

REVIEWS AND ABSTRACTS

Edited by S.G. Jacobs—Melbourne.

Abstracts included edited Australian Medlars, as well as other basic science, orthodontic, dental and surgical literature. All enquiries regarding information on specific articles should be directed to authors. Articles or books for review should be addressed to The Editor, Australian Orthodontic Journal, C/- Child Growth Unit, Anatomy Department, University of Melbourne, Parkville, 3052. For convenience, the reviews are placed under general headings with each section being provided by various reviewers.

CLEFT LIP & PALATE

Schendel, S. & Delaire, J.

(Functional musculo-skeletal correction of secondary unilateral cleft lip deformities: combined lip-nose correction and Le Fort 1 Osteotomy)

J. Maxillo Fac. Surg. (1981) 9:108-116

Correction of secondary cleft lip-palate deformities requires a combination of soft and hard tissue reorganisation. Attempts at correcting these deformities by extensive movement of teeth, the maxilla and the associated soft tissue structures are vastly enhanced if attention is paid to correcting the functional musculo-skeletal relationship.

This article pays particular attention to reorganising the rather complex muscular arrangement in the region of the alar base. This region and the philtrum and columella region are usually compromised in traditional repairs of this deformity. The classical bunching of the lateral parts of the upper lip due to inadequate functional activity of the muscular bundles is the usual result of traditional soft tissue repair. The technique described in this article anastomoses the muscle bundles and leads to a functional upper lip. The correction of the maxillary retroposition aids in supporting this soft tissue coverage. The alignment of the teeth can then be carried out into a more normal environment. This is an important development in treatment of these deformities.

DENTAL MEDICINE & PERIODONTICS

Buckley, L.A.

(The relationship between malocclusion, gingival inflammation, plaque and calculus)

J. Periodontol. (1981) 52:35-40

This paper reports on a study of 300 subjects (aged 15-17), in which the incidence of gingival inflammation, plaque, calculus and malocclusion was correlated statistically to determine whether the distribution of these variables was caused by more than chance.

The degree of malocclusion was assessed by the Occlusion Feature Index which gave values to lower anterior arch crowding, cuspal interdigitation, vertical overbite and horizontal overjet. The Malalignment Index was used to give values to the amount of rotation and displacement of teeth in relation to an ideal line as projected through the contact areas. The degree of gingival inflammation was measured by the Gingival Index of Loe and Silness, and oral cleanliness was assessed by the Plaque Index of Silness and Loe. Calculus was recorded as being present or absent.

The accuracy of the protocol for collecting the raw data was reproducible in 90% of the examinations or better. Every tenth subject was examined again within 24 hours.

This study confirmed the findings of other studies that the effect of bacterial plaque accumulation was far more important than irregularity, tilting, rotation and crowding on the health of the gingiva. Irregularities such as these did seem to facilitate collection of plaque by probably making effective oral hygiene more difficult.

Coatoam, G.W., Behrents, R.G. & Bissada, N.F.

(The width of keratinized gingiva during orthodontic treatment: its significance and impact on periodontal status)

J. Periodontol. (1981) 52:307-313

This study examined the effects of orthodontic therapy on the width of keratinized gingiva and the length of the clinical crown before and after treatment. Cephalograms were used to determine the type of tooth movement that had been achieved and this was related to the change in width of keratinized gingiva.

One hundred records were selected from the files of the Department of Orthodontics School of Dentistry, Case Western Reserve University. The sample consisted of 54 female and 46 male adolescents aged 14-16 years at the end of treatment. Average treatment time was 2 years. Measurements were made of twelve anterior

teeth. These were the length of clinical crown (study casts), length of clinical crown (slides) and width of keratinized gingiva from projected slides. Some measurements of keratinized gingiva had an error in the method of 0.1 mm although measurements were recorded to two decimal places.

The study showed that there was a change in the width of keratinized gingiva which was partly related to the tooth position in the dental arch and to the pre-existing condition of the zone of keratinized gingiva. The clinical crown length of all teeth increased over the treatment period.

This increase could not be accounted for by a decrease in the width of keratinized gingiva. In the maxilla, except for the lateral incisors, there was an increase in width of the keratinized gingiva with a mean of 0.30 ± 1.01 mm. In the mandible there was a mean decrease of 0.19 ± 0.64 mm which was not wholly accounted for by the increase in clinical crown length of 0.43 mm. There were seven teeth out of 966 which started with no attached gingiva. Two of these teeth had recession at the end of treatment.

This study suggests that a minimal width of 2 mm of keratinized gingiva was required to withstand the rigors of orthodontic treatment. The discussion, the papers quoted and the data presented did not completely substantiate this viewpoint.

There was no correlation between "periodontal change and change in angulation of mandibular central incisors". In the maxilla bodily retraction and uprighting of cuspids and central incisors seemed to be related to an increase in keratinized gingiva.

This study has isolated tooth movement and its effect on the width of keratinized gingiva without considering other variables such as oral hygiene methods, habits and texture of toothbrushes used. The recession present on only two of these teeth could also be caused by toothbrush trauma. More studies considering periodontal health during and following orthodontic treatment should be encouraged.

ORTHODONTICS

Simon, J.H.S., Lythgoe, J.B. & Torabinejad, M.

(Clinical and histologic evaluation of extruded endodontically treated teeth in dogs)

Oral Surg. (1980) 50:361-371

In recent years the extrusion of endodontically treated roots has been used as a clinical technique which is especially useful for the

management of teeth that have sustained transverse root fractures below the level of the gingival attachment. Perforations and resorptive defects can be managed in a similar fashion in some instances. However, whilst the clinical procedures involved are well documented there are few histologic studies in the literature that investigate the effects of purely extrusive movements.

Clinical and histologic observations were made on dogs at post-extrusion intervals of two, four and seven weeks. Whilst at two weeks radiolucent areas were seen surrounding the roots, histological investigation demonstrated that the radiolucent areas contained new immature bone or osteoid and a periodontal ligament of normal width. The normal radiographic appearances observed at seven weeks were confirmed by histological investigation.

RADIOLOGY

Bhakdinaronk, A. & Manson Hing, L.R.
(Effects of radiographic technique upon prediction of tooth length in intra-oral radiography)

Oral Surg. (1981) 51:100-107

381 diagnostic radiographs were made of patients over 21 years of age. The patients were in pain and suspected of needing extraction. The teeth were incisors and first or second molars. The extracted teeth and the radiographic images were measured with a Boley gauge and the measurements were compared.

The radiographs were made with six different techniques:

1. paralleling technique, 16 inch cone, haemostat film holder;
2. paralleling technique, 16 inch cone, Rinn XCP film holder;
3. bisecting of the angle technique, 8 inch cone, haemostat film holder;
4. bisecting of the angle technique, 8 inch cone, Rinn XCP film holder;
5. bisecting of the angle technique, 8 inch cone, Styrofoam film holder;
6. bisecting of the angle technique, 8 inch cone, patient's finger holding film.

Techniques 2, 1 and 3 were the most accurate systems with no statistical differences among the three.

In general, the long cone paralleling techniques provided more accurate results than the short cone bisecting of the angle procedures.

Rinn XCP holders produce more reliable results than the other holders.

Collett, W.K.
**(Intraoral radiographic errors in films
submitted for orthodontic consultation)**
Oral Surg. (1980) 4:370-372

A total of 939 full-mouth radiographic surveys, consisting of 12,907 films which were submitted for consultation to an orthodontist, were evaluated for proper radiographic technique. The assessment of the radiographs was carried out in a manner similar to the procedure which was used in evaluating radiographs made by undergraduate dental students.

Of the total number of films only 55 per cent were completely free of any error. Most errors occurred in the mandibular cuspid and premolar areas (19 and 18% respectively). The fewest errors were found in bitewing films (4%). It is interesting to note that the referral surveys contained essentially the same numbers and types of errors as was the case for dental students.

The most distressing conclusion, however, is that although the referring dentists themselves had evaluated the radiographs prior to referral, they obviously did not seem to be sufficiently dissatisfied with the results to retake the diagnostically inferior films.

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