ABSTRACTS

Biddle, F. G., Teratogenesis of acetazolamide in the CBA/J and SWV strains of mice. II. Genetic control of the teratogenic response. *Teratology, 11,* 37–46, 1975.

Three independently segregating loci appear to control the difference in response of CBA and AWV mouse embryos to the ectrodactyly-including effect of acetazolamide. Response of the CBA embryo appears to depend on recessive genes for sensitivity being present in the homozygous condition at all 3 loci, and resistance to be conferred by the presence of a dominant allele at any one of the 3 loci. The genetic variability for the ectrodactyly response of the mouse is discussed in the light of the reported physiological factors necessary for acetazolamide-induced ectrodactyly in the rat. (Author's Summary: Lass)

Blocksma, R., C. A. Leuz, and K. E. Mellerstig, A conservative program for managing cleft palates without the use of mucoperiosteal flaps. *Plast. reconstr. Surg., 55,* 160–169, 1975.

The authors present 100 consecutive patients operated upon with modified Von Langenbeck procedures for soft palate closure and vomer turnover flaps for hard

palate closure and compare their results with a series of other procedures also performed by them as well as by others. The lack of deformity in the maxilla when procedures were carried out as suggested has been impressive to them and they recommend that more radical palate procedures be abandoned. The details of patient management are presented and some details of the operative procedures employed are diagrammed. (Cosman)

Cosman, B., and Arlene S. Falk, Pharyngeal flap augmentation. *Plast. Reconstr. Surg., 55,* 149–155, 1975.

Nasality persists in a small but significant number of patients who have had a pharyngeal flap and, in addition, nasality may recur long after doing an initially successful procedure. The authors analyze the causes of such primary and secondary failure and present a procedure designed to increase the width of an already in situ pharyngeal flap when a decrease in width or a failure to create a wide enough flap appears to be the primary cause of the procedure's failure. (Cosman)

Davies, D. W., and I. R. Munro, The anesthetic management and intraoperative care of patients undergoing major facial osteotomies. *Plast. Reconstr. Surg., 55,* 50–55, 1975.

Anesthetic experience with 42 major craniofacial osteotomies is presented together with guide lines for the anesthetic management of these patients with a special regard to the length and positioning of endotracheal tubes, fluid and blood replacement, reduction of intracranial pressure, prevention of pressure necrosis, and postoperative airway care. The material presented is valuable for anyone beginning to undertake the treatment of these deformities. (Cosman)

Duke, D. I., Prenatal effects of the cancer chemotherapeutic drug ICRF 159 in mice, rats, and rabbits. *Teratology, 11,* 119–126, 1975.

The teratogenic effects of ICRF 159, an antimitotic, anticancer drug, were studied in pregnant BALB/c mice, Sprague-Dawley and Wistar rats, and New Zealand White rabbits. The effects of this drug were mainly embryo-lethal; however, a small percentage of fetuses exhibited malformations (including cleft palate) and retarded development. The author discovered that the maximum sensitivity to ICRF 159 occurs early in gestation in all three species investigated. (Lass)

Fernandez Villoria, J. M., A study of the development of the orbicularis oris muscle. *Plast. Reconstr. Surg., 55,* 205–213, 1975.

Results of study of 27 human embryos are presented relative to the development of the orbicularis muscle as well as some of the other muscles of the face. Evidence is presented for the inference that the orbicularis muscle and possibly all the muscles of the face are developed in situ without the necessity of any cell migration from the second branchial arch. (Cosman)

Greene, R. M., and D. M. Kochhar, Some aspects of corticosteroid-induced cleft palate: a review. *Teratology, 11,* 47–56, 1975.

This paper provides a review of the literature on corticosteroids and their relationship to the occurrence of cleft palate. Its purpose is to bring together some of the more noteworthy contributions related to this topic. They conclude that, despite intensive investigation, an understanding of the mechanisms of corticosteroid-induced clefts remains unresolved. (Lass)

Holst, P. A., and B. G. Mills, Tissue phosphate changes following triamcinolone associated with cleft palate in rats. *Teratology, 11,* 57–64, 1975.

The authors examined the theory of development of cleft palate in rats which asserts that such development results from the action of lysosomal enzymes secreted by epithelial cells at the time of fusion of the palatal shelves. To test this theory, the biochemistry of the palates of fetal rats was investigated between days 14 and 19 (from three days before to three days after closure of the palate). When triamcinolone was administered once im on the 14th day of gestation in Wistar rats, 0.5 mg/kg body weight yielded approximately 50% cleft palates. In addition, acid phosphatase and -glucuronidase were assayed. The results indicated that there was a significant increase in enzyme concentration and a decrease in the presence of protein during the normal time of palatal closure (days 16 and 17 of gestation). However, the ratio of enzyme activities to protein synthesis in unaffected experimental palates was normal. (Lass)

Lanier, Jr., V. C., The surgical treatment of exophthalmos: A review. *Plast. Reconstr. Surg.*, *55*, 56–64, 1975.

The causes and therapies of exophthalmos are detailed and a review of the literature presented. (Cosman)

Latham, R. A., R. B. Winslow, and A. G. Bevin, Induction of new palatal growth as an aid to cleft closure in dogs: neopalate formation. *Brit. J. Plast. Surg.*, *27*, 264-273, 1974.

This paper describes in detail an experimental technique involving bilateral osteotomy within the bony palatal processes and the use of a pinned-screw appliance for cleft closure. This procedure was employed on 15 young mongrel dogs in whom artificial clefts of the hard palate were produced. The authors conclude from their findings that manipulation of palatal tissues should be exploited to aid in the closure of wide clefts and other similar defects of the palate. (Lass)

Marchac, D., and J. Cophignon, Technique for embedding split ribs in a cranioplasty. *Plast. Reconstr. Surg.*, *55*, 237–239, 1975.

An innovation for the fixation of split rib halves employed in reconstructive cranioplasty is presented with the results on 6 patients forming the basis of the authors' experience. Essentially, a slot and groove technique is employed and the technique seems a small but worthwhile contribution. (Cosman)

Munro, I. R., Orbito-cranio-facial surgery. *Plast. Reconstr. Surg.*, *55*, 170–176, 1975.

Some of the philosophy and theoretical considerations in the formation and operation of a orbito-cranio-facial team are presented. Consideration is given to the number of such teams likely to be necessary and the suggestion is made that a new but tiny fulltime specialty devoted to this work be created. (Cosman)

Ortiz-Monasterio, F., A mobile unit for the detection and care of craniofacial anomalies. *Plast. Reconstr. Surg.*, *55*, 186–189, 1975.

Fascinating details of the author's experience in the creation of a mobile field unit for case finding in isolated geographic and rural areas in Mexico is presented. Patients requiring surgery were referred for treatment to the nearest general hospital where staff from the author's service performed appropriate surgery. The patients requiring multidisciplinary treatment were referred to larger facial cleft centers. Public lectures as well as lectures to local medical staff and teachers formed a part of the work of the mobile unit. In an area of 160 square miles with a total population of 235,000, 109 unoperated facial clefts were found. (Cosman)

Scott, F. W., A. DeLaHunta, R. D. Schultz, S. I. Bistner, and R. C. Riis, Teratogenesis in cats associated with griseofulvin therapy. *Teratology*, *11*, 79–86, 1975.

The authors investigated the teratogenic effects of griseofulvin, an antifungal drug used routinely to treat cats for ringworm. Case reports of the offspring of three cats treated with this drug are presented. Multiple congenital malformations, including cleft palate, resulted from administration of this drug. (Lass)

Zellweger, H., J. Bardach, J. Bordwell, and K. Williams, The short arm deletion syndrome of chromosome 4 (4p-syndrome). *Arch. Otolaryng.*, *101*, 29–32, 1975.

Partial deletion of the short arm of chromosome 4 (4p-) represents another (rare) cause of cleft lip and cleft palate. Further characteristic manifestations of the syndrome (also called Wolf or Wolf-Hirschhorn syndrome) are growth failure microcephaly, prominent glabella, hypertelorism, beaked nose, poorly differentiated and low set ears, cardiac and renal malformation and hypospadias. Life expectancy is often shortened. The 4p-syndrome has many features in common with another deletion syndrome, the cri-du-chat syndrome, and also with the Smith-Lemli-Opitz syndrome. The latter is a hereditary condition with normal karyotype. The cri-du-chat syndrome is characterized by a peculiar high-pitched mewing cry and can be differentiated from the Wolf syndrome by the different staining characteristics (banding) of chromosomes 4 and 5. (Author's summary: Gregg).

ABSTRACTS OF PAPERS

Presented at Annual Meeting of the American Cleft Palate Association, New Orleans, Louisiana, March, 1975

Guerrero-Santos, J., and E. Alvarez-Viaña, *New Logo-Form for Documentation of Oro-Facial Clefts.*

For some years now, several authors have been anxious to have an outline for the documentation of patients with orofacial fissures.

The outlines for documentation that exist in the medical literature classify only the fissures of the lip and palate, and this classification is, furthermore, incomplete. In our service, when we tried to document our clinical cases by using the outlines reported to date, many of those cases could not be documented because they did not fit into the outlines. There is a tendency at this time, in plastic surgery services and in the units for the study of cleft lip and palate, to consider for their study and treatment a great variety of craniofacial anomalies. Among these there are many that have, as their important characteristic, orofacial fissures.

The outline of documentation that was proposed in our service, and that is published in this report, documents all the orofacial fissures that start from or are related to the mouth. This outline documents fissures that could not be included in previous outline, such as: macrostoma, midlabial fissure, oro-ocular clefts, etc.

This outline endeavors also to classify, in a precise way, the different types of labial and palatal fissures that are observed in a clinic. This report includes various demonstrative cases to illustrate the suggestion made by our service.

Kaplan, E. N., R. T. Minami, and G. Wu, *The "Occult" Submucous Cleft Palate.*

The classic submucous cleft palate can be identified by the triad of bifud uvula, mid palate muscle diastasis and a notch in the palatine bone. However, velopharyngeal incompetence is specifically caused by levator muscle displacement and dysfunction and the classic triad is only an outward indication of an underlying muscle abnormality. Therefore, in the absence of the classic triad, there can be an "occult" submucous cleft due to levator muscle anomaly.

We have reviewed 188 cases of velopharyngeal incompetence without overt cleft. Ninety-eight of these patients have had complete diagnostic evaluations and at least one year followup. Of these 98 patients, 26 had a classic submucous cleft palate, 19 had diagnosed "occult" submucous clefts and 9 had presumptive occult submucous clefts. The definitive diagnosis of occult submucous cleft was made by operative exploration of the levator muscles and palatine bone in the absence of the classic triad. The presumptive diagnosis of submucous cleft palate was made by physical examination for characteristic facial features, cephalometrics and lateral cinefluorographic voice study.

The indication for surgery was a moderate-to-severe degree of velopharyngeal incompetence and associated speech disability or a mild degree of velopharyngeal incompetence and speech disability that failed to respond to speech therapy. The results of surgery were generally excellent. The operative technique used was a levator muscle reconstruction facilitated by a Veau-Wardill pushback and a superiorly based pharyngeal flap inserted into the raw surface of the nasal pushback. Details of the operative methods and results of surgery will be presented.

Massengill, R., G. Quinn, and K. Pickrell, *Characteristics of Submucous Cleft Palate: Diagnostic Factors, Parental Views and Aspects of Treatment.*

Although submucous cleft palate [SMCP] was described in 1825, a review of the literature still discloses that this condition often goes undetected in early and sometimes even late childhood. Past reports and investiga-

From the Guadalajara Plastic Surgery Unit. Division of Plastic & Reconstructive Surgery, Graduate School, University of Guadalajara Medical School.

tions have dealt with diagnostic and treatment procedures, but the literature is somewhat limited concerning other important aspects of this condition. In view of this, the purpose of the present study are threefold: First to examine diagnostic factors found useful in [SMCP] detection; second to obtain information from parents of SMCP patients concerning their views related to reasons for late detection, diagnosis and treatment procedures; and third to review the records of SMCP patients to study such factors as age of the patient when first referred for treatment, who referred the patient, results of speech evaluations, results of cinefluorography studies and different types of treatment procedures utilized and their effectiveness.

Nanda, R., B.D.S., M.D.S., and D. Romeo, *Differential Cell Proliferation of Rat Palatal Shelves.*

The present study was undertaken to investigate the role of differential cellular proliferation in different areas and regions of palatal shelves prior to and during fusion. Sixteen pregnant Wistar albino rats were divided into four equal groups. All rats were given one intraperitoneal injection of 250 μCi/Kg (of rat weight) tritiated thymidine. Group 1 received its injection on 14th day and similarly the other three groups on day 15th, 16th and 17th of gestation. In each group the rats were sacrificed after 5 hours of isotope administration. Four fetus heads from each rat were processed for autoradiographic study. The sections were studied for total number of labelled mesenchymal as well as epithelial cells in different areas and regions of the palatal processes. The results revealed that over the four day period the DNA activity was greatest in the mesenchymal cells of the tip of the processes on days 14 (23.1%) and 15 (22.5%). Once the processes assumed horizontal position a greater increase in the number of labelled cells was found in the middle area of the processes. Statistically significant differences in the labelling indices were observed in different areas and regions of the processes. Over the four day period the isotope uptake by epithelial cells decreased significantly.

Blasberg, B., S. Stool, and S. Oka, *Choanal Atresia—A cryptic congenital anomaly.*

Choanal atresia is a cryptic congenital anomaly that is not common but because it interferes with respiration, requires corrective surgery in areas of active growth, and has a high incidence of associated congenital anomalies it is important.

Choanal atresia is an obstruction of one or both posterior nasal openings and is due to varying amounts of bone and soft tissue. The etiology is unknown but it is thought to be a failure of the nasobuccal membrane to degenerate.

Because newborn infants are obligate nose breathers, bilateral atresia is usually manifest immediately after birth and becomes a neonatal emergency. Clinical signs are dyspnea and cyanosis. Unilateral atresia may not be detected until months or years later when the child is seen by a physician for a persistent nasal discharge. The diagnosis can be confirmed by attempting to pass a catheter through the nose and by x-ray contrast studies.

In the past 20 years at Children's Hospital of Philadelphia, there have been 24 cases of choanal atresia, 20 bilateral and 4 unilateral. Of the 20 bilateral cases, 10 had associated congenital anomalies. Nine of the 10 patients had craniofacial anomalies. These included palatal deformities, micrognathism, microstomia, and craniofacial dysostosis.

Although choanal atresia is a rare phenomenon, it represents an interesting natural model of an alteration in organogenesis of the face—form dictating function.

Willis, C. R., R. Blocksma, and M. Reed, *Evaluation of Teflon® Implantation in the Treatment of Velopharyngeal Insufficiency.*

The purpose of this paper is to present the methodology and post-surgical evaluation of the injection of Teflon® into the posterior pharynx of forty patients with velopharyngeal incompetence due to congenital palatal insufficiency, post-pharyngeal flap, post-palatoplasty, and neurogenic problems.

Patients ranged in age from four years five months to fifty-nine years and were treated over a five year period between 1969 and 1974. All injections were performed by the same surgeon.

Speech evaluations and panendoscopic examinations were conducted on twenty-five of the subjects, both preoperatively and again postoperatively at periods ranging from several weeks to several years after the injection. Results are correlated with etiology, age of patient at time of injection, amount of Teflon® injected, locus of injection, and preoperative panendoscopic findings.

Instrumentation and techniques employed will be discussed and illustrated with the aid of color slides. Color sound movies will be used to demonstrate the effects of Teflon® implantation on a fourteen-year-old female with congenital palatal insufficiency. The preoperative area of velopharyngeal insufficiency will be identified by means of panendoscopy, and the postoperative role of the implant will be shown.

Finally, criteria will be presented designed to assist in the selection of candidates for Teflon® implantations. In addition, a brief comparison between the use of Teflon® and other materials will be included.

Berkman, M. D., and M. L. Lewin, *Nonsurgical Closure of Oronasal Fistulae Immediately Following Palatal and/or Pharyngeal Flap Surgery.*

Although the incidence of oronasal fistulae following palatal and/or pharyngeal flap surgery is relatively low, the complications arising secondary to fistula formation can be responsible for regurgitation of foods and liquids through the nose, hypernasal speech problems and psychological problems for the patient and parents.

Oronasal fistulae which developed in the soft palate immediately following palatal and/or pharyngeal flap surgery in three patients ranging in age from 20 months to 12 years were closed by insertion of vinyl palatal appliance. The appliance was insertion of vinyl palatal appliance. The appliance was inserted within a two week postsurgical period and was worn continuously. The vinyl appliance was constructed on a maxillary model with dental stone added to incorporate the portion of the soft palate with the fistula and processed with an Omnivac vacuum machine. Tissue conditioner material was placed on the inner surface of the appliance to improve surface adaptation and retention and to insure complete coverage of fistula.

Treatment results in all patients demonstrated complete closure of fistulae within a two month period with no recurrence. The appliance appears to aid physiological closure of fistula by preventing food and secretions from entering, by blocking airflow through the hole and by decreasing muscle activity around fistula.

Harvold, E. P., K. Vargervik, J. Q. Owsley, and G. Chierici, *Postsurgical Bone Induction in Habilitation of Jaw Malformations.*

Clinical methods controlling environmental factors have been developed in order to induce new bone formation. As one step in the treatment of hemifacial microsomia a surgical elongation of the underdeveloped mandible is performed by the placement of a bonegraft. The success of this procedure depends on bony replacement of the absorbing graft and the development of a continuous bony structure extending to the base of the skull. By utilizing the treatment principles developed in our group, bone induction can be affected and consequently bone replacement of a graft secured.

One stage of treatment is required before surgical elongation and two stages after surgery. The presurgical treatment is designed to reduce the secondary deformities in the maxilla and to exercise the muscles controlling mandibular movements.

The first postsurgical stage provides the initial immobilization and the subsequent institution of bone inducing mandibular movements. The second state of postsurgical habilitation consists of jaw orthopedic and orthodontic corrections of both the maxilla and the mandible.

According to the underlying theory a functional environment is established in the graft area. This functional environment allows the trabecular system in the host bone to extend and bridge the gap occupied by the resorbing graft. Our experiments have demonstrated that bone inducing physical stimuli can traverse the graft area under special circumstances. The area can be subjected to selected and consistent stimuli while protected from other disturbing stimuli until bone is formed.

Pruzansky, S., S. Peterson, and J. W. Curtin, *Anomalous Long Term Sequelae Following Pharyngeal Flap Surgery.*

In the course of long term follow-up studies on patients receiving superior based pharyngeal flap surgery, we made certain observations, which to the best of our knowledge, have not been reported previously. These observations include calcifications on the anterior surface of the body of the second cervical vertebra in the form of spurs or the formation of sesamoid bones, in line with the base of the pharyngeal flap. Insofar as we could ascertain, the patients were asymptomatic in terms of limitations of neck movement and the mobility of the flap did not seem to be affected.

At this point, we have not completed a survey of all of our cases so as to report on the prevalence of this finding in patients subjected to pharyngeal flap surgery. While

we have no explanation for this finding, we are aware that spurs on non-articular surfaces form in response to tension by ligaments and muscles. However, the radiographic posture of the flap, at rest and during sustained phonation, gave no indication of a configuration suggestive of unusual tension. Scarring of the periosteum during the course of surgery has also been suggested as a possible etiologic mechanism. The number of similar cases uncovered during routine follow-up, as part of our longitudinal studies, suggest that this finding may be more common than we realized at first.

Bardach, J., *Unilateral Cleft Lip Repair—Some Controversial Aspects.*

Despite the contemporary advances in the surgical treatment of unilateral cleft lip there are still many areas of controversy over approaches to primary repair of the unilateral cleft lip. Among them are: the type of repair, the extent of soft tissue undermining on the face of the maxilla, restoration of the nasal floor with closure of the nasal-labial fistula, and repositioning of the deformed nasal ala. Probably the most controversial problem is the influence of the repaired lip on the facial growth. Another controversial area is the value of early orthopaedic treatment.

We favor repair techniques using one or two triangular flaps based on precise preoperative measurements. We find the triangular flap technique superior to other techniques even though also based on precise measurements. We strongly advocate in each case of a complete cleft lip and palate the nasal floor be fully reconstructed along with closure of nasal-labial fistula. In principle no incisions should be made in the sulcus and no undermining of the soft tissue carried out. Only in a very wide cleft is a minimal amount of undermining necessary to advance the alar base.

Correction of the unilateral cleft lip nasal deformity should be included as an integral part of the primary lip repair.

It is our opinion that the reconstruction of the cleft lip should be completed with a minimum amount of suture line tension. Since excessive tension may have a detrimental effect on maxillary growth.

When the maxillary segments are in an improper anterior-posterior relationship and in a very wide cleft pre-surgical orthopaedic treatment provides several advantages which are important in subsequent lip surgery.

Blocksma, R., C. A. Leuz, and J. H. Beernink, *A Study of Deformity following Cleft Palate Repair in Patients with Normal Lip and Alveolus.*

The principle of mucoperiosteal flap elevation in the repair of the oral cleft can be judged most accurately when the varying affects of alveolar arch and lip clefts are eliminated. In this study, comparisons are made between adults with cleft palate unrepaired, patients who had various mucoperiosteal flap palate lengthening procedures, and patients whose palates were repaired by a simple technique requiring no periosteal flap elevation. This study covers an eleven-year analysis of the results of cleft palate surgery at Butterworth Hospital from 1963 to 1974, and from 102 patients with cleft soft palates analyzed, 73 with complete records were selected to comprise this study. A total of 25 had mucoperiosteal flap palate lengthening procedures, three patients had no repair at all, and 23 were subjected to a very modified von Langenbeck closure of the cleft without utilization of mucoperiosteal flaps.

In the mucoperiosteal flap operation group 76% (19 out of 25) exhibited deformity, 18 with some collapse of the arch, and 2 with hypoplasia of the superior maxilla. Out of 23 patients where a conservative repair had been accomplished none showed malocclusion, collapsed arch, or hypoplasia of the middle third.

Koopmann, Jr., C. F., W. H. Olin, Jr., C. R. Kremenak, Jr., J. M. Morris, and S. K. Pratt, *Free Grafting of Oral Mucosa and Mucoperiosteum to Denuded Palate Bone in Beagle Pups: Effects on Wound Contraction and Maxillary Growth.*

Thirty-seven weanling beagles were used in a test of the hypotheses that autogenous free grafting of buccal mucosa or mandibular mucoperiosteum to surgically denuded hard palate bone would reduce (a) contraction in healing hard palate wounds, and (b) postsurgical jaw growth disturbances. Six of 23 grafts failed to take; 12 were full takes. Wound contraction and jaw growth disturbances were reduced in animals having successful grafts, with some showing unexpected, local, graft-related "supra-normal" maxillary growth.

Lehman, Jr., J. A., *Secondary Repair of Bilateral Cleft Lip Deformities: A Two-Stage Approach.*

The patient with a bilateral cleft lip frequently presents for secondary revision in the early school or pre-school years. A variety of deformities can be present including excessively wide prolabium, oronasal fistulae, whistle deformity, short columella with associated nasal deformity and lack of muscle to muscle union behind the prolabium. Many approaches for the correction of deformities have been advocated but they fail to deal with the basic anatomical problem; mainly, the lack of muscle to muscle union in the prolabium. A two-stage procedure has been designed to correct these deformities based on principles previously outlined by Millard and Duffy. At the first stage a fork flap is elevated along with the prolabium. The muscles are dissected out on each side and sutured in the midline. Excess mucosa is utilized to correct any whistle deformity and oronasal fistulae are closed. Each limb of the fork flap is then stored in the nostril sill and the prolabium is replaced and sutured. At the second stage (2–6 months later) the stored flaps are utilized to lengthen the columella as in the Cronin technique.

Thus a two-stage procedure has been designed to achieve muscle to muscle union, narrowing of the philtrum and lengthening of the columella. In addition, other defects such as oronasal fistulae and whistle deformities have been corrected. There can be no doubt that muscle to muscle union behind the prolabium produces better lip function and improved appearance. Eighteen patients have been operated on using this technique with a minimum follow-up of 12 months. Promising results have been obtained with this approach in secondary bilateral cleft lip deformities.

Bowers, Jr., David G., *Cleft Palate Fistulae. Changing Character, Repair Failures.*

The character of palate fistula occurring after cleft palate repair is changing. Pushback palatoplasties leave more fistulae, and the location of the fistulae are usually in the most anterior portion of the cleft at the alveolar ridge rather than at the junction of the soft and hard palate as in past decades. Maxillary orthopedics, to expand collapsed arches, often open more widely any previously unrecognized or asymptomatic fistulae so their repair becomes necessary.

An analysis of repairs of 35 patients with a 48% failure rate and 46 operations with a 60% failure rate suggests the need for a drastic change in thought concerning the simplicity of closure of palate fistulae. Discussions with experienced, established and well recognized plastic surgeons also reveals a high rate of failure of fistula closure and an awareness of the change in the most common location of the fistula. Less experienced plastic surgeons recently out of training do not have this same respect for the difficulty in closing palate fistulae, and this misconception should be corrected.

Recommendations include two stage cleft palate repairs to prevent fistulae and delay of palate flap procedure prior to closure of fistulae.

Krause, Tharp, and Van Demark, *A Comparative Study of Results with Langenbeck and V-Y Pushback Palatoplasties.*

The purpose of this study was to compare the results of two surgical procedures as determined by the achievement of velopharyngeal competence for oral speech. The sample consists of 148 subjects who underwent the Langenbeck palatoplasty and 118 who were managed with the V-Y procedure. Data were analyzed by cleft type and age at surgery. In general, the results indicated greater success with the V-Y pushback procedure.

Mulliken, J. B., F. A. Giargiana, Jr., Gloria J. Claybaugh, and J. E. Hoopes, *Location of Levator Veli Palatini Insertion Following Levator Retropositioning, Palatal Pushback, and Pharyngeal Flap Procedures.*

Cineradiographic analysis of twenty patients with velopharyngeal incompetence undergoing levator retropositioning, palatal pushback, and pharyngeal flap procedures failed to demonstrate predictable retrodisplacement of the levator insertion. Patients with normal levator insertions pre-operatively showed a more anterior insertion following pharyngeal flap procedure. Simple levator retropositioning gave posterior displacement in two patients evaluated.

Velar ascent rate was less than normal in all patients pre-operatively and remained decreased in all patients post-operatively. The soft palatal length remained unchanged or increased in all patients except for the two patients undergoing simple levator retropositioning.

There was substantial improvement in speech in all but three patients, two of which demonstrated levator retropositioning on post-operative cineradiography.

Song, I. C., B. E. Bromberg, and J. M. Sonshire, *The Evaluation of a New Musculo-Tendinous Transplant Pharyngo-Palatoplasty.*

The ultimate objectives in the surgery of palato-pharyngeal incompetence are anatomical reconstruction and attainment of dynamic function. Numerous technics have been devised to correct velo-pharyngeal insufficiency, but the majority of the procedures are static anatomical restorations in a 2 dimensional plane. The achievement of good speech in cleft patients requires a 3 dimensional anatomical restoration along with a functioning dynamic mechanism. A new muscle transplant pharyngo-palatoplasty has been devised to meet these criteria and has been successfully employed in 7 patients.

Preliminary laboratory investigation into the prepared denervated muscle transplant technic as described by Thompson heightened our enthusiasm to attempt the procedure in these patients all of whom required cleft palate closure and restoration of velopharyngeal incompetency. Denervation of the palmaris longus muscle was carried out 3 weeks prior to transplantation. The goals of this procedure were to produce a flap valve action in conjunction with velum elevation and sphincteric contraction, in addition to mesial movement of the lateral pharyngeal walls and posterior movement of the velum. The muscular structure of the palmaris longus was buried in the posterior pharyngeal wall above the prevertebral fascia and posterior to and in contact with the superior constrictor muscle. The tendon was split and threaded around the lateral pharyngeal walls, being terminally secured into the contralateral levator and tensor palatine musculature. All 7 patients healed uneventfully and demonstrated significant retropositioning of the velum and marked improvement in speech.

Pigott, R., *Use of Nasoendoscopy to Determine Treatment and Results of Thirty Cases of Palatopharyngeal Incompetence.*

Thirty consecutive cases of palatopharyngeal incompetence were assessed before and six months after surgery by nasopharyngoscopy and x-ray techniques. In previously failed cases, marked improvement in results followed repeat operation on the basis of nasoendoscopic findings.

McCall, G. N., M. L. Skolnick, R. J. Shprintzen, and Janina Casper, *Changes in Lateral Pharyngeal Wall Movement After Pharyngeal Flap Surgery: A Preliminary Investigation.*

Twenty-two subjects were examined via multi-view videofluoroscopy both before and after pharyngeal flap surgery. Lateral, frontal, and base projection videofluoroscopic studies during speech indicated that striking changes in movements of the lateral pharyngeal walls were noted in eight of the subjects. These changes included both differences in amount of movement and in type of closure pattern. Changes in closure pattern were apparently related to the attempt to approximate the lateral pharyngeal walls to the newly introduced pharyngeal flap. No single type of pattern in the lateral walls was observed so that type and degree of movement varied considerably across subjects. These observations also indicated the possibility of using multi-view videofluoroscopy as a means for predicting how modification in closure can be affected and raise important questions concerning the operation and physiology of the post pharyngeal flap velopharynx.

Skolnick, M. L., R. J. Shprintzen, and G. N. McCall, *Multi-View Videofluoroscopic Observations of Cleft Palate Subjects with Normal Speech.*

Multi-view videofluoroscopy was utilized to examine 30 subjects with cleft palates, but normal speech with no evidence of velopharyngeal incompetence. The subjects ranged in age from 2 to 13 years and all had cleft palate repair within the first two years of life. The videofluoroscopic examinations show that there are definite kinesiological differences in the pattern of closure utilized by this group of subjects and normal adult subjects. All 30 subjects utilized prominent adenoid pads as a point of closure in lateral view and all 30 subjects had good lateral wall movement at a specific level in the pharynx. Hypotheses were formulated to account for the closure pattern utilized by this group of subjects and it is felt that further study of this type of subject may yield valuable information concerning the etiology of velopharyngeal incompetence for some children following initial cleft repair.

Kuehn, D. P., *A Cineradiographic Investigation of Velar Movement Variables Among Normals.*

The purpose of this investigation was to study certain aspects of velar dynamics among normals. Two adult subjects, one male and one female, were filmed using high-speed (100 fps) lateral-view cineradiography. Small metal markers were attached to the surface of the soft palate and other articulators for tracking purposes.

Some of the more salient findings include the following:

1. The male subject exhibited velar transitional movements that were generally faster and of greater magnitude than the female, but velar transitional durations were not consistently longer or shorter for one subject compared to the other.

2. Velar elevating gestures were generally faster than lowering gestures for mirrored phonetic sequences, but velar elevation usually took longer time and involved greater magnitudes of movement than velar lowering.

3. The speed of velar elevation at the beginning of sentences depended on the "phase" relationship between the velum and tongue tip for one subject but not for the other.

4. Not only is the degree of velar elevation dependent upon vowel context (as is well documented), but the results indicate that the degree of velar *lowering* during the nasal consonant also depends on vowel context.

5. The magnitudes of velar movement for both subjects were decreased for rapid speech compared to normal speaking rate (articulatory "undershoot"), but the subjects differed in their control of this activity.

In general, a great deal of intrasubject variation was found for the velar movement parameters studied. Whether this articulatory versatility is attributable to graded input commands to the velopharyngeal musculature, to purely mechanical constraints, or to a combination of these cannot be specified at the present time. Moreover, the degree of velar movement variation within cleft palate individuals is not known. One might speculate, for example, that an inadequate increment in velar velocity or displacement when needed may be an important contributive factor in oral-nasal resonance and/or air flow imbalances. Another contributive factor to such imbalances may be poor timing of velar movements in relation to the activity of other articulators. These areas require further investigation.

Weinberg, B., and A. P. Maurino, *A Cephalometric Study of Velar Stretch in 8 and 10-year Old Children.*

The prevalence, relative magnitude, and relationship between velar stretch and other commonly employed cephalometric measures was studied in normal-speaking 8 and 10-year-old children. Lateral cephalometric films were obtained on twenty 8-year-old and twenty 10-year-old children. Radiographs were taken of each subject 1) at rest, 2) sustaining the vowel /u/, and 3) sustaining the voiceless fricative /s/.

During the production of /u/, 36 children (90%) exhibited velar stretch; for /s/ 32 children (80%) manifested stretch. On the average, both 8 and 10-year-old children exhibited significantly longer soft palate length during speech compared with their average resting palate length. Both 8 and 10-year-old children exhibited significantly more velar stretch during the production of the vowel /u/ than during /s/ consonant production. A significant increase in the average length of the anterior portion of the soft palate (PNS—velar eminence marker) was not associated with speech.

With respect to age differences, 10-year-old children exhibited significantly greater velar stretch during both /u/ and /s/ utterances than did 8-year-old children. Correlation analysis techniques were used to examine the relationships between velar stretch and other commonly employed cephalometric measures. Although velar stretch was significantly correlated with a number of commonly employed cephalometric measures, the amount of velar stretch was not well predicted by any single cephalometric measure used in the research.

The implications of these findings with respect to velopharyngeal adequacy for speech and developmental features of velar function will be discussed.

Falk, M. L., and H. R. Hoops, *Social Response to Acoustic and Visual Characteristics of Oral Cleft.*

The present study is concerned with societal preference among speech, visual and speech-visual characteristics of persons with repaired cleft lip and palate.

A 16 mm motion film with sound was professionally made of 17 male adult cleft lip and palate speakers reading the first paragraph from "The Rainbow Passage".

A heterogeneous group of 30 adults rated their preference for each of the conditions—

auditory, visual and auditory-visual—on a seven-point equal-appearing intervals scale.

A three-factor design analysis of variance with repeated measures was performed to determine whether the thirty judges preferred at least one variable of the three variables tested.

Results indicate that a heterogenous population has no preference among auditory, visual, or auditory-visual characteristics of adult males with repaired cleft lip and palate. These variables appear to be considered of equal importance by persons who are representative of the lay public.

Implications of this finding are presented relative to the possible needs and management procedures suggested by results of this study.

Shprintzen, R. J., G. N. McCall, and M. L. Skolnick, *A New Therapeutic Technique for the Treatment of Velopharyngeal Incompetence.*

A new therapeutic technique for the treatment of velopharyngeal incompetence was administered to four subjects. The technique is an operant procedure designed to utilize successive approximations to competent speech via competent blowing or whistling mechanisms. The technique is based on multi-view videofluoroscopic observations of normals utilizing the same closure mechanism for speech, blowing, and whistling. In addition, multi-view videofluoroscopic observations of a sample of cleft palate subjects indicated that a percentage of them were able to achieve a normal type of closure for blowing and whistling, but not speech. It was therefore hypothesized that some speech incompetent individuals may be potentially competent and that their failure to attain closure for speech is learned. Pretherapy baseline data and videofluoroscopy were recorded and compared to post-therapy data and videofluoroscopy. All four subjects were able to achieve velopharyngeal closure and nonnasal spontaneous speech after short term therapy and have maintained it since the completion of the program. It must be stressed that this is not a program of blowing or whistling exercises, but rather an operant program designed to shape observable behaviors and teach subjects new patterns of closure.

Witzel, M. A., and B. J. McWilliams, *The Effect of Training Procedures on Mother-to-Child Verbal Statements.*

Many authors who have been concerned with interdisciplinary treatment and management of children with cleft lip and/or palate have recommended the inclusion of parent counseling. Recently, a quantitative, systematic method of analyzing parental verbal statements was developed by Kasprisin-Burrelli, Egolf and Shames (1972). This particular scale describes the nature of verbal interaction patterns across thirty-five thematic categories, seventeen positive and eighteen negative.

Through use of a small sample study, the effect of training procedures (utilizing the Kasprisin-Burrelli, et al. (1972) "Interaction-Process-Analysis" scale) on Mother-to-Child verbal behavior was investigated. Mother-to-Child verbal statements were evaluated for five subject mothers of cleft lip and palate preschool children with speech and language disorders before and for four subject mothers after training procedures. For the four Ss who received training, there were marked increases in the proportions of positive statements following training. These increases were significant at the .001 level of confidence for all Ss.

The scale is suggested as a useful tool for (a) evaluating verbal behavior, (b) designing family counseling programs, (c) presenting parents with concrete information, and (d) observing changes in verbal behavior over time.

Berkowitz, S., *Biostereometric Analysis of Surgically Corrected Abnormal Faces.*

Biostereometrics, the science which permits the three dimensional measurement of body form, is being used to obtain a full conceptualization of the changing face in order to answer the following questions:

1. Can the soft tissue changes of the surface of the face be accurately measured?
2. To what extent does the geometric relationship of the components of the face change as a result of various skeletal surgical procedures?

Stereophotographs of six patients form the Center for Craniofacial Abnormalities, The University of Illinois, with various craniofacial abnormalities were taken pre- and post-surgery.

Three pair of metric cameras simultaneously photographed the front, right and left sides of the head while it was positioned within a head reference frame. The data obtained from each camera station is thereby tied to a common coordinate system.

Each landmark underwent three spatial analyses; a) orthogonal system, b) polar

system, c) radius of the spherical coordinate system.

This investigation demonstrates that accurate comparative numerical measurements can be made using soft tissue landmarks. Skeletal reconstruction influences soft tissue drape in areas contiguous to the operative site. This investigation opens the way for the use of numerical methods to provide insight into changing facial patterns.

Bishara, S. E., D. R. VanDemark, and W. G. Henderson, *Relation of Velopharyngeal Competency and Orofacial Structures in Individuals with Isolated Clefts of the Palate.*

The purpose of this investigation was to compare orofacial structures of subjects with isolated clefts of the palate who exhibited various degrees of velopharyngeal competency and articulatory proficiency.

The sample included 72 females for whom lateral cephalograms and articulation scores were available. All females had the same surgeon who used a Wardill procedure. All records were taken using standardized procedures. Individuals were also rated clinically, regarding their velopharngeal competency into closure, marginal, and non-closure groups.

Landmarks were identified and pricked on each cephalogram and 12 angles, seven linear measures, and five ratios were determined.

The 14 speech sounds used in this investigation were tested more than four times each and were: /b/, /p/, /m/ (bilabial), /v/, /f/ (labiodental), /d/, /t/, /s/, /n/, /l/ (alveolar), /r/, /j/ (palatal) and /k/, /g/ (velar).

F-statistic comparing 24 dental and facial parameters of the three subgroups designated as closure, marginal, and non-closure failed to demonstrate statistically significant differences ($P \geqslant .05$) for any of the parameters studied. As would be expected, those manner of production phonemes which do not require intra-oral pressure (nasals and glides) did not show differences in percent correct for any of the three clinical groups. Pressure phonemes (fricatives and plosives) were significantly different at the .001 level of confidence. Thus, as velopharyngeal competency decreases, the percent of correct productions of pressure sounds also decreases.

Correlation coefficients (r) between different speech phonemes and different angular measurements for the total group and each of the three subgroups were calculated. Although statistically significant correlations were present, we could not establish any consistent trends among these correlations.

Individuals with operated clefts of the palate and with varying degrees of velopharyngeal competency show significant differences in the production of most speech sounds, but showed no differences in their dentofacial anatomical configuration in both size and relation.

Andrews, R., R. A. Reggiardo and L. F. Wilson, *Physiologic Concepts of Infant Obturators.*

Most infants presenting to the Craniofacial Anomaly Team At Rancho Los Amigos Hospital in Downey, California, for treatment of Cleft Lip and Palate are fitted with an obturating appliance as the initial procedure in their habilitative program.

Our experience with infant obturators during the last four years suggests we share the following observations on the newborn's immediate physiologic responses to appliance placement:

1. Immediately upon appliance placement a change in the infant's respiratory pattern occurs. Two portals to the pharyngeal area are created. If the nasal passageway is not obstructed by mucous secretions or residual feeding liquids, the normal infant nasal breathing pattern is facilitated as the dorsum of the tongue presses against the palatal surface of the obturator. There may occur a transient apnea, diaphramatic breathing, chest concavity, flaring of the nostrils, and short, irregular, gasping breaths. The practitioner should not be alarmed and the parents should be advised that this will disappear within 24 hours as the infant accommodates to the lowered tongue position.

2. The first feeding with obturator in place initiates a change in the infant's oral sensory and motor pathways. The dorsum of the tongue contacts the appliance and the stimulated-velum allowing the infant to achieve a normal neonatal suckle reflex. The infant experiences the ability to collect and accommodate a liquid bolus prior to the reflex swallow.

Lichtenstein, G. A., and H. M. Pashayan, *Growth Pattern of Infants with Isolated Cleft of the Lip and/or Palate Treated with Presurgical Orthopedics.*

Thirty infants with isolated unilateral

cleft lip and palate, seventeen infants with isolated bilateral cleft lip and palate and thirty infants with isolated cleft palate were treated with presurgical orthopedics. The appliance was first introduced between a few days of age and one month of age in 97.4% of the cases. All the infants in all three groups displayed a drop in weight in the first month of life. Weight gain continued to be slow in the three categories and persisted well into infancy and childhood.

The pattern of slow growth could also be demonstrated in measurements of height.

Head growth as measured by head circumference was found not to follow the same trend as weight and height.

Quinn, G. W., A. S. Hall, K. L. Pickrell, R. Massengill, Jr., T. B. Cole, and R. Brooks, *Airway Interference and Its Effect upon the Growth and Development of the Face, Jaws and Speech.*

A study of 41 patients with malocclusions that involved anterior openbites, narrowing of the maxilla, lingual axial positioning of the mandibular anterior alveolar process and anterior teeth.

Histories overwhelmingly demonstrated tetracycline staining of teeth, histories of ear, nose, throat and mouth problems, wheezing, snoring, allergies and mouth breathing. All cases experienced relief by removal of airway obstruction due to enlarged lymphoid tissue, turbinates and septum, polyps or deformed septum, control of allergies and orthodontic-orthopedic treatment.

Mazaheri, M., W. M. Krogman, R. L. Harding, S. Mehta, J. A. Meier, H. Canter, and P. W. Ross, *Longitudinal Analysis of Growth of the Soft Palate and Nasal Pharynx from Six Months to Six Years.*

The length and function of the soft palate, and the depth and width of the nasal pharynx, and posterior and lateral pharyngeal wall activity are all contributing factors in the determination of proper velopharyngeal competency. Whether the surgery effects the growth of the soft palate, whether there is a difference in velar length before surgery and during various stages of development will determine the adequacy of velar anatomical structures.

The question whether the shortness of the soft palate is the result of prenatal velar underdevelopment, palatal bony deficiency, or the result of nonfunctional atrophy may be raised. The data reveal that the continuous proportional growth of the soft palate from six months to six years does not indicate nonfunctional velar atrophy.

Since the velar length appears to be more effected in UCLP and BCLP than CP only groups, we could hypothesize that both intra-uterine underdevelopment and palatal bony deficiency are two contributing factors in the causation of the velar deficiency at birth.

The data do not support the concept of posterior border of the hard palate being superiorly positioned, neither does it agree with the deficiency of the vertical growth of the maxilla.

The presence of an adenoid mass certainly is an important variable in the determination of nasal pharyngeal depth and height. The irregularity in height and depth measurements could be related to variation in the size of the adenoids and adenoidal health condition at various ages where tests were made.

The data do not support the concept of the cleft groups having better speech quality at an earlier age rather than at a later age, because of an increase in the size of the nasal pharynx. On the contrary, we have found a significant improvement in the speech quality of the patient at six years when compared to three year level; specifically, the CP only and UCLP showed the greatest improvement. Fifteen out of 20 UCLP had nasal speech at the age of three. However, at the age of six years, there were only six who had nasal speech. Among the cleft group we found our greatest improvement in the CP sample. There were only three out of 16 in the CP only group who were nasal at the age of six. Based on these data, we may state that our best speech result is achieved in CP and UCLP. The reason is that a better speech quality is directly related to a longer soft palate and a shorter nasal pharynx in these two groups. The BCLP had a shorter soft palate and deeper nasal pharynx. The hearing acuity of these patients did not appear to effect the speech quality significantly.

Krogman, W. M., J. Meier, H. Canter, P. Ross, M. Mazaheri, S. Mehta, *Craniofacial Serial Dimensions Related to Age, Sex, and Cleft-type, From Six Months to Two Years.*

The first two postnatal years are ones of rapid craniofacial growth. From our Longi-

tudinal Series we selected 30 cleft lip/palate children, each seen at 6, 12, 18 and 24 months, at which time lateral X-ray headfilms were taken. There were five boys and five girls, in each of three cleft-types: cleft palate only (CP), unilateral cleft lip/palate (UCLP), and bilateral cleft lip/palate (BCLP). Three dimensions in the midsaggital plane were selected: 1) anterior cranial base (S-N); 2) upper face height (N-Pt.Z); 3) maxillary depth (Pt.A-Ptm).

This is a repeated measures study on the factor patient age: for each combination of sex and cleft-type the same subject was measured at the four levels of patient age. The multiple comparison technique utilized was the Newman-Keuls Procedure. There is no significant *joint effect* in the 6-24 months period. The factors seem to operate singly. There is no main effect due to the factor sex, i.e., different sex standards in early childhood are not required. Dimensions N-Pt.A. and Pt.A-Ptm show a significant main effect due to the factor cleft-type, probably related to the vertical and/or horizontal translocation of the premaxilla. There is a highly significant main effect due to the patient age factor, which is dimensional change, per se.

Yules, R. B., *Current Concepts of Treatment of Ear Disease in Cleft Palate Children & Adults.*

As has been summarized by this author, the incidence of conductive hearing loss in adults who have had cleft palates approximates 50%. That their ear disease arises during infancy has been well documented by Stool and Paradise. The serous otitis media which develops in infancy and persists through adolescence is presently best treated by tympanic aeration tubes. Whether or not a limited adenoidectomy is useful remains to be conclusively demonstrated. That cleft palate repair and/or pharyngeal flap surgery is helpful in the eventual outcome of the ear disease, would seem to be so. The end product of recurrent serous effusions and/or ear infections is a chronic draining ear and/or cholesteatoma which is best treated by mastoid tympanoplasty with ossicular reconstruction following the establishment of dry ears and adolescence.

Statistical data relating to the above problems will be presented.

Slides will be employed to demonstrate the surgery currently in vogue for correction of ear disease in the cleft palate population.

Heller, Joyce C., G. W. Gens, C. B. Croft, and Diana G. Moe, *Conductive Hearing Loss in Patients with Velopharyngeal Insufficiency.*

This is the first known study on the prevalence of middle ear pathology and conductive hearing loss in patients with velar pharyngeal insufficiency due to causes other than cleft palate. In a sample of 80 such patients more than 50 percent was found to have middle ear pathology and resultant hearing loss. Severity of conductive involvement, types of otologic pathology, correlation of audiologic and otologic data, and implications for management and treatment will be discussed.

Schulz, R., W. Ryan, Jr., and Judith Sandler, *Significant Sensori-Neural Involvement in a Cleft Palate Population.*

A review of the available literature revealed no research on the presence of sensori-neural involvement in a cleft palate population. The purpose of this paper was to investigate the audiometric findings in an active cleft palate population in order to determine the presence or absence of significant sensori-neural involvement.

In this study, 32 patients; 64 ears were evaluated. The age range was from 3 years to 16 years. Medical-surgical histories were obtained and audiometric evaluations were made. The frequencies 250 Hz through 8000 Hz were tested. Audiometric findings were compared to medical-surgical histories in order to establish possible relationships.

The findings revealed that significant sensori-neural involvement exists in 40% of this cleft palate population. The mean bond conduction thresholds of the entire 64 ear population indicated a shift from normal at each frequency with more involvement in the left ears. Furthermore, the distribution of significant sensori-neural hearing involvement in the various age groups was 50% of the ears in the age groups 3–7; 13% of the ears in the age group 8–12; and 42% of the ears in the 13–16 age group. And finally, there were no conclusive relationships between audiometric findings and medical-surgical histories.

Richman, L. C., *Behavior and Achievement of Cleft Palate Children.*

The purpose of this investigation was to study the relationship between the cleft palate condition and the child's school behavior and achievement. The research ques-

tion was, when cleft palate children are compared to noncleft children of similar sex, age, intelligence, and socioeconomic status, will the cleft palate child be rated by teachers as displaying different behaviors and achievement at a different level?

The subjects included 44 cleft lip and palate/palate only children and 44 normal public school children, who were individually matched with each cleft child on the basis of sex, age, grade placement, socioeconomic status, and intelligence. The cleft sample included 25 boys and 19 girls (29 had cleft palate only and 15 had cleft of the lip and palate).

Teachers rated each child on the Behavior Problem Checklist (Petersen and Quay, 1967) this checklist consists of two independent factorial dimensions, 1) Conduct Disorder or externalizing behavior and 2) Personality Disorder or internalizing behavior. The achievement data was the composite grade equivalent score of the Iowa Tests of Basic Skills, a standardized objective achievement test. The data was analyzed via three Type I analysis of variance designs (Lindquist, 1953).

Significant differences were found between cleft children and noncleft children on the Personality Disorder dimension and achievement level. The findings of significantly more internalization of impulse and lower educational achievement for cleft lip and palate/palate only children may be indicative of a less confident and less competitive youngster. The inhibition of impulses may be an adaptive response in that it may decrease negative social responses from others, however, in the classroom environment, success may depend on a degree of independence and competitiveness. The implications of this study point to the need to further investigate the social-behavior influences on the cleft child.

Clifford, E., and Eleanor Bentz, *When I Was Born: A Comparative Study of Normal and Clinical Samples.*

Three hundred eighty-two adolescents, given a new test called "When I Was Born," included 140 normal, 114 cleft palate, 73 asthmatic, 24 obese, 11 craniofacial, 10 orthopedic, and 10 emotionally affected subjects. Factor analysis produced four factors dealing with perceived parental (1) positive and negative feelings, (2) worry, (3) pride, (4) child-care. The test was sensitive to differences among clinical and normal samples. Cleft palate patients differed significantly from normals on all four factors.

MacDonald, Susan K., *The Parent: An Important Member of the Cleft Palate 'Team'.*

The seventies have heralded an age of consumerism and advocacy movements in many areas; medicine and related fields are no exception. Parents of children born with cleft lip and/or cleft palate are a beneficial source to complement the health care of the child, particularly to reinforce positive aspects of habilitation. The parent, who is the person to whom the child turns for security and confidence, will not provide a firm base if he does not have, in laymen's terms, a clear picture of the child's health care program and interrelation of professionals. Parents who are confused or uninformed may unintentionally foster fear and a lack of cooperation in the child.

The resolution to these dilemmas lies in new attitudes toward parental roles by both professional and parent. Not only must individual parents be given ample opportunity to ask questions, but also information must be reinforced and misunderstandings and/or confusions clarified at subsequent appointments. Printed materials are most helpful for parents at appropriate times. Parent groups, such as Prescription Parents, Inc. of Boston, are significant resources in that they can offer educational programs for parents, supportive assistance to parents of newborns, and can benefit their children with advocacy efforts directed to improve funding programs, insurance coverage, and educational services, to name a few. Parents and professionals, by joining together in such ways, will only succeed in improving the quality of life for children born with cleft lip and/or cleft palate.

Lewin, M. L., *Basilar Meningocele with Cleft Lip and Palate, Case Report With Ten Years' Followup.*

An infant was born with basal meningocele posterior with cleft palate and medial cleft lip. The meningocele protruded into the mouth. Clinical and radiologic examination, including pneumoventriculogram, showed no evidence of major cerebral anomalies.

The meningocele was corrected through an oral transpalatal approach at the age of two months. The bony defect was bone grafted with osteoperiostal grafts. The lip was repaired in infancy and the very wide cleft palate was closed with a pharyngeal flap at the age of four.

During his first three years, development was retarded, but was subsequently normal.

At twelve years, except for a mild hypertelorism, his appearance and speech now are normal. There is no evidence of hypopituitarism. Partial coloboma of the left optic nerve is present.

Detailed localization of the defect at the base of the skull was accomplished by laminography. The defect involved the entire sella turcica. The spheno-pharyngeal location of the meningocele suggests that the underlying defect at the base of the skull was an open craniopharyngeal canal.

Le Duc, Judy, and C. M. Vygantas, *Cleft Palate and Stickler's Syndrome (Familial Progressive Arthro-ophthalmopathy).*

According to F. C. Fraser, two major clinical contributions have been made toward the unraveling of the etiologic complexity of clefts of the lip and palate. Fogh-Andersen laid the groundwork of our present understanding of the multifactorial basis for most cases. More recently, Gorlin performed an invaluable service by providing an impressive list of conditions or syndromes causing cleft lip and cleft palate that do not fall into the multifactorial category.

Recognition of syndromes associated with cleft lip and cleft palate are important for three reasons, according to Fraser. (1) Some syndromes, such as D-trisomy, have a low risk for recurrence, while in conditions like the lip-pit syndrome, the risk of recurrence is much higher than in the usual multifactorial case. (2) Such syndromes must be excluded from data used for calculating recurrence risks. (3) Including familial syndromes in estimates of prevalence can result in misleading conclusions.

Since it cannot be assumed that hospital or clinical records will identify the cleft as part of a syndrome, the need for expanded instruction on such entities is imperative if we are to provide proper counsel to families and patients. It is in this context that the association of Pierre Robin syndrome and Stickler's syndrome (progressive arthro-ophthalmopathy) will be reviewed and cases from our series will be presented.

The importance of this association is that Stickler's syndrome is inherited as an autosomal dominant. Thus, the risk for recurrence is greater than for the more frequent multifactorial group of clefts. Since such patients are at high risk for retinal detachment, early recognition and prophylactic treatment may be sight-saving.

Our own data strongly suggest that Stickler's syndrome may be associated with cletf palate in the absenec of the stigmata of Pierre Robin syndrome.

Buyse, M., and L. F. Wilson, *Cleft Palate and Ectodermal Dysplasia.*

Facial clefts occasionally occur as part of an inherited malformation syndrome. Ectodermal dysplasia, a group of heterogeneous disorders which variably affect teeth, nails, hair and sweat glands, is known to be transmitted in several different mendelian patterns of inheritance. Cleft lip and palate infrequently occur with ectodermal dysplasia, and when observed together, they have been reported to be transmitted in an autosomal dominant pattern. The purpose of this report is to describe two half-siblings with ectodermal dysplasia and clefts of the secondary palate. The pedigree is analyzed regarding the mode of inheritance, and the developmental relationships of ectodermal dysplasia and oral-palatal clefts are reviewed.

When a facial cleft is present, it is of the utmost importance to recognize whether it is a part of a mendelian syndrome, since the risk of recurrence in such cases is considerable. The presence of ectodermal dysplasia in an individual with cleft lip and palate is an indication for prompt dental intervention. If secondary dentition is absent, vigorous attempts must be made to preserve the primary dentition, which is used as a base for further prosthedontic reconstruction.

Druding, C. H., J. C. Hutchinson, and D. D. Caldarelli, *Familial Ear Malformations and Associated Craniofacial Anomalies.*

Malformations of the ear represent arrests or disturbances in development. Variations in the timing and severity of the teratogen produce the assortment of ear malformations seen. Defects of the ocular, malar and mandibular regions are often seen in association with ear malformations due to the close embryologic bond between the external ear, middle ear, and its contiguous structures. This paper will discuss familial ear malformations and associated anomalies in five families.

The cases reported were analyzed regarding the types of ear malformations within families, audiometric and polytomographic profiles in affected and nonaffected ears, and the presence of associated anomalies.

Hemifacial microsomia, a syndrome with

many names including otomandibular dysostosis, first and second branchial arch syndrome with variants such as Goldenhar's Syndrome and oculoauriculovertebral dysplasia, was familial in two cases.

The familial incidence of hemifacial microsomia has been reported, but the mode of inheritance is unclear because of the infrequency of family studies. Some investigators emphasize the importance of delineating subtle clinical variants of this syndrome, specifically the types of ear malformations.

In contrast to hemifacial microsomia, mandibulofacial dysostosis possesses approximately a 50% genetic predisposition conveyed through an autosomal dominant trait with incomplete penetrance and variable clinical expressivity. One family is presented with emphasis upon the varied spectrum of observable otologic manifestations.

Of additional interest are two families that do not fulfill the criteria necessary to place them within the spectrum of any presently known syndrome. One family demonstrates microtia without associated craniofacial anomalies. The other family presents with cleft lip and palate in association with microtia.

ANNOUNCEMENTS

1976 ANNUAL MEETING AMERICAN CLEFT PALATE ASSOCIATION

TO MEMBERS OF THE AMERICAN CLEFT PLATE ASSOCIATION:

The 1976 annual meeting of the American Cleft Palate Association will be held May 12–16, 1976 in the St. Francis Hotel, San Francisco, California.

Your Program Committee is soliciting your participation in the scientific program. Abstracts of papers, motion pictures, table clinics and demonstrations should be submitted to the Chairman of the Program Committee (address below).

The following information is included for your use and careful consideration in preparing proposals for presentation.

Papers: Summaries of contributed papers must be between 300 and 600 words in length. Each summary must be accompanied by an abstract of not more than 75 words. The summary of 300–600 words will be used by the Program Committee in making the selection of papers. The 75 word abstract will appear in the printed Program of the Convention. In addition, a 200 word abstract is needed which will appear in the Cleft Palate Journal.

Each summary and its accompanying abstract must be in sextuplet, double spaced on 8½″ x 11″ typing paper. The purpose is to expedite the work of the Program Committee. Each submitted paper must include a cover page on each of the six copies submitted. The cover page must follow this form:

Title: (of paper)

Author's Name: (For multiple authors, list first the speaker who will present the paper.) Give the following information for each author: Institution (name, location, specific office address); home address (house number, street, city, state, zip code).

Degree: (Highest degree held)

Member or Non-Member of ACPA.

Time Required: (Requests for more than 10 minutes for a paper should be accompanied by justification. The final allotment of time will be made by the Program Committee.)

Equipment required: (Standard equipment available will consist of the following items: a blackboard, a pointer, a single microphone, a 2 x 2 slide projector and a 3¼ x 4 slide projector.) If any specialized audio-visual equipment is needed, i.e., equipment other than the five items listed above, it must be identified and justified. The acceptance of your paper may depend, to some degree, upon the total rental cost to the Association of specialized audio-visual equipment requested. NOTE: This is the only request for audio-visual and other equipment needs you will receive.

MOTION PICTURES: A brief abstract with running time, size of film, and whether or not it has sound.

TABLE CLINICS AND DEMONSTRATIONS: A brief abstract, amount of

floor or table space required, number of chairs, electrical requirements, and other special needs. The Association will pay for the basic needs of setting up such materials. All other expenses must be underwritten by the clinician.

Deadline for submission of all abstracts and presentations of any nature is NOVEMBER 15, 1975. Authors whose papers, films or clinics are selected for inclusion by the Program Committee will be notified in January 1976.

At the time of presentation all papers should be in final form for publication in the Cleft Palate Journal, subject to acceptance by the Editorial Board.

The Program Committee will be glad to receive from members of the Association any suggestions or ideas about the meeting in San Francisco. Members located along the Eastern seaboard or in the Midwest who are interested in a charter flight to San Francisco are to communicate with the undersigned.

Michael L. Lewin, M.D.
1976 Program Committee Chairman
3353 Bainbridge Avenue
Bronx, New York 10467

CORRECTION OF DATES FOR UNIVERSITY OF IOWA COURSE IN SURGICAL TECHNIQUES IN CLEFT LIP AND PALATE

The annual course in cleft lip and palate surgical techniques will be held at the University of Iowa from October 6 to 9, 1975. The dates of course listed on page 254 of the April, 1975 issue of the Cleft Palate Journal were in error.

FELLOWSHIP OFFERED BY THE CLEFT PALATE SERVICE OF RANCHO LOS AMIGOS HOSPITAL

The Cleft Palate Service of Rancho Los Amigos Hospital (Los Angeles County-University of Southern California Medical Center) is offering a one year fellowship in the total evaluation and management of cleft lip and cleft palate patients.

The Fellow will be selected from any of the following disciplines; Plastic and Reconstructive Surgery, Pediatrics, Otolaryngology, Speech, Audiology, Prosthodontics, Pediatric Dentistry, and Orthodontics.

For an application and further information contact: Dr. Libby Wilson, Rancho Los Amigos Hospital, 7601 East Imperial Highway, Room 120 H.B., Downey, California 90242. Phone (213) 922-7454.

ESSAY CONTEST

The American Cleft Palate Education Foundation, Inc. announces its inaugural essay contest for (1) high school students and lay persons, (2) graduate students, and (3) novice professionals (no more than two years of experience beyond terminal degree). Winners in each category will receive $200 plus plaques for essays on cleft palate or other craniofacial anomalies. For more information, contact Curtis Weiss, Essay Contest Committee Chairman, University of Nevada, Division of Speech Pathology and Audiology, Reno 89507.

32nd ANNUAL MEETING OF THE AMERICAN INSTITUTE OF ORAL BIOLOGY

The 32nd Annual Meeting of The American Institute of Oral Biology will convene in Palm Springs, California, October 3–7, 1975 (Friday–Tuesday), at the Spa Hotel. The Institute brings together during its annual seminar a group of eminent authorities in the regimen of Oral Biology as is pertinent to the modern practice of dentistry.

The faculty will consist of Dr. Michael G. Buonocore, University of Rochester, Rochester, New York; Dr. Melvin Burstein, The University of Texas, San Antonio, Texas; Dr. David E. Poswillo, Professor, The Royal College of Surgeons of England; Dr. Edwin Speed, University of Alabama School of Dentistry, Birmingham, Alabama; Dr. S. Sigmund Stahl, New York University, New York; and Dr. Carlton H. Williams, Past President American Dental Assn., San Diego, California.

PROSTHODONTICS GRADUATE-RESIDENCY TRAINING PROGRAM OFFERED BY THE MAYO GRADUATE SCHOOL OF MEDICINE

The Mayo Graduate School of Medicine and the Department of Dentistry of the Mayo Clinic offer a graduate-residency training program in Prosthodontics leading to a Master of Science Degree in Dentistry or Certificate of Achievement. Appointments for the 36 or 30 month course of study in conventional and maxillofacial prosthodontics are made once a year beginning summer or fall quarter. Didactic courses, clinical and laboratory experience, and practice teaching satisfy requirements for certification by the American Board of Prosthodontics. A beginning annual stipend of $12,000 is provided with annual increments. Address inquiries to Director, Mayo Graduate School of Medicine, 200 First Street S.W., Rochester, Minnesota 55901.

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