BOOK REVIEW

Cleft Palate Deformation, J. J. LONGACRE, M.D., PH.D. Charles C. Thomas, Springfield, Ill., 1970.

For reader orientation the author reviews the embryology of normal and cleft palate formation and mentions the causative factors of clefting and maxillary growth. Drawing on his past experience with dental arch deformation in early palate repair and relatively normal arches in several well known series of untreated clefts, Dr. Longacre set up a longitudinal study of 20 years duration. The only variable was to be the time of cleft palate repair: The early group at 18 to 24 months and the late group at 3 to 4½ years. In unilateral cases when the segments are not aligned, a prosthesis is used. The lip is closed when the infant weighs 8½ to 10 pounds by the method of Le Mesurier-Hagedorn with a Z-plasty inside the columella. A retainer is worn as long as indicated and a turnscrew applied for segmental collapse. Split-rib grafting is performed to the alveolar defect. The prosthesis is maintained, and the palate is closed 6 months later by the V-Y closure of Kilner-Wardill-Veau II. Any necessary realignment of the second teeth is carried out. Management of the bilateral case is the same except for spreading of the maxillary segments to receive the premaxilla which is recessed by elastic traction when necessary. Over 500 patients were involved in this series, and alternate cases were taken. The author concludes that there is better maxillary growth, less nasal and septal deformity and better dental arches when palate repair is late. His conclusions are abundantly illustrated with patient photographs.

Whether or not the reader agrees with the conclusions, it is worth his time to read this book if he deals with patients suffering with cleft of the lip or palate.

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ABSTRACTS

Berkowitz, S.; Stereophotogrammetric analysis of casts of normal and abnormal palates. *American Journal of Orthodontics, 60,* 1–18, 1971.

A stereophotogrammetric camera was developed for the three-dimensional analysis of palate casts. A group of casts of patients with unoperated complete unilateral cleft lip and palate was studied. It was found that there was no constant relationship between the size and shape of the smaller and larger segments. The similarity of the internal vault slopes of the palate segments seems to indicate that a bodily displacement of the maxillary palate occurred as a result of clefting. It would appear that mesodermal deficiency is not always present in cleft cases. (Luban)

Blaustein, F. M., Feller, R., & Rosenzweig, S.; Effect of ACTH and adrenal hormones on cleft palate frequency in CD-1 mice. *J. of Dent. Res., 50*(3), 609–612, May–June 1971.

A group of CD-1 mice was injected with either corticosterone, cortisone, hydrocortisone, ACTH, epinephrine, or the suspending vehicle. The routes used for injection were intramuscular, intraperitoneal, or subcutaneous. Cortisone and hydrocortisone were teratogenic for all three injection routes. Corticosterone caused cleft palate only when administered intramuscularly or subcutaneously. ACTH, epinephrine or the vehicle alone did not affect cleft palate frequency. (Luban)

Brent, R., Johnson, A., & Jensen, M.; Production of congenital malformations using tissue antisera. *Teratology, 4,* 255–275, 1971.

Heterologous antisera against rat yolk sac made in rabbits and sheep produced congenital malformations, fetal growth retardation and embryonic death when injected into pregnant rats. Antigens present in the cellular or acellular portions of the yolk sac were capable of producing teratogenic antibodies. Fluorescence-labeling techniques revealed that yolk-sac antiserum contained antibodies that reacted strongly with the nonserum protein antigens of maternal adrenal, ovary, and kidney, fetal yolk sac. It is postulated that yolk-sac dysfunction is produced by the localization of these antibodies in the yolk sac. Unanswered questions concerning yolk sac function and dysfunction in rodents and the importance of the yolk sac in humans add another aspect to the problem of transferring the results of teratogenic studies in rodents to the human situation. (Authors' summary: Goldenberg)

Daniel, H. J.; Nasality ratings of single words, phrases, and running speech samples obtained from cleft palate children. *Folia Phoniatrica, 23,* 41–49, 1971.

This study explores the relationships of nasality ratings on single words, three-word phrases, and unstructured running speech samples obtained from 15 children with repaired clefts of the palate. Seven listeners judged the nasality of all speech samples using a scale from *1* (no nasality) to *7* (extreme nasality). It was found that: (1) there was no significant difference between nasality ratings on words and phrases, words and running speech, and phrases and running speech. Correlation coefficients among the three types of speech samples were as follows: 0.92 between words and phrases; 0.71 between words and running speech; and 0.83 between phrases and running speech. The author concludes that "... certain types

of speech samples may be better predictors of overall nasality than other types" (p. 48). (Lass)

Eichorn, M. M.; Rubella: will vaccination prevent birth defects? *Science, 173,* 710–711, 1971.

Because rubella (German measles) has been implicated as a cause of congenital defects when contracted during pregnancy, the question has been raised concerning the effectiveness of vaccination of children and/or women of the childbearing age. Several vaccines are available. The U.S. Public Health Service has recommended that all young children be vaccinated and that susceptible, non-pregnant women be considered on an individual basis. A woman should be immunized only when a physician can determine, by serologic tests, her immunologic status. Because of the uncertainty concerning the risks involved, the woman should be cautioned regarding pregnancy for 2 or 3 months after the immunization. Other scientists feel that susceptible women and adolescent girls be the primary candidates for immunization against rubella. It is their opinions that information which is available indicates that the vaccine does not give as complete immunity as the disease itself and vaccination of small children may lead to a future population of young women who would be more susceptible than if there had been no vaccine. The different vaccines which are available were discussed and the author concluded, "But authorities do agree that several years of experience with the vaccine—during which there is thorough reporting of cases to public health officials and surveillance of vaccinated persons to determine persistence of immunity and rates of reinfection among them—will be needed before the value of the vaccine in preventing congenital rubella can be accurately assessed." (Gregg)

Fritch, E. K., & Saxman, J. H.; Dental appliance for support of intraoral air pressure sensors. *Journal of Dental Research, 50,* 980, 1971.

The authors describe a method of maintaining air pressure sensors in the desired location of the mouth. An acrylic resin appliance was constructed to fit over the teeth in the area. Attached hooks stabilize the polyethylene tubing. Impression material (irreversible hydrocolloid) was used to fix the appliance to the teeth. This simple approach to sensor placement should have application in a variety of experimental procedures. (Swoope)

Furstman, L., S. Bernick, & P. Z. Mahan; The role of the nasal septum in the development of the secondary palate of the rat. *Amer. J. of Orthodontics, 60,* 244–256, 1971.

Rat fetuses in various stages of development were studied for the sequence of palate closure. Detailed description is given of palate formation from the stage of palatal shelf proliferation to the mid-line, to the lateral fusion of the nasal septum with the walls of the nasal cavity. It is felt that the nasal septum acted as a template to guide the palatal processes together at the midline. Also, the cartilage in the nasal septum may be a major factor in lowering the palate and increasing the vertical height of the head. (Luban)

Georgiade, N. G.; Improved technique for one-stage repair of bilateral cleft lip. *Plast. and Reconstr. Surg., 48,* 318–324, 1971.

In a follow up and further refinement of previously presented techniques the author emphasizes the use of a unique intraoral traction device placed with pins to bring the protruding premaxilla into a proper arch position. This makes possible the simultaneous bilateral repair of the lip without tension. The details of the lip repair are outlined and diagrammed. Representative cases are presented with good

results to be seen but without the long term follow up necessary to assess the possible complications of such rapid premaxillary repositioning. (Cosman)

Hashimoto, K.; Fine structure of horny cells of the vermilion border of the lip compared with skin. *Arch. Oral Biol., 16,* 397–410, 1971.

The formation and ultrastructure of the thick cellular envelope, i.e., the marginal band, of the cornified cells and the intercellular substances of the stratum corneum of the vermilion border were studied with the aid of ruthenium red-staining and a high resolution electron microscope. The marginal band was precipitated on the cytoplasmic side of the plasma membrane. This process was rather abrupt in other parts of the body, appearing first in the lowermost horny cell as an 160Å-thick dense band, but was gradual in the vermilion border of the lip. In spite of the discharge of the membrane-coating granules, the original 80Å-thick trilaminar plasma membranes were observed outside the marginal band and often desquamated as such in the upper stratum corneum. This observation was thought to be evidence against the theory that the membrane-coating granule coats the plasma membrane and thickens it. Instead, this seemed to support the concept that the thickened cellular envelope of the cornified cells is a *de novo* product. In the upper horny layers, ribbon-like lamellar structures, laminated fibrils and occluding zonule-like structures were found in the intercellular spaces. They were interpreted as an admixture of ruthenium red-positive component of the membrane-coating granules and cell-surface coat (glycocalyx), decomposed lipid substance derived from the membrane-coating granules and from shed plasma membranes, and probably peeled off occluding zonules of horny cells or subjacent cells respectively. (Author's summary: Noll)

Hay, S.; Sex differences in the incidence of certain congenital malformations—A review of the literature and some new data. *Teratology, 4,* 277–286, 1971.

Percentages of males with selected malformations reported in studies were tabulated. Males more often than females have been reported to have congenital hydrocephalus, cleft lip with or without cleft palate, esophageal defects, omphalocele, anorectal defects, polydactyly, syndactyly, reduction deformities, and plantar flexion foot defects. More females are reported to have anencephaly, spina bifida, cleft palate, simple umbilical hernia, and dorsal flexion and inward rotational foot defects. Down's syndrome has been reported more frequently in females in studies that included older patients and more frequently in females in studies restricted to newborn populations. (Author's summary: Goldenberg)

Hill, C. J., and Gellin, M. E.; Impression making for the young child who gags. *Journal of the American Dental Association, 81,* 161–165, 1970.

Adequate impressions are needed for virtually all cleft palate patients, for study casts as well as appliance construction. Many young patients are apprehensive of impression procedures and are difficult to manage. The authors outline a systematic approach to impression making, including preparation, chair position, choice of materials, distraction, etc. This is a practical and useful report. (Swoope)

Kiehn, C. L., DesPrez, J. D., Maes, Jean M., & Kronheim, Laura; Temporal muscle transfers to the incompetent soft palate. A progress report. *Plast. and Reconstr. Surg., 48,* 335–338, 1971.

Further experiences with transfers of the temporalis muscle to the incompetent and inert soft palate are described by the

authors. The use of temporal fascia to join the two temporal muscles through the palate is added to the original description of the procedure in which a fascialata graft was employed to create the muscle sling. Of 50 patients who had a fascial-muscle transfer to the palate, 15 also required retropharyngeal flap procedure before the temporal transfer in 8 cases and after in 7 cases. 26 patients were tested subjectively post operatively with excellent results in 12, moderate results in 1, and poor results in 3. The authors conclude that the temporal transfer operation improved the nasal pharyngeal valving in these patients. The procedure is a considerable one and further time must pass before its results can be held to justify the extensiveness of the effort. (Cosman)

Liston, R.; Closure of cleft palate. *Plastic and Reconstructive Surgery, 48,* 167–169, 1971. Reprinted from Practical Surgery by Robert Liston, M.D., John Churchill, London (Soho), 1837.

This is one in the series of classic reprints and describes Liston's procedure for cleft palate closure and illustrates, for what may have been the first time, lateral relaxing incisions. (Cosman)

Mazaheri, M., Harding, R. L., Cooper, J. A., Meier, J. A., & Jones, T. S.; Changes in arch form and dimensions of cleft patients. *American Journal of Orthodontics, 60,* 19–32, 1971.

A photocopier was used for the graphic reproduction of casts of patients with unilateral cleft lip and palate, and also with clefts of the soft and hard palates. Dimensional changes were studied from birth to the age of five years, and compared with a normal sample. The mean age for lip repair was 3.3 months, and palate repair was completed for all cases prior to two years of age. It was found that surgical treatment resulted in a retardation of anteroposterior and lateral dimensions. Maxillary width was affected more than length. However, this deficiency improved as the subjects grew older, and by the age of five years, the length measurements were normal. In those cases with overlapping of the arch segments, there was an improvement of the arch alignment after the eruption of the deciduous dentition. It is felt that with good surgical management, holding or expansion procedures may not be necesary in early infancy, since there will be favorable changes with growth. (Luban)

Mettauer, J. P.; On staphyloraphy. *American Journal of Medical Science, 21,* 309–332, 1837. **Ferguson, W.;** Observations on cleft palate and on staphyloraphy. Medical-Surgical Transactions, London. *28,* 273–301, 1845. **Liston, R.;** Cleft palate—velosynthesis. Practical Surgery, Fourth Edition, 571–572, John Churchill, London, 1846. *Plastic and Reconstructive Surgery, 48,* 364–367, 1971.

Portions of classic papers and articles on cleft palate appear again in the Classic Reprint section of Plastic and Reconstructive Surgery. The first paper indicates the initial introduction of the use of lateral releasing incisions in America. The second paper advances the concept of the division of palatal muscles to insure healing of the repaired palate, specifically the levator palati, palati-pharyngeus and palato-glossus muscles. The last excerpt deals with the division of the tensor palati, the one myotomy which remains a valid approach today in the hands of some surgeons. (Cosman)

Nanda, R.; Tritiated thymidine labelling of the palatal processes of rat embryos with cleft palate induced by hypervitaminosis A. *Arch. Oral Biol., 16,* 435–444, 1971.

Twelve pregnant Wistar albino rats were equally divided into a control and an experimental group. The experimental group received 40,000 I.U. of vitamin A

palmitate once a day, from day 9 to 11 of gestation. On days 16 and 17 of gestation, 2 rats each belonging to both groups were anaesthetized and 15 μCi of tritiated thymidine was injected into the amniotic sac of three embryos per rat. The embryos were recovered after 6 hours and studied autoradiographically and histologically. Similarly, 15 μl of saline was injected intraamnially in 4 rats on day 16 of gestation. These embryos, however, were recovered after 24 hr. On day 17, all of the embryos from the vitamin A-treated group showed cleft palate, while in the controls the palatal processes were well fused. The palatal processes of the vitamin A-treated specimens showed significantly fewer labelled cells and mitotic figures than the normals. The labelling was more intense in the palatal processes of the treated embryos and the number of grains per nucleus was almost double compared to the normals. The findings suggest that vitamin A might cause cleft palate by disturbing the proliferative ability of the cells of the palatal processes by interfering with the DNA synthesis phase and generation time. This disturbance might be one of the primary causes of cleft palate production in embryos of vitamin A-treated rats. (Author's summary: Noll)

Pandya, N. J., & Stuteville, O. H.; Vertical wedge ostectomy in the mandibular rami for correction of prognathism. *Plastic and Reconstructive Surgery, 48,* 140–154, 1971.

The authors present their favored approach of a vertical wedge ostectomy for prognathism in the historical context of the multiple prognathism procedures which have been advocated since the first significant treatment of the condition in 1849. 209 cases treated over 23 years constitute the basis of the authors' experience. (Cosman)

Quinn, G. W., & Massengill, R., Jr.; The use of a bilateral speech appliance in conjunction with a pharyngeal flap; two case reports. *Journal of Speech and Hearing Disorders, 36,* 422–424, 1971.

The authors discuss two case studies in which bilateral speech prosthetic devices were constructed, as an aid to the already present pharyngeal flap, so that the necessary closure could be better achieved. The patients utilized were adults and in both instances nasality was significantly reduced and there was a marked improvement in articulation. (Lerman)

Schweiger, J. W., Netsell, R., & Sommerfeld, R. M.; Prosthetic management and speech improvement in individuals with dysarthria of the palate. *Journal of the American Dental Association, 80,* 1348–1353, 1970.

This article demonstrates the problem of speech deficit from poorly mobilized palates. The anatomic structures are discussed and illustrated. Air flow and pressure are recorded for a patient with and without an appliance. The construction of palatal lift appliances is discussed in detail. (Swoope)

Sommerfeld, R. M., & Schweiger, J. W.; Fabrication of an obturator on immediate dentures: report of a case. *Journal of the American Dental Association, 82,* 164–167, 1971.

The authors describe the difficult problem of immediate denture construction for a patient who currently wears a tooth supported speech appliance. A technique is described using a palatal trial base to obtain an impression for the obturator section. This is a helpful and practical article. (Swoope)

Walker, B. E.; Palate morphogenesis in the rabbit. *Arch. Oral Biol., 16,* 275–286, 1971.

Rabbit embryos were collected from 16 days, 2 hr to 19 days, 12 hr post-concep-

tion. Palate development was studied stereoscopically and by sectioning paraffin embedded tissue. Change in position of the palatine shelves from vertical to horizontal is a critical phase of palate development and the sequence of morphologic changes can be assumed to reflect the mechanism of palate closure. In rabbit embryos, the rostral ends of the palatine shelves were observed to be in a horizontal position while the caudal ends were still vertical and lateral to the tongue. This supports an hypothesis of active tongue withdrawal as a mechanism of palate closure. The horizontal condition involved degrees of extension toward the midline. Fusion had sometimes spread from two centres of contact, temporarily producing a hole in the centre of the palate. No difference was found between male and female embryos in rate of palate development. (Author's summary: Noll)

Warren, J. M.; Operations for fissure of soft and hard palate. *Plastic and Reconstructive Surgery, 48,* 271–273, 1971.

This is a classic reprint of an article by J. Mason Warren which appeared in the New England Quarterly Journal of Medicine & Surgery in 1843. It includes case reports of successful uranoplasties, a procedure which Dr. Warren introduced in the United States and in which he became exceptionally skillful. (Cosman)

Wood, M. T. & Warren, D. W.; Effect of cleft palate prostheses on respiratory effort. *Journal of Prosthetic Dentistry, 26,* 213–218, 1971.

The effect of prosthetic speech restorations on respiratory effort was studied in 17 subjects with palatal clefts. The results indicate that speech effort is reduced only when palatopharyngeal closure is achieved. Competency of closure is defined as an opening of less than 20 sq. mm. during production of plosive consonant sounds. Subjects who could not achieve adequate palatopharyngeal closure with their prostheses demonstrated little or no change in the amount of air utilized during the production of speech. Although adequacy of palatopharyngeal closure reduces respiratory volumes, the amount of air utilized by speakers with palatal clefts is still higher than the amount used by normal speakers. A speech prosthesis may improve speech by altering patterns of articulation. However, unless the pharyngeal section of the restoration provides adequate palatopharyngeal closure, little or no change should be expected in the amount of air used for production of speech. (Author's summary: Goldenberg)

Woolf, C. M.; Congenital cleft lip—a genetic study of 496 propositi. *J. Med. Genetics, 8,* 65–83, 1971.

Family history of cleft data are tabulated for 496 propositi with a cleft lip with or without cleft palate (CL(P)). The author presents several results which suggest that CL(P) has a sex-modified polygenic mode of inheritance (quasicontinuous variation) where the probability of occurrence is increased if the number of these genes is above a threshold number. The present study supports the hypothesis that unilateral and bilateral CL(P) are part of a genetic continuum, with more genes being required to give the bilateral condition. However, the data do not support the hypothesis that cleft lip with cleft palate (CLCP) and isolated cleft lip (CL) are part of the same genetic continuum where more genes are required to give CLCP. (Noll)

ANNOUNCEMENTS

XV WORLD DENTAL CONGRESS MEXICO CITY, OCTOBER 22–27, 1972

The XV World Dental Congress of the Federation Dentaire Internationale will be held in Mexico City, October 22 to 27, 1972. A cordial invitation is extended to dentists and related professions to attend this meeting. The theme of the scientific program will be "PREVENTION". There will also be an interesting social program. For further information, write to: XV WORLD DENTAL CONGRESS, Ezequiel Montes No. 92, 4° Piso, Mexico 4, D. F.

UNIVERSITY OF IOWA OFFERS COURSE N MAXILLOFACIAL INJURIES

A course in Maxillofacial Injuries will be given May 29–June 2, 1972. Limited to 16 physicians, preferably those engaged in academic practice. The course will deal with the immediate and delayed treatment of injuries to the soft tissues and underlying skeletal structures of the face and with associated dental problems. In addition to lectures and demonstrations, ample laboratory practice will be given in methods of open and closed reduction, interdental fixation, suture techniques, and the utilization of skin flaps.

The fee is $250.

Apply to: Leslie Bernstein, M.D., D.D.S., Professor, Department of Otolaryngology and Maxillofacial Surgery, University of Iowa, Iowa City, Iowa 52240.

SECOND INTERNATIONAL CONGRESS ON CLEFT PALATE COPENHAGEN, DENMARK, AUGUST 26–31, 1973

At the closing of the First International Congress on Cleft Palate in Houston 1969, sponsored by the American Cleft Palate Association, it was decided to arrange a Second International Congress on Cleft Palate in Scandinavia 1973, sponsored jointly by the Scandinavian Association of Plastic Surgeons, the Scandinavian Orthodontic Society, and the Scandinavian Collaboration Board for Speech Pathology.

Place and time for the Congress have now been fixed to Copenhagen, during the last week of August 1973. The dates are from August 26 to August 31, 1973. The topics of the Congress will cover all aspects of cleft lip and palate, treatment as well as research in etiology, genetics etc. It

is the intention of the Scandinavian Organizing Committee to include a session on other congenital craniofacial anomalies in the scientific program.

For further information, contact DIS Congress Service, 36 Skindergade, 1159 Copenhagen K, Denmark, or write the General Secretary, Dr. P. Fogh-Andersen, Diakonissestiftelsens Hospital, 2000 Copenhagen F, Denmark.

YOUR HELP WANTED!

A project that is attempting a survey of cleft palate parent groups is having difficulty in locating these groups. Readers of the Cleft Palate Journal may assist by sending the names and addresses of cleft palate parent groups to: Laura Lipski, President, Cleft Palate Parents Council, Suffolk Chapter, 28 Surf Road, Lindenhurst, New York 11757, or Mary Pannbacker, M.A., Speech and Hearing Clinic, Texas Woman's University, Denton, Texas 76204.