reconstr. Surg., 83: 767, 1989.

22. Terzis, J. K.: „Babasitters" An Exciting New Concept in Facial Reanimation. In: D. Castro, (Eds.): Proceedings of the sixth international symposium on the facial nerve. Kigler and Ghedini, Rio de Janeiro, 1988, p. 525.

23. Whitney, T. M., Buncke, H. J., Alpert, B. S., Buncke, B. M., Lineaeweaver, W. C.: The serratus anterior free-muscle flap: Experience with 100 consecutive cases. Plast. Reconstr. Surg., 86: 481, 1990.

24. Zuker, R. M.: Microvascular management of facial palsy. In: Mars, J. F., (Eds.); Current therapy in plastic and reconstructive surgery. B. C. Decker Inc, Toronto, 1989, pp. 157-162.

Address for correspondence:

J. Kozák
Vítězné náměstí 14
160 00 Prague 6
Czech Republic

ACTA CHIRURGIAE PLASTICAE 39, 4, 1997, pp. 132 - 134

CONTRIBUTION ON SUBSTITUTION OF LOST ELBOW FLEXION IN ATYPICAL POST-PARTUM PARESIS OF THE PLEXUS BRACHIALIS

K. Dlabal, V. Dlabalová

Sanatorium for Plastic and Aesthetic Surgery, Chotoviny nr. Tábor

SUMMARY

In a ten-year-old boy with an atypical partial post-partum paresis of the dextrolateral plexus brachialis the function of the shoulder was affected substantially and the flexion of the elbow completely. The musculature of the forearm and hand was preserved completely from the anatomical and functional aspect. In compliance with the parents wish, the possibility of replacement with a muscle from a remote site by microsurgical transfer was abondoned and the authors used the well known method of transposition of the insertion of the m. pectoralis major and new retrograde transposition of the tendon of the m. flexor carpi radialis into this muscle to restore the function of the m. biceps brachii. Trough postoperative rehabilitation, 90 degree flexion of the elbow in a supine position was achieved.

ZUSAMMENFASSUNG

Der Beitrag zum Ersatz der verlorenen Flexion des Ellbogens bei der atypischen Geburtsparese Plexus brachialis

K. Dlabal, V. Dlabalová

Bei einem zehnjährigen Jungen mit der atypischen teilweisen Geburtsparese des rechtseitigen Plexus brachialis wurde die Funktion des Schultergelenks und völlig die Flexion des Ellbogengelenks betroffen. Die Muskeln des Unterarms und der Hand wurden völlig anatomisch und funktionell erhalten. Auf Wunsch der Eltern wurde von der Möglichkeit des Ersatzes des Muskels von der entfernten Stelle aufgrund der mikrochirurgischen Übertragung abgelassen und zur Belebung der Funktion wurde angewandt die bekannte Methode mithilfe der Transposition der Muskelinsertion des Muskels Pectoralis major und der neuen retrograden Transposition der Sehne des Muskels Flexor carpi radialis in diesen Muskel. Durch die postoperative Rehabilitation wurde die Flexion des Muskels bis 90 Grad in Supination erreicht.

Key words: paresis of the brachial plexus, motor replacement of the m. biceps brachii by transposition of the insertion of the m. pectoralis major and tendon of the m. flexor carpi radialis

Active loss of movement in the elbow joint prevents the range of potential mobility of the hand. If extension is preserved, then the loss of flexion is caused by paresis of the m. biceps brachii, m. brachialis and brachoradialis. According to data in the literature the loss of flexion in the elbow is approximately 70 degrees, ranging from 20-90 degrees.

The most frequent causes are injuries of the upper portion of the plexus, including birth injuries, arthrogryphosis multiplex congenita and poliomyelitis which, nowadays, is rare.

To restore movement of the elbow by connecting another muscle with the m. biceps brachii Tilmann (1901) used the m. pectoralis major and Steindler (1918) implemented proximalization of the flexors of the forearm above the epicondylus ulnaris. Tsai (1983) and Lexer (1920) used the m. latissimus dorsi and both pectoral muscles in a similar way. Bunnell (1951) transferred the ulnar head of the m. triceps brachii, Carrol transposed the m. pectoralis minor, and Bradford and Le Coeur (1953) transposed both pectoral muscles. Clark (1979) first transposed the insertion of the m. pectoralis major and later both pectoral muscles, similar to Kleinert (1983). Bruser reports in the publication Buck-Gramko (1991) - Motorische Ersatzoperationen der oberen Extremität that the strength of the m. pectoralis major was such that he had to insert it on the proc. coracoides to avoid excessive stretching of the anterior axillary fold.

The prerequisite for transposition of muscles is their satisfactory function (innervation) and

properly conditioned joints. In the literature other methods are also described, e.g. m. sternocleidomastoideus prolonged by means of the fascia lata which, however, did not achieve the desired result. In the literature a deficiency of extension amounting to approximately 20 degrees is reported with a good effect from 90 to 125 degrees. The muscular strength of the m. biceps brachii reinforced by the transposed m. pectoralis major is 0.5 to 1 kg, while in the m. latissimus dorsi it is much greater - up to 16 kg.

From the above data it is obvious that in cases of concurrent affection of muscles innervated by the axillary and thoracodorsal nerve and paresis of the musculocutaneous nerve, restoration of flexion in the elbow is very difficult if we omit the possibility of transposition of a remote muscle by the microsurgical technique (e.g. the m. gracilis).

Our patient was a 10-year-old boy, D. K., with a post-partum paresis of the upper portion of the pl. brachialis. The musculature of the brachial plexus was strongly affected: complete atrophy of the m. deltoides, latissimus dorsi, suprascapularis, infrascapularis, teres minor et major, and negligible preservation of the function of the m. subscapularis. On the volar side of the arm there was a completely atrophied m. biceps brachii, and a partly atrophied m. brachialis. The m. pectoralis major et minor were preserved.

Functional aspects:.

shoulder: abduction by means of the m. trapezius up to 35 degrees, not further. Adduction by pectoral muscle preserved.

elbow: completely preserved function of extensors, only indication of flexion in prone position, while it disappeared completely in supine position

forearm and hand: free from anatomical and functional changes, innervation area of all three nerve trunks preserved.

CONCLUSION

To improve the function of flexion in the elbow joint either transposition of the ulnar head of the m. biceps brachii into the insertion tendon of the m. biceps brachii or transposition of the insertion of the m. pectoralis major into the m. biceps brachii would be suitable.

The patient was operated on in two stages (June 18, 1996 and Sept. 5, 1996). During the first stage the insertion of the m. pectoralis major was separated from the humerus and sutured between the short and long heads of the completely atrophic biceps.

After the relatively small effect of the first operation the authors decided to use the completely functional m. flexor carpi radialis. Its tendon was separated about 3 cm above the insertion, pulled through by another two incisions proximally, and, under slight tonus of the muscle, it was turned to the arm and sutured between the two heads of the m. biceps brachii. To prevent ulnar deviation of the wrist, the tendon of the m. palmaris longus was separated and connected to the stump of the insertion of the radial flexor of the wrist.

After the reconstruction operation a plaster splint was applied with the elbow flexed at 90 degrees. After 5 weeks, supervised rehabilitation was started. At the check-up examination (Oct. 29), the m. pectoralis major inserted into the upper third of the m. biceps brachii functioned well. In the lower third of the arm in the cubital pit there was a fornix of the transposed m. flexor carpi radialis which was activated during concurrent flexion in the radiocarpal joint. Flexion of the elbow 5 weeks after surgery was implemented easily up to 80 degrees, both transposed muscles being involved. The flexion of the elbow could be implemented with a load of 3/4 kg.

The idea to reinforce the flexion of the elbow by another suitable operation was stimulated by the fact that the area of the shoulder was also affected markedly and when we omited the possibility of microsurgical replacement, only the m. pectoralis major and minor was available while pars clavicularis of the latter was weak. Therefore marked improvement would not be achieved even by the procedures of Tillmann, Carrol, Buck-

Fig. 1. Separation of FCR and PL on wrist

Fig. 2. Rotation of FCR in the cubital pit on the arm

Fig. 3. FCR stitched to insertion of m. biceps brachii

Fig. 4. Flexion of elbow with apparent ridge of m. pect. major and FCR

Gramko and others. We therefore used the well-futcioning and unaffected muscles of the forearm and from them transposed the m. flexor carpi radialis proximally on the arm. The prerequisite was the patient's positive cooperation after operation and his understanding to engage the pectoral muscle along with flexion of the wrist and thus engagement of the mentioned muscle. Evidence is gradual further improvement of flexion of the elbow which is 90 degrees at present and the gradual increase of strength.

Our contribution to the motor replacement of paretic flexors of the elbow seems promising, it is simple and extends the surgical possibilities of this problem. It depends, obviously, on the patient's cooperation, but also on the surgeon's cooperation with rehabilitation workers and their understanding of correct training of movement.

REFERENCES

1. Benninghoff, A.: Lehrbuch der Anatomie des Menschen (Erster Band) Verlag J. F. Lehmann, 1944, pp. 337-370.
2. Buck-Gramko, D.: Erfahrungen mit Radialisersatzoperationen. Handchirurgie 57: 105-110, 1973.
3. Buck-Gramko, D., Nigst, H.: Motorische Ersatzoperationen der oberen Extremität. Band 2: Hand und Unterarm. Biobliothek für Handchirurgie. Hippokrates Verlag. Stuttgart 1991.
4. Merle d'Aubigné, R.: Transplantation tendineuse dans les paralysies radiales. Wiederherrstellungschirurgie und Traumatologie 1: 207-216, 1953.
5. Beinhorn, H.-J.: Die motorische Radialisersatzoperation am Berufsgenossenschaftlichen Unfallkrankenhaus Hamburg. Indikation - Technik-Ergebnisse. Handchirurgie Mikrochirurgie Plastische Chirurgie, 6: 309-317, 1996.

Address for corresopndence

K. Dlabal
Zámecká ul 252
391 37 Chotoviny u Tábora
Czech Republic

BOOK REVIEW

Arnold Komisar:

Mandibular Reconstruction
Thieme New York - Stuttgart 1997

The presented publication, although small in size - 143 pages - summarizes the extensive subject of and problems associated with mandibular reconstruction. In ten cahpters the basic principles of mandibular reconstruction are discussed.

The author of each chapter which is an independent section is an experienced surgeon, as apparent also from the number of quoted operated patients.

The beginning of the publication is devoted to the history of mandibular reconstruction to which according to the author more than 1000 publications were devoted during the last 40 years. All known methods of mandibular reconstruction are mentioned: autogenous bone grafts, alloplastic implants, alloplasts combined with bone grafts, osteomyocutaneous flaps, vascularized bone grafts, the method of bone distraction.

In the nine subsequent chapters the above procedures are discussed in detail. It is unfortunate that during editing the introductory parts of individual chapters were not reduced to avoid repetition of historical references, as it is the case in particular in chapter 2. Very useful are the chapters dealing with musculoosseous and cutaneomusculoosseous flaps from the trapezius muscle, fibula and the iliac crest. The detailed descriptions of the surgical technique can serve as instruction for reconstruction operations.

It is useful that the chapter is devoted also to the problem of osteintegrated implants as this is important not only for restoring the continuity of the mandible but also for restoration of speech, mastication and for improvement of the cosmetic result of the reconstruction when a suitable dental appliance is provided. In this context the information is important that implants can be used also in patients who were subjected to actinotherapy. This is made possible by the fact that concurrently with the introduction of the implants also hyperbaric oxygenation is started. The last chapter on the distraction and asset of administration of morphogenetic protein in reconstructions is mainly experimental, although four clinical cases are mentioned.

Unfortunately I have not found in the publication any reference to possible mandibular reconstruction using grafts from the calva, i.e. free as well as vascularized grafts, although the calva is an equally valuable source of bone as the sites mentioned in the book.

The book has 152 high standard illustrations and provides the opportunity to become acquainted with different reconstruction methods. It will prove useful for general and plastic surgeons, ortorhinolaryngologists and maxillofacial surgeons as well as all others who wish to become familiar wit this interesting problem. Everybody who wants to engage in mandibular reconstruction should know the whole range of reconstruction methods and select the best one on an individual basis.

J. Kozák

10th CONGRESS OF THE INTERNATIONAL SOCIETY FOR BURN INJURIES JERUSALEM, ISRAEL, NOVEMBER 1-6, 1998

LOCATION

The ICC - International Convention Center
Jerusalem and the Holiday Inn Crowne Plaza Hotel complex, Jerusalem.
Tel: 972 2 658 8888; Fax: 972 2 651 4555

LANGUAGE

The official language of the Congress is English. (Translation will not be provided).

EXHIBITION

A professional exhibition will be held concurrently with the Congress.
For more details, please contact:
M. Malz Exhibition Services Ltd.
30 Hey B'Iyar, Tel Aviv 62998, Israel
Tel: 972 3 6910180, Fax: 972 3 6956963

REGISTRATION FEES

	until August 1, 1988	from August, 2, 1998
Participants - Physicians	US$490	US$560
Residents*, Paramedics and Associates	US$390	US$460
Accompanying Persons	US$180	US$220

CONGRESS SECRETARIAT

10th CONGRESS OF THE INTERNATIONAL SOCIETY FOR BURN INJURIES
P.O.B. 50006, Tel Aviv 61500, ISRAEL
Tel: 972 3 5140014; Fax: 972 3 5175674 or 972 3 5140077
E-mail: burn@kenes.Com;ω.kenes.co.il/10thISBI

CALL FOR ABSTRACTS

Participants wishing to present a paper, are requested to submit an abstract (on the attached form) to the Secretariat no later than **June 15, 1998** together with their Registration Form and fees.

ANNALS OF BURNS AND FIRE DISASTERS

Official publication of The Mediterranean Club for Burns and Fire Disasters (MBC)
(Formerly The Mediterranean Burns Club)

VOLUME X
NUMBER 1
MARCH 1997

CONTENTS

EDITORS **M. MASELLIS M.D.**
S.W.A. GUNN M.D.

c/o Secretariat of The Mediterranean Club for Burns and Fire Disasters - Divisione di Chirurgia Plastica e Terapia delle Ustioni Ospedale Civico - Via C. Lazzaro - 90127 Palermo, Italy

INSTRUCTIONS TO AUTHORS

Acta Chirurgiae Plasticae, the international journal of plastic surgery, is published in English four times a year. For publication are accepted articles dealing with problems of plastic, reconstructive and aesthetic surgery, craniofacial surgery, hand surgery, microsurgery, burns and allied branches (clinical, laboratory, experimental studies); they must be submitted in English or Czech language. They must be original and not previously published elsewhere.

Kindly send your manuscripts to the following address: **Acta Chirurgiae Plasticae, Šrobárova 50, 100 34 Prague 10, Czech Republic.**

The manuscript must be typewritten in two copies, one page per sheet, with doublespacing between the lines, 60 types per line and no more than 30 lines per page. There should not be more than five corrections by handwriting per manuscript. The institute where the authors work, the title of the article and the name of the author (of authors), must be stated on the first page. All other pages should be numbered consecutively. The summary with key words, the references in alphabetic order according to the surname of the first author and the legend to the Figures are to be written each on a separate page and added to both copies of the manuscript. The address of the main author must be given at the bottom of the References. The place where the Tables are to be inserted should be marked in pencil on the margin of the text. Figures are to be separate and not affixed in the text. On the back of each Figure, the author is requested to write in soft pencil his name, the short title of the paper and the consecutive number of the illustration with an arrow indicating the top of the Figure. Photographs must be clear, with good contrast and of a convenient size. Colour photographs are accepted for reproduction as well. The Tables and Graphs should be lined with Indian ink on white paper so as to make them well readable. The Tables must be numbered consecutively with Arabic numerals and typed on separate pages.

References should be quoted in the text with surname of the author and the year of publication. Two or more works by the same authors published in the same year must be marked with the suffixed a, b, c, etc. Quotations should be adjusted according to the Czech norm as follows: Articles in journal - author's surname and initials, title of the article, international abbreviation of the journal, volume, pages and the year of issue. For instance: Motoki, D. S., Altobelli, D. E., Mulliken, J. B.: Enophthalmos following orbital transposition for craniofacial malformations. Plast. Reconstr. Surg., 91: 416 - 422, 1993.

Books and monographs: the name of authors, title of publication, place of issue, publisher, year of issue and - maybe - also the page from which the quotation was taken. For instance: Burian, F.: Surgery of Cleft. Praha, SZdN 1954. Book chapters: Fára, M.: Anatomy of unilateral and bilateral cleft lip. In Bardach, J., Morris, H. L., eds. Multidisciplinary Management of Cleft Lip and Palate. Philadelphia, W. B. Saunders, 1990: 134 - 144. The abbreviation et al. is not acceptable in the reference section and each reference must begin on a new line.

Manuscripts which do not comply with these requirements cannot be published. The editorial board reserves the right to suggest the publication of author's article in the form of an annotation, make corrections, or on account of comments made by the reviewers, return the manuscript to the author for redrafting. The papers must be sent to the editor in their final formulation. The galley proofs are done by the author, but no essential changes are permitted. The authors of original papers will receive issue of the Journal and 20 reprints free of charge and without special order.

For those who prefer to submit Graphs printed on a laser printer:

Please do not use grid in your Graphs. Remember that Graphs are scanned and often reproduced in a smaller size than 1 : 1. Increased density of dots then makes grids unclear and „stainy". Use black and white areas or black lining.

For those who prefer to submit their papers on a diskette:

Both 3 1/2" and 5 1/4" diskettes are accepted. Use WORD (DOS) or WINWORD text editor, version 5.0 and higher, only. In WINWORD, cancel automatic SAVE before you start writing. Write doublespaced (max. 30 lines per page), do not underline, do not change typesizes, do not indent. New paragraph should be marked only by ENTER on a previous line. Do not create Tables, write them only as a text. Each diskette must be prevented from accidental erasing and accompanied by a printed text, in which you can underline and mark the desired shape of Tables. Due to increasing postage, diskettes are not returned to the authors.

For those who wish to submit colour photodocumentation:

Use preferably photographs, sharp, of high quality only, optimal size 10 x15 cm, max. 21 x 15 cm. Slides are also accepted. Slides must be marked with the name of the author, the arrow indicating the top side and the Fig. number. Graphs in colours are not accepted in any form. Colour documentation is reproduced free of charge.

SOUHRN

Epidemiologie rozštěpu rtu a patra v Lodži, Polsko, v letech 1981-1995

B. Antoszewski, J. Kruk-Jeromin

Ze 132 783 novorozenců, narozených v letech 1981-1995, byl zjištěn rozštěp rtu a/nebo patra u 267 dětí, s průměrným výskytem 2 : 1.000 narozených. Dále byl určen typ a strana rozštěpu a pohlaví postižení dítěte. Porovnání studií z Lodže z let 1951-65 a 1981-1995 ukazuje na mírné zvýšení výskytu rozštěpu.

Vliv primární repozice nosního septa na vývoj nosu u jednostranného rozštěpu rtu a patra

M. Tvrdek, J. Hrivnáková, J. Kuderová, Z. Šmahel, J. Borský

Předchozí studie (Šmahel, 1987) ukázala, že po opuštění metody osteoplastiky a zavedení primární repozice báze nosního septa v 70. letech se u pacientů s jednostranným rozštěpem rtu a patra zmenšila deviace nosu a asymetrie v délce nosních křídel. Současná studie ukázala, že po zavedení repozice celého septa tento trend pokračoval. Zmenšilo se také vychýlení báze septa (kolumely) ze střední roviny a asymetrie v postavení nozder. Rozhodujícím faktorem pro výsledné utváření nosu se však jeví zkušenost chirurga.

Nomogram pro odhad pravděpodobnosti obnovení maxilárního předkusu u jednostranného rozštěpu rtu a patra

Z. Šmahel

U 92 pacientů s jednostranným rozštěpem rtu a patra sledovaných dlouhodobě byla provedena korelačně-regresní analýza závislosti vývoje skusu na interalveolárních vztazích měřených definovaným způsobem z telertg snímků hlavy ve věku 5, 10, 15 let a v dospělosti. Vymezeny byly také hranice zahrnující 95 % naměřených dat. Na základě této analýzy byl vypracován nomogram, který s ohledem na věk pacienta umožňuje podle jednoho rentgenkefalometrického parametru odhadnout riziko neúspěchu při snaze obnovit překus. Systém udává kritické meze, kterých je nutno k bezpečnému obnovení překusu dosáhnout a umožňuje kontrolovat průběh léčby. Jednoduchost práce s nomogramem a snadné získání vstupních dat (věku a rentgenkefalometrického údaje o interalveolárním vztahu) umožňuje jeho využití v klinické praxi jako součásti dokumentace léčby pacienta.

Odchylky v utváření krania u pacientů s úplným jednostranným rozštěpem rtu a patra, hodnocené Jarabakovou analýzou.

M. Drahorádová, Ž. Müllerová

Práce je založena na hodnocení telerentgenových snímků hlavy 29 chlapců ve věku 5 let a 34 mužů ve věku okolo 20 let postižených úplným jednostranným rozštěpem rtu a patra. Byly hodnoceny odchylky v utváření krania u pacientů od zdravé populace Jarabakovou analýzou. Většina lineárních rozměrů byla u pacientů s rozštěpem zkrácena v dětství i v dospělosti. Výjimkou byla zadní část lební baze, jejíž délka se shodovala s normou. Přední část lební baze a délka těla mandibuly byly signifikantně zkráceny pouze v dětství, délka těla maxily pouze v dospělosti. Přední výška obličeje byla v dospělosti naopak větší než u normy. Mandibula jevila posteriorotaci, goniový úhel byl zvětšený ve své dolní části. Maxila i mandibula

byly retruzivní, s narušeným vertikálním a v dospělosti i sagitálním vztahem čelistí. Horní i dolní řezáky byly retroinklinovány. V 5 letech byl vytvořen obrácený skus, tendence k otevřeném skusu byly výrazné v dospělosti. Horní ret byl v retruzi, dolní ret naopak protruzivní. Hodnocení měkkého profilu je v Jarabakově analýze nedostatečné.

Současný stav chirurgické léčby ochrnutí lícního nervu: Předběžné zkušenosti s novými postupy

J. Kozák, P. Voska, M. Tichý

Léčení ochrnutí lícního nervu představuje závažný problém, který v posledních třech dekádách doznal význačného pokroku. Možnosti chirurgické léčby jsou velmi široké od excisí, implantací pružin a závaží, přes pasivní a aktivní závěsy, transpozice svalu, transpozice a sutury regionálních nervů až po nervové a svalové přenosy. Autoři demonstrují své zkušenosti s transpozicí m. temporalis a s metodikou přenosů nervových štěpů odebraných z n. suralis a v druhé etapě s přenosy části svalu m. latissimus dorsi, nebo m. serratus ant. u 5 pacientů. Problémem podle autorů je to, že pacienti přicházejí k rekonstrukčním operacím s velkými časovými odstupy a někdy již po několika dílčích operacích. Nejvhodnější operační postup musí být zvolen přísně individuálně s ohledem na celou řadu uváděných kritérií.

Příspěvek k náhradě ztracené flexe lokte při atypické porodní parese plexus brachialis

K. Dlabal, V. Dlabalová

U desetiletého chlapce s atypickou částečnou porodní paresou pravostranného plexus brachialis byla převážně postižena funkce ramenního kloubu a zcela flexe loketního kloubu. Byla úplně zachována svalovina předloktí a ruky anatomicky i funkčně. Na přání rodičů bylo upuštěno od možnosti náhrady svalem ze vzdáleného místa mikrochirurgickým přenosem a k oživení funkce m. biceps brachii byla použita známá metoda pomocí transpozice úponu m. pectoralis major a nové retrográdní transpozice šlachy m. flexor carpi radialis do tohoto svalu. Pooperační rehabilitací bylo dosaženo flexe lokte do 90 stupňů v supinaci.

INDEX
Acta Chirurgiae Plasticae 39, 1997

CONTENTS Vol. 39, 1997

Objednali jste si už

Katalog kongresů, konferencí, sympozií a přednášek 1998 ?

Příručka obsahuje domácí a mezinárodní akce pořádané odbornými společnostmi České lékařské společnosti JEP, vybrané akce Slovenské lékařské společnosti, seznam zdravotnických veletrhů konaných doma i v zahraničí a adresy důležitých zdravotnických institucí.

Prodejní cena: 66,-Kč a poštovné.

Katalog možno zakoupit přímo v Lékařském domě v Praze
(od ledna 1998),
nebo objednat na adrese:

Nakladatelské a tiskové středisko ČLS JEP
Sokolská 31, 120 26 Praha 2
Fax 02/249 11 420

NEVÁHEJTE !

Objednávám tímto závazně ..... kusů příručky

Katalog kongresů, konferencí, sympozií a přednášek 1998.

Jméno .....

Firma .....

Adresa vč.PSČ .....

.....

IČO ..... DIČ .....

Datum ..... Podpis, razítko .....

Prosím zaslat ***fakturu - složenku*** *(nehodící se škrtněte).*

Mám - nemám *zájem o zařazení do stálé databáze každoročních odběratelů katalogu (nehodící se škrtněte).*

CZECH MEDICAL ASSOCIATION J.E.PURKYNĚ

OFFERS

PECO-EUCROMIC CONGRESS ON PRENATAL DIAGNOSIS
in the Central and Eastern European Countries and the States of the Former Soviet Union:
a special issue of the journal CZECHO-SLOVAK PEDIATRICS

The *Special Issue 7/97 of Czecho-Slovak Pediatrics (ISSN 0069-2328)* contains contributions presented at the PECO-EUCROMIC Congress that was held on September 4-7, 1996, at the University Hospital Motol in Prague (Czech Republic). The meeting was organized by the Czech Pediatric Society, Czech Society of Medical Genetics, Czech Society of Gynecology and Obstetrics, Section of Fetal Medicine, Neonatology, Perinatology and Ultrasound, Czech Society for Genetic Prevention, and by the Cytogenetic Section of the Biological Society of the Czech Academy of Sciences. The PECO-EUCROMIC Congress was held under the auspices of the *European Commission* projects (Contract ERBCIPD CT94-0213) and attracted a wide international participation.
The Special Issue contains 44 full papers and 65 reviewed abstracts that cover the most recent advances in the field of prenatal diagnosis, ultrasound examinations, invasive prenatal techniques, cytogenetic examinations, biochemical screening, molecular cytogenetics and molecular genetics that are reported by leading experts in the field from Europe and the USA.
The contents of this Special Issue are divided into nine chapters that comprehensively cover General problems of prenatal diagnosis in Central and Eastern Europe, Ultrasound screening and diagnosis, Invasive prenatal techniques, Clinical cytogenetics, Preimplantation diagnosis, Biochemical Screening, Molecular cytogenetics, Molecular genetics/DNA diagnosis and Biochemical and other methods of prenatal diagnosis.
In summary, this Special Issue represents a comprehensive monography about current diagnostic techniques that are available for prenatal and postnatal diagnosis.

(Journal published 12 times a year, in Czech and Slovak, English summaries, 56pp. The Special issue in English, 180 pp. Excerpted in Bibliographia Medica Čechoslovaca. Indexed in Excerpta Medica/EMBASE, Chemical Abstracts. Vol.52. Price per copy DM 21,-, USD 14,- incl.postage.)

Orders can be sent to the address:
Czech Medical Association J.E.Purkyně, Publishing Division
Sokolská 31, 120 26 Prague 2, Czech Republic
Fax +4202 249 11 420

ORDER FORM

✂

I hereby order___ copies of a special issue of Czecho-Slovak Pediatrics 7/97 (PECO-EUCROMIC).

Name _____

Affilation _____

Address incl. ZIP code _____

_____

_____

Country _____

Date _____

Signature _____

Payment: Checque enclosed. ☐
Please invoice me. ☐

Please type or print.