

CAVEAT COMMUNIQUE

STEROIDS AND ORTHODONTIC TREATMENT

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In a recent issue of the Australian Orthodontic Journal, Mollenhauer (1988) mentioned the possible dangers of mixing anabolic steroids with orthodontic treatment. More recently a young adult female patient undergoing orthognathic surgery was completed who, in the last five months of treatment, was placed on *massive doses of progesterone* (Provera*). In that time there occurred quite significant resorption especially in the buccal segments where vertical elastics were being used. Fortunately, an O.P.G. radiograph was taken in December 1988 prior to drug administration and a final one was taken in June 1989 after I was alerted to the possibility of resorption. Consultation with her oral surgeon, an oral pathologist and an endocrinologist confirmed the likelihood that the large doses of progesterone had led to calcium depletion and thereby contributed to root resorption.

There was no alveolar ridge involvement which Mollenhauer had observed, however, like him, I feel that steroids and orthodontic treatment make for a questionable cocktail. I now routinely question my patients as to whether they are on hormonal or steroid therapy before commencing treatment.

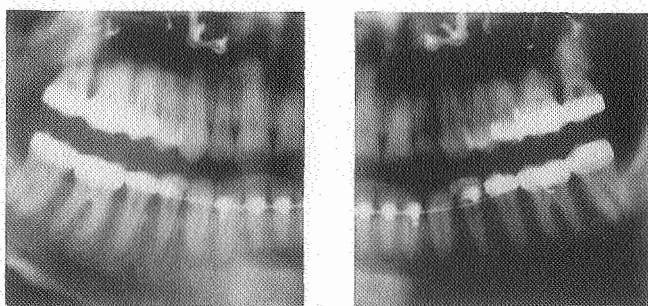


Figure 1. Radiographs taken before progesterone was administered

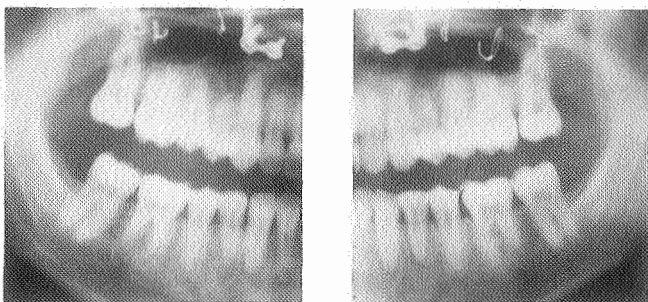


Figure 2. Radiographs taken five months later

[Editor's comment: This warning has two important benefits. Firstly, one purpose of the literature is to alert colleagues to possible dangers.

Secondly, it may encourage a researcher to investigate root resorption from this perspective. When this thought was mentioned to the assistant editor, Dr Aitken, he suggested that possibly orthodontic root resorption could be studied from the point of view of those steroids which occur naturally in the body. My view is that any investigation which studied this should preferably have two subgroups, namely, those with, and those without, intermittent vertical elastics. This mechanotherapy is not uncommonly associated with root resorption.

For those interested, the first Book Review in 'Reviews & Abstracts' in this issue may point the way to useful information.

Furthermore, the letter was passed on to Professor Michael Quinn, of the Department of Obstetrics and Gynaecology at the University of Melbourne, who discussed it with an endocrinologist also. He informed me that osteoporosis is a well known side effect of very large doses of Provera*, presumably related to its anabolic effect together with its effect on ovarian function. Women on very large doses of Provera do not have any cyclical ovarian activity and are therefore relatively hypo-oestrogenic. It may be that this is the most likely effect of the drug on calcium metabolism. There is, however, recent data to suggest that low doses of progesterone may help to lay down bone in post-menopausal women and this certainly is quite clear in the women who are taking oestrogens as well.]

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EVALUATION OF SURGICAL GLOVES FOR ORTHODONTIC USE

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Introduction

At the present time orthodontists frequently come into contact with patients in a high risk group for carrying contagious diseases. The use of latex gloves has been widely advocated to provide effective infection control, that is, in order to reduce cross infection and also to act as a barrier between the high risk patient and the operator. The American Dental Association and Centres for disease control have recommended that gloves always be worn when contact with blood, saliva or mucous membrane is possible.

However, the entire barrier is lost if even miniscule holes develop in the gloves (Beck and Carlson 1963, Morgan and Adams 1989).

*Provera is a medroxyprogesterone made by Upjohn P/L,
55-73 Kirby Street, Rydalmere, NSW 2116

The rate of glove failure during operative procedures is of considerable relevance to dental surgeons, dental assistants and their patients, when they are exposed to Hepatitis B and/or Human Immune Deficiency (HIV) viruses. The aim of this pilot study was to establish the rate of perforation of surgical gloves used at The Royal Dental Hospital of Melbourne.

Materials and Methods

The type of glove tested was Ansell Suretex. These gloves are of surgical quality but not sterilised. They are supplied in bulk packets of 25 pairs. Following single use of gloves in orthodontic fixed appliance treatment macroscopic glove punctures could be seen in many cases. Nevertheless the gloves were *filled with water* so that they reached a diameter of 100 mm. The gloves were then sealed by gripping the cuff tightly and exerting pressure on the included water, at which time the glove was examined for streams of escaping water.

Results

Of the 50 gloves examined 12 perforated during use such as to allow a gross escape of water. Thus, in practice, out of 25 pairs of gloves, 12 pairs were rendered ineffective due to the perforation during the orthodontic procedure. *This represents a 48% failure rate* to provide a barrier between the operator and the oral environment. The procedures carried out whilst wearing gloves were entirely those involving placement of arches and adjustment of arches in edgewise fixed appliance cases. The operator was using both elastic ligature ties and metal ligature ties with standard instrumentation and preformed arch wires.

Discussion

The results of this pilot study are similar to those reported by Miles and Wastell (1989) who indicate that surgeons' gloves are punctured up to 48% of occasions during operation. Studies using various types of gloves in surgical procedures indicate that in 32% of cases defects occurred in one or more gloves (Fell et al. 1989). At the Middlesex Hospital glove tears were reported in 60% of operations (O'Connor 1984). There is cause for concern in that there have been a high number of operations in which perforations developed in the gloves leading to a risk of cross infection. A Collaborative Study (1980) reported on eight patients who developed Hepatitis B associated with gynaecological surgery and it was thought that the infection was probably transmitted after the accidental puncture of the surgeons' glove and skin. Dental operating personnel will inevitably become infected following glove punctures. Immunisation against Hepatitis B will protect dental assistants and dental surgeons against one virus but what precautions can be taken against HIV infection? Would pre-operative screening of patients encourage surgeons and nurses to take more care to avoid glove breakage when operating on HIV positive patients? Conversely, should we follow Usiskin's conclusion? He advised carrying out proper skin care to provide a more comprehensive protection rather than relying on a glove which he quotes may show a 70% puncture rate during use.

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[Editor's comment: This contribution not only has considerable relevance to Anti-Discrimination Legislation but also to Personal Insurance cover. Therefore further studies of a more comprehensive nature are welcomed for publication, including studying the supposed advantages of wearing two gloves in high risk situations]

CONTINUING INDEMNITY COVER AFTER RETIREMENT OR DEATH

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With the occurrence of several cases of litigation following the retirement or death of a practitioner, it is most important that professional indemnity cover continues for a number of years afterwards. The situation arose after another practitioner took over the treatment and he/she was also named in the suit.

Such cases illustrate the importance, when taking over a transfer case, of acquiring new records as soon as practicable.

The need to continue indemnity cover by retiring practitioners or their estates is evident but may often be overlooked. Possibly the ASO Inc. should consider seeking longer indemnity covers for members to minimise these problems in the future.

'CORRIDOR' ADVICE

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Last year a lecture, given by a lawyer to a dental study group, indicated that orthodontists, who gave advice to a general practitioner from only study models, radiographs or personal description, may be found culpable if legal action was undertaken. This was reported to a meeting of the ASO (Inc) Victorian Branch. During discussion a member expressed the thought that this would be an unfortunate situation since colleagues should have access to expert advice, even on a casual basis or by 'corridor advice' as it is sometimes called. So a resolution was moved that another opinion be sought.

That opinion came from the Defence Committee of the ADA (Victorian Branch) who provided a reasonable solution to this problem: For casual advice where the practitioner does not see the patient or all records, the consulted practitioner *should make it clear that only a general opinion is being given*. That is, it may, or may not, apply to the specific situation.

NMR IMAGING AND ORTHODONTIC APPLIANCES

Clinicians' attention is drawn to the advantages and possible disadvantages of Nuclear Magnetic Resonance imaging. Lam and Hannam et al. (1989) point out the advantages of this means of investigation for soft tissue imaging but mention the problem of metal pins. In a news item in the American Journal of Orthodontics and Dentofacial Orthopedics (October 1989, p21A), it is reported that the College of Diplomates of the ABO passed a motion that this imaging technique should be investigated regarding its interreaction with orthodontic appliances.

Reference

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DENTAL MIDLINE-FACIAL CENTRELINE ACCURACY

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Recently an instant photographic camera was purchased for the practice because of the frustration over the years of taking extraoral photographs. The frustration was due to two factors. One was having the prints returned after the treatment planning had been done on most occasions, so they were filed away without a positive input into the case assessment with the study models and radiographs. The second problem with the photographs was that sometimes the patients had their eyes closed or, more significantly, the frontal head picture was not square with the camera for midline purposes.

These problems can be reduced with instant prints and, for lecture purposes, the prints can be re-photographed onto slides via a copying stand. This can give presentable results even on fine grain reversal films (e.g. 25 ASA) for large screen projection. The latter is a wise approach and the cost of such films is the same as 64 ASA films.

Instant films have an advantage in identifying other records. For example, since the instant print can be labelled immediately, a smiling photograph can verify the labelling of the study models. The Polaroid Spectra System® provides a space alongside the photo for this.

Two problems associated with instant cameras can be overcome. One is the problem of 'pink eye' due to the flash being so close to the camera lens. This is countered by attaching a piece of cardboard over the built-in flash to deflect the light to the side to fire off the modelling slave unit. This second flash then fires off the fill-in and background slave units. The second problem is

that instant films produce a bluish tinge to the face. For this, a warming filter is permanently attached over the lens. An initial concern was the fact that a telephoto lens was not available to fill the frame with the patient's head. Several attempts were made to buy large format cameras with Polaroid® backs but the cost is prohibitive even with duty free shopping. However, by photographing the top of the patient's chest as well, some record is available of posture of the patient. When a slide is taken this can be eliminated if desired, by zooming in with a close-up lens on the camera which has the reversal film.

The two problems associated with this system are the cost and image size. With conventional reflex (through the lens) focusing, the lens can be taped up at a set distance and the camera moved back and forth until the patient's head is in focus. This will give a constant image size. With automatic focusing at the lesser limits, the image will be found to vary unless one uses some other device to standardise the film-object distance.

But the real point of this contribution is that it has *emphasised the inaccuracy of recording the patient's midlines/centrelines at the chairside*. With the availability of a smiling photograph, it is possible to make a drawn template on tracing paper to place over the print to examine the asymmetries – dental and facial. When this was done, it was amazing how many clinical notes were found to be wrong.

For treatment planning it is necessary to document where the dental midlines are to be moved. To eliminate problems of mandibular shifts (deflections on closure), the upper labial frenum in the mucobuccal fold seems the most rational anatomical entity to relate the dental midlines to. It is interesting how often the dental midlines need to be placed under the top of the frenum, but this should not be taken for granted in a 'cookbook' manner. Another interesting feature which can fool the unwary practitioner is how often the nose is off to one side. Frequently, one must compromise between the nose, because of its proximity, and the face. If in doubt, ask the patient or parent for their opinion before starting treatment. *The relevance of this contribution to asymmetrical extractions and midline management in general cannot be over-emphasised.*

EXODONTIC, RADIOGRAPHIC AND MOTIVE BAND INCIDENTS

Examples of these are covered in the section called 'Self Assessment' in this issue.

ANSWERS TO SELF ASSESSMENT

from questions on pages 128-129

Answer 1: The 34 and 35 were extracted because the referring orthodontist erred in his extraction requests. In successive weeks he twice prescribed the removal of 34 instead of one week asking for the extraction of 34 and the next week 44.

A different exodontist extracted each tooth. The second exodontist also did not notice the error.

The patient's mother discovered the mistake one hour afterwards and rushed the patient back to the orthodontist. He arranged removal of 44 and its transplantation into the socket of 35. This is why the tooth (44) does not completely fill 35 socket (*Figure 1(b)*) and why the pulp calcified (*Figures 1(c) and 1(d)*). The open apex of the transplanted tooth closed and the tooth survived at least 5 years 7 months.

This unfortunate error probably would have been prevented if a form requesting all the extractions had been filled out initially, even though the exodontist may not have extracted all the teeth at the one visit.

Answer 2: It was suggested that the radiograph (*Figure 2(a)*) was taken incorrectly since only one incisor, the 21, shows a cross-sectional image on the film. Some orthodontists suggested that the tube was positioned or angled too far forward of the vertex of the head, others said it was too far back. The vertex occlusal radiograph should be taken with the central beam angled to pass down the long axis of the reference tooth. (If we are trying to localise an impacted canine the beam should be aligned to pass through the long axis of the lateral incisor on the same side.) The study model (*Figure 2(c)*) shows that 21 is the only incisor with a normal inclination. After 12, 11 and 22 were proclined, with an upper removable appliance (study model *Figure 2(d)*), the radiograph was repeated (*Figure 2(e)*). Its tracing is *Figure 2(f)*.

The image of 21 is virtually the same as before. The image of 11, in particular, and the images of 12 and 22 are also cross-sectional now. So the original vertex occlusal radiograph was taken correctly with the tube properly positioned and angulated.

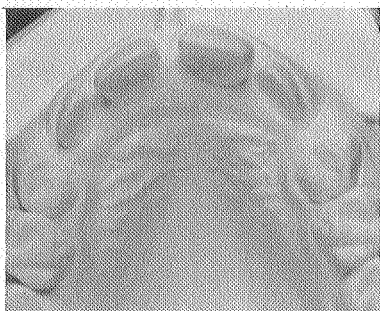


Figure 2(d) Study model after proclination of 12, 11, 22



Figure 2(e) Post-treatment vertex occlusal

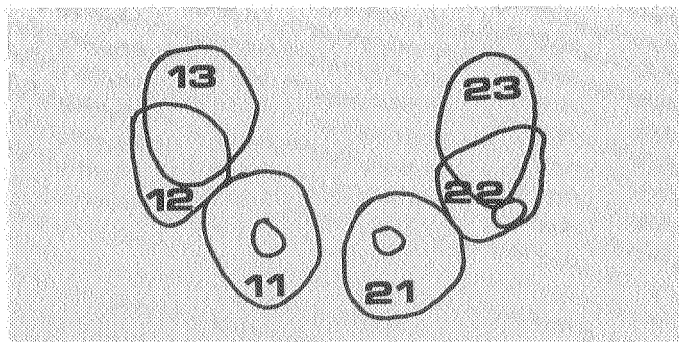


Figure 2(f) Tracing of post-treatment vertex occlusal

Answer 3(i): The radiographs show that the band moved a considerable distance in the three days, i.e. it must have been transported along the alimentary canal. Therefore, it can be deduced that the band was swallowed.

Answer 3(ii): My knowledge of radiological osteology of this region is extremely limited. However, the wire outline of the brassiere-cup framework provides the solution. 'J' is for Janet!