

# Exodontia

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WHEN asked by the editor for a contribution to the *Journal* the age old question, to which men of both professions will give divers opinions, came to us—"Is dentistry a branch of medicine?" Medicine covers a broad field while dentistry covers a comparatively small one and we are in the position of trying to choose a subject from the smaller field, which will be of benefit and interest to the medical man. The logical subject seems to be "Exodontia", because the general medical practitioner is often called upon to perform this operation. The following article is necessarily brief so detail will be lacking, but the more important principles of injections and extractions will be covered.

Today practically all extractions are carried out under anesthesia, either local or general. Nothing need be said of the general anesthetics but a few words on the technique of local injections concerning the extraction of the teeth may be in order.

The maxillary teeth are supplied by the second division of the trigeminal nerve through three branches:

(1) *Posterior superior dental nerve* supplies the third and second molars and two roots of the first molar. The site of injection for anesthetizing these teeth is in the muco-buccal fold at the second molar, the needle being carried upwards and backwards over the apices of the roots of the third molar and there the solution is slowly deposited.

(2) *The middle superior dental branch* supplies the anterior root of the first molar and the second and first bicuspid. The site for injection is at the muco-buccal fold at the first bicuspid, the needle being advanced to slightly above the apex of this tooth where the solution is deposited.

(3) *The anterior superior dental nerve* supplies the cuspid, lateral and central teeth. The site for injection is the muco-buccal fold slightly mesial to the cuspid; the needle is advanced to just above the apex of the cuspid and there the solution is deposited.

On all the maxillary teeth a second injection is necessary on the palatal side, about one-third of the distance from the gingiva to the median palatal line and opposite the teeth to be anesthetized.

Anesthesia in the maxilla is obtained by infiltration which is possible since the alveolar bone is spongy. Anesthesia of the mandibular teeth is by conduction, by blocking the inferior dental nerve at the point where it enters the inferior dental canal.

There are several techniques for blocking the inferior dental nerve, the most satisfactory being the Fischer method. In this the post-molar triangle is palpated by the index finger of the left hand, the finger nail facing the tongue and on the internal oblique line. The barrel of the

syringe is lying between the bicuspid teeth of the opposite side and parallel to the occlusal surfaces. The needle punctures the mucous membrane about the middle of the finger nail and is inserted for one-quarter inch and then the needle is swung to the other side and advanced one-quarter inch further. At this point some of the solution is deposited to anesthetize the lingual nerve. Now the syringe is returned to the side it started from and the needle is advanced one-half inch more and here the remaining solution is deposited.

A separate injection is necessary for the anesthetization of the buccal nerve. The site for the injection is at the first molar and advancing the needle to the region of the third molar the solution is deposited as the needle is carried back.

In the past the extraction of teeth has been undertaken rather clumsily with the sole object to remove the tooth by "fair means or foul". No other consideration was deemed necessary as long as the aching molar was dismissed. This view is still not a very bad one but one which is not necessary at the present time. With modern anesthetics, types of injection and modern technique, those considerations which have raised exodontia to the level of other operations in minor surgery, may now be taken into account. They can be used to advantage in each extraction.

The question of sterilization is of course one of the first to present itself to one's mind. The sterilizing of the instruments is no new story to the medical man. Just a remark on that point will be sufficient. Instruments such as knives lose their temper when boiled too long; the antiseptic method of using 70 per cent alcohol or a phenol or lysol solution, is a good alternative method. Of course knives can be re-sharpened and should always be kept sharp. All instruments should be sterilized before and after using. Now, for the field of operation. The oral cavity is full of micro-organisms and many of these are pathogenic. The mucous membrane of the mouth will not allow any strong antiseptic solution to be used, therefore what is done is to make the oral cavity cleaner, not actually to disinfect it. Mouth washes are efficacious and a well-known exodontist uses tincture of metaphen. Swabbing with cotton dipped in weak boric acid solution or potassium permanganate has also been found to be a good preventative. However there are comparatively few cases of infection following extraction and it is the infection from outside the oral cavity that must be guarded against.

There are a number of different forceps used, the type used depending on the location of the tooth, i.e. upper right premolar forcep or lower left molar forcep, etc. Some dentists prefer different forceps for different areas, while others use only two or three forceps for the whole mouth. The latter would probably be the case of the average general practitioner who usually inherits a pair or two of forceps or else has picked up a pair sometime or other in his career. It is a matter of individual preferences and what the doctor has found most suitable or convenient. Probably two forceps would do the average medical practitioner, an upper and a lower

forceps. The beaks should not be too wide so as to injure the adjacent teeth.

Teeth are set in between two plates of bone, the buccal and lingual cortical plates of maxilla and mandible. These are of uneven thickness in different parts of the alveolus, thus the resistance to removal of a tooth is not the same on both sides of it. There is always the danger of fracturing large pieces of these plates of bone.

The roots of the teeth are the next factor to be considered. The anterior teeth, both upper and lower from the first premolar on each side, forward, are single rooted and they have straight conical roots. This means that they can be rotated. The cuspids, however, have somewhat flattened roots and are extracted with more of a buccal motion. Care must be taken not to fracture the prominence of cortical bone over their roots. The upper first premolars are usually double rooted and the roots are slender. Downward force is important here with slight labial inclination at the conclusion of the movement. The second premolars are usually single rooted but flattened, thus not permitting rotation so the downward force plus vibrations of short radius buccally and lingually is used for them. The molars of the maxilla have three roots, a palatal root, mesial buccal and distal buccal roots. The buccal plate of bone is thinner here and they are delivered with a downward and outward force, a rolling-labially motion.

The lower premolars are single rooted and can be rotated slightly to loosen their connection with the alveolus. They then are removed with an upward pull and vibratory motion if necessary. The lower molars have two roots mesial and distal and they are removed by an upward and buccally directed force, for the roots usually curve in that direction.

In removing any tooth, the application of the forceps is of major importance. The beaks must be applied to the crown in the long axis of the tooth. In molars and premolars, the direction of the long axis of the tooth can be estimated by the inclination of the crown. That is, if the lingual cusps are higher than the buccal cusps, the tooth will obviously be inclined buccally. The tooth should be grasped well up on the crown. The beaks are inserted beneath the gingiva and as far up as possible along the tooth. This cannot be stressed too much. The tendency nearly always is not to grasp the tooth far enough along its length. The forceps are held firmly in the palm, near the end of the handles in order to apply the most force. The fingers are curled around the handles and no fingers should be held between the two handles. The forceps may slip, resulting in the finger being painfully pinched. The thumb acts as a guide to the opening of the handles.

Regarding the amount of force used in extractions, it is difficult to say how much is required. The amount varies with each tooth and this is learned through experience only.