

OORSPRONKELIJKE BIJDRAGEN

THE SYMPTOM OF PAIN IN DENTAL PRACTICE

BY

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The subject of my Paper, whilst admittedly my own choice and one that I have had in my mind and have been very keen on for a long period, I find, nevertheless, very difficult to write. (1) "Health means harmonious action of the entire economy. Conversely, ill health means dysharmony. The first evidence of a departure from health may be psychic; some change in disposition, or an increasing consciousness of some part, varying from mere discomfort to actual pain. In various ways, and increasingly evident to those who direct attention to an evaluation of its manifestations, the nervous system plays a part in the majority if not in all the morbid entities with which the physician is called upon to deal."

In trying to make oneself familiar with the scientific aspect of the nervous system one finds the subject more and more complex, nor does it appear to be definitely fixed or known as to the force or energy or manner in which impulses and sensations which include pain and pleasure are conveyed. It would appear to be generally acknowledged, however, that there are different nerves or systems conveying different impressions and that in the brain these are sorted out, recorded, interpreted, co-ordinated and counteracted. As Behan (2) puts it, "We may be said to have three states of sensory mental activities, namely, pain, indifference and pleasure."

Another difficulty is to define pain. It is a symptom but

*) Voordracht gehouden in de Ver. v. Ned. Tandartsen April 1928.

how induced and by what force is difficult enough, perhaps, for a special pathologist and neurologist to describe. It is acknowledged to be a symptom of a protective character. Certain symptoms or sensations are in some cases pleasurable, but if they are pushed too far as, say, in pressure they may become painful. An embrace may be pleasurable, a vigorous hug otherwise. Whilst pain and pleasure appear to be the antithesis of one another they cannot be said to correct one another. (2) "Pain is distinctly a mental interpretation, and cannot be strictly defined. It is the interpretation, of some abnormal and generally harmful process which is occurring in the organism. It cannot be classed as a sensation, but rather is the result of the perception and interpretation of sensation by the discussion of its antithesis, pleasure, since the two are intimately connected in their perception and in their interpretation. Both are the result of mental activity," (3) "Pain is the oldest defensive reaction, and potentially painful stimuli are the basis of all primitive reflexes."

Again pain is relative. For example, in one person perhaps owing to temperament, worry, fear, or to the lowering of general tone a very little cause may create a very severe reflex. In another who possesses perhaps more control a gross cause may appear to give relatively small external indication of its intensity. (Hurst 4)

"An individual may be unusually sensitive to pain owing to his inherited mental characteristics, or he may become so owing to exhaustion, insomnia, and sepsis, and the demoralisation which prolonged and excessive pain may induce."

How is one to know what degree of pain either of these types is suffering? Fortunately it is impossible for oneself to feel the pain or to practically visualise it. If you have had severe pain you may have a standard of your own and be more able to assess it. For those who have never had pain it is impossible.

Greater pain may make one unconscious of a lesser pain.

Pleasant environment or intense occupation may also for a time render one partially unconscious to pain. Further it would appear that those who suffer a great deal of pain are in time able to stand a greater degree of pain, and such people may only give way to external evidence of it when it ascends above their bearable average. (Hurst 4) "It is a matter of common experience that pain is increased by attention and diminished by inattention. In all probability individual variations in sensibility to pain depend largely upon the varying ease with which the attention can be diverted by an effort of will from the seat of pain."

There is no standard from which we can measure its degree even if one has suffered pain oneself. Apart, therefore from the knowledge we gain and that through experience from the symptoms described by the patient, the location of the pain, the area in which the pain may be referred, the type of pain, one cannot otherwise assess the degree. If, for example, one patient may state that he is suffering pain, in fact, he need hardly say so for he is giving very definite external evidence by the shedding of tears, moaning or screaming or flushing, sweating or muscular spasms for fear of being touched, paroxysmal reflexes and yet on examination the cause of it may appear to be very slight. On the other hand another patient may state that he is in excruciating pain but of which he is holding himself in control and be giving very little evidence that he is really suffering. One point I wish particularly to express and impress is that, if a patient complains of pain, do not dismiss the complaint lightly even when after examination little or no evidence of its origin can be found. This point is stressed by many writers. For example Behan (2) states, "While in many cases a patient may seem to be complaining of a pain in order that he may arouse the sympathy of those interested, we, as examining physicians, should not conclude because we are unable to find an organic basis for the pain that it does not exist. The diagnosis of hysterical pain is often but a cloak under which the physician

hides his ignorance. When we consider that the nervous system is of considerable volume and weighs about six pounds, and that it is subject to the same variations of nutrition and change as are the other tissues of the body, it is easy to appreciate how it may be subject to the vicissitudes of the other tissues, and therefore subject to irritation and fatigue, the same as are these tissues." Behan submits the following schematic illustration showing how the various sensations are transmitted, received, interpreted and recorded.

Behan's Scheme.

The following diagram exemplifies the meaning of this:

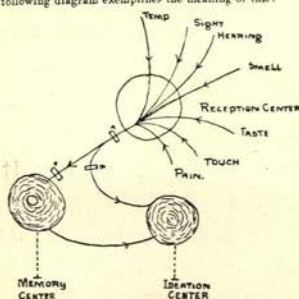


FIG. 3.—SCHEMATIC ILLUSTRATION, SHOWING HOW THE VARIOUS SENSATIONS ARE TRANSMITTED FROM THE PERIPHERY TO THE BRAIN CORTIX AND FROM THENCE TO THE TWO BRAIN CENTERS.
 (1) The idention center where the different perceptions are correlated into thoughts and ideas (objective sensation), and (2) the memory center, where the separate perceptions are stored until again they are called into consciousness. A block at a would occlude all sensory perception of stimuli and the memory storage of the same. A block at b would occlude the transmission of present acting sensory stimuli, so that they would not be perceived in consciousness. However, the center still receives impulses from the memory center, which it may evolve into consciousness, where they are perceived as acting in the present (subjective sensation). If the path to the memory center is destroyed, all recollections of prior sensations are lost, and the idention center, owing to lack of comparison with previous sensations, would be unable to correctly interpret the ones it then receives and may interpret cold as heat, or touch as pain, etc. (paresthesia).

Fig. 1.

To my students I prefer, perhaps wrongly, to use the simile of the modern telephone system, not so much perhaps unlike Behan's comparing the brain to the central office or depot where the various signals are noted, correlated or co-ordinated and in consequence the means adopted to correct them if they are harmful. The various wires pass to the central indicator, or if there is a large area covered, through sub-stations which

may be compared to ganglia, to the particular area and then to the individual telephone number. Supposing the telephone to represent a tooth, and the patient says, 'I have pain in this or that tooth', and on examination no lesion is found and no cause, still it does not alter the fact that the particular communication in the central office is recording the signal from that one tooth. If on the telephone a certain individual number or indicator keeps ringing the central office assumes that it is that particular number that is ringing and causing the disturbance, and yet perhaps on enquiry finds that that particular individual is not calling or ringing. Something has happened on the line and the indicator still responds and unless the fault is removed or the cause when known accounted for, the central office will still assume that it is that individual number calling, or it may be that the indicator in the central office is out of order. Using this analogy with regard to the body and its nerve supply if one can find the organic lesion at the point indicated and correct it, then all is well, or, at any rate, it is more satisfactory to the patient. If, on the other hand, it happens to be in the brain or central system then the matter is more serious. When no organic disturbance is found it is very little satisfaction to the patient to be told that there is nothing organically wrong, and that the patient must therefore be imagining the occurrence of pain, for as far as the patient is concerned if the brain records the symptoms of pain it is just as real to them either way. From the clinician's point of view, if he can discover the cause either at the point indicated or along the line of communication, it is much more favourable. Both need to be relieved. It is of no use the clinician assuming because he cannot find an organic lesion that there is no pain and suggest that the patient is neurasthenic, neurotic or hysterical.

(Behan 2) "Hysteria probably includes the largest number of subjective pains. It is only recently that hysteria has been recognised as an entity, and as a disease worthy of the most painstaking attention. Heretofore, when a patient complained

of pain, and no objective lesion was found, he was dismissed with the diagnosis of hysteria; but this did not always prevent death from the disease with which he was suffering."

"That some change which accounts for the pain is present in hysteria cannot be doubted; and that the pains of hysteria are imaginary and have no basis is ridiculous."

(Hurst 4) "Hysterical pain is a very real thing, and cannot be distinguished from pain caused by organic disease by its character, or by the absence of associated sympathetic phenomena."

A noted judge in England in a quasi humorous vein remarked in a case, "That neurasthenia was a term invented by medical men to cover their ignorance and mistify their patients."

The patient records pain and however remote and difficult to diagnose if we fail to do so we must not blame the patient but rather take the view that great as our knowledge may be we are still ignorant and unable to ascertain the cause. If the patient records pain our first duty is to believe him, and even if we cannot discover the origin of it, treat the patient with sympathy, for it is astonishing at times what an amount of pain may be caused through very slight organic disturbance. Give the patient the benefit of the doubt.

Another point that has to be remembered is that (Hurst 4) "Painful impulses to the brain may persist after the primary cause of pain has been removed. The persistent pain is hysterical, being suggested by the original pain, and being curable by psychotherapy."

My experience, limited as it is, is confined to the clinical aspect of pain.

Now I do not know the dental conditions as applied to Holland, whether the Dutch suffer more or less from dental lesions than the British, I, therefore, trust that you will forgive me when I relate conditions as applied in my case to the experience gained in dental practice in England.

First and foremost there is little doubt that all pains asso-

ciated with the head seem to be more painful and more trying than those affecting other parts of the body. It is a question whether earache, toothache or severe headache are the more terrible. Pain associated with nerves confined in bony canals or surrounded by hard tissue as in the pulp of the tooth appears more intense than that connected with nerves in soft tissue. With an arm or a leg it seems possible to place it in a position of rest, or ease it, but with the head whatever movement is made the pain is carried with it. With the ordinary pain in connection with teeth you are all familiar and I need not dilate. It would appear to me that the pains in connection with affections of the pulp of a tooth are most severe and most paroxysmal owing to the fact that the tissues are confined in an absolutely unyielding box. The pains are very frequently referred, in fact unless by the repetition of occurring indications, the patient is frequently unaware of the particular tooth or pulp which is involved. My experience is that there is very little, if any, sense of location in the nerve supply to the pulp, nor would it appear to need any sense of location as in health it is thoroughly protected by hard tissues, and on its exposed side by the hardest tissue in the body, namely enamel. In anterior teeth patients appear to more readily locate pain than in posterior teeth. If there is no break in the continuity of the crown, of which the patient is aware, I doubt whether he could tell which tooth it was from bicuspid to molar till he becomes conscious by feeling a break in the continuity in the crown or the fact that food collects in the area causing pain and its removal eases the pain. Very frequently he is unable to distinguish between the anterior or posterior teeth in the maxilla or mandible, and very frequently he is unable to distinguish its occurrence in either jaw.

If when operating it appeared to me that through fear of pain the patient's reflexes appeared to be assumed or exaggerated I not infrequently to test the patient would place the bur on another tooth without giving the patient any external evidence of the tooth I was touching, and in most such cases

the response would be the same. On the other hand if I was working for a patient with more control and who disguised his responses I noted the pupil and in all cases, stoical as the patient may be if there was pain he was unable to control its contraction.

(Harris 5) "Dental neuralgia is one of the commonest and most painful forms. Exposed dentine is a common cause and may give rise to pain so fierce that it has been mistaken for trigeminal neuralgia."

It is very consoling and helpful in diagnosing to know that a dental neuralgia never crosses to the opposite side.

(Behan 2)

TEETH — "Sometimes, in cases of toothache, the aching may be due to hyperesthesia, a common accompaniment of pregnancy. Ordinary toothache is due to an irritation of one of the branches of the trigeminus by products of dental caries. At first the pain is more or less localised to the point of origin but it gradually may become so accentuated that a general neuralgia results, and the entire side of the face may become affected. This may increase until the entire side of the head and neck is tender and painful. This extension can be explained by the rich collateral association of the trigeminus with the cervical nerves. Because of this close relationship it is easy to understand how an excessive stimulation of one nerve can produce reactions in adjacent nerves. In some cases, after the extraction of teeth, pain may persist for several days.

"The most sensitive part of a tooth is the pulp and the agents causing the greatest reaction are heat and cold. Head claims that, until the pulp is involved, the pain remains local, but as soon as it is affected the local is changed into referred pain

The referred pain from involvement of the pulp cavity. It seems that each tooth has a separate area of pain reference; for instance

<i>Tooth</i>	<i>Referred Area.</i>
<i>Upper Jaw</i>	
(1) Incisors	Frontonasal region
(2) Canine	Nasolabial region
(3) First bicuspid	Nasolabial region
(4) Second bicuspid	Temporal or maxillary
(5) First Molar	Maxillary region
(6) Second Molar	Mandibular region
(7) Third Molar	Mandibular region
<i>Lower Jaw.</i>	
(8) Incisors	Mental
(9) Canine	Mental
(10) Bicuspid	Mental
(11) Second bicuspid	Hyoid or mental
(12) First Molars	Hyoid also in in ear and
(13) Second Molars	just behind the angle of
	jaw. The tip of the tongue
	on the same side is also
	tender.
(14)	Superior laryngeal area."

Not infrequently the patient complains of pain and the symptoms given are those associated definitely with a live pulp, but when asked to indicate the tooth he points to a very large cavity, in a tooth which is pulpless, of which he is conscious, or to some roots of a broken down tooth, neither of which could possibly give rise to the symptoms. The patient is unaware of a tooth in which there is a large interstitial cavity because there has been no break through the crown, but in which there is a cavity of such an extent as to involve the pulp and in order to prove that he is wrong and to convince him of its origin one has had to cause pain in the live tooth.

On the other hand pain arising from the periodontal membrane or the gingiva is readily located by the patient. There is a definite sense of location in the periodontal membrane

and essentially so for this is the protective measure against overstrain or too great force in mastication on the tooth. Take the finest tooth powder made or one which feels perfectly smooth to the finger and place a little between the incisor teeth. The presence of grit will be very readily felt and magnified. Without the sense of touch and location to distinguish hardness damage to the teeth might occur, so that the sense in both cases is a protective measure, in one case to preserve the vitality of the tooth and in the other to prevent its fracture or destruction. Whilst the periodontal membrane gives rise to definite local symptoms, it, more than is supposed, may give rise to very definite reflexes but limited to the same side of the head.

Some years ago a relative of one of my students consulted me in reference to acute paroxysmal spasms of pain, muscular reflexes on the right side of the face from which he had suffered for a long period. He had a most distressed and frightened appearance and even whilst describing his symptoms had several terrifying spasms. These appeared to be induced in articulating certain words which brought the cheek in hard contact with the alveolus. Ultimately I was able to induce cries from the patient and spasm by touching even lightly a point on the inside of the cheek. He was wearing complete dentures, all teeth extracted except the roots of the upper incisors and canines which were filled and appeared fairly healthy. As in my opinion they were a menace to health and ought not to be removed I doubted if their removal would ease his condition. They were extracted and to our united delight the paroxysms ceased.

The gingiva or gums are sensitive to touch, but unless pressure becomes great and of such a character as to damage it, it is not painful in health. When inflamed it is extremely painful, and the pain in such a case is, I submit, a protective measure to prevent the use of that portion and to allow of its physiological rest and recovery.

The types of cases I want particularly to illustrate are those

in which reflexes are pronounced, but in which the cause is obscure.

IMPACTED TEETH. — For some years I have held classes during the last four or five months before the students take their final examination in order to teach the means of diagnosing and to discuss the treatment thereby indicated. After listening to the patient's history and symptoms, if he comes with pain, and from these symptoms broadly determining as to whether the pain arises from the pulp or periodontal membrane or surrounding soft tissue, and after the patient has indicated the point or area affected, the age is ascertained and the student is then asked to state what would be the normal conditions as regards dentition he would expect to find at that particular age, so that when the mouth is opened for the patient to indicate the particular tooth or area affected the student may then examine the mouth and compare it with the normal at that particular age. He is then asked to indicate the more or less common variations in particular with regard to the number of teeth which might be present, and I have been tremendously struck with the vast number of cases in which the third molars are implicated as hidden sources of pain from the age of fifteen even to old age and edentulous cases, followed next by the pre-molars, particularly the lowers and afterwards by canines.

SLIDES.

- No. 2. History of pain in second molar but due to impacted third.
- No. 3. Exaggerated pain said to be arising from second molar roots, due to impacted third molar — note position.
- No. 4. Dito.
- No. 5. Impacted upper canine not clinically observable causing exaggerated pain in the lateral and central.



Fig. 2.



Fig. 3.



Fig. 4.

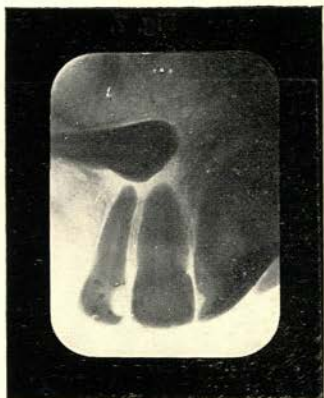


Fig. 5.



Fig. 6.



Fig. 7.

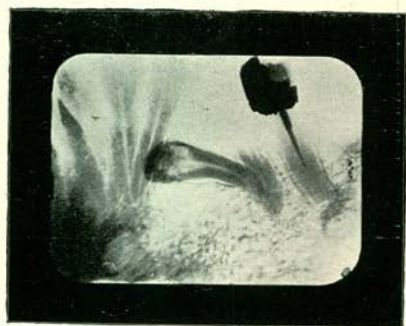


Fig. 8.

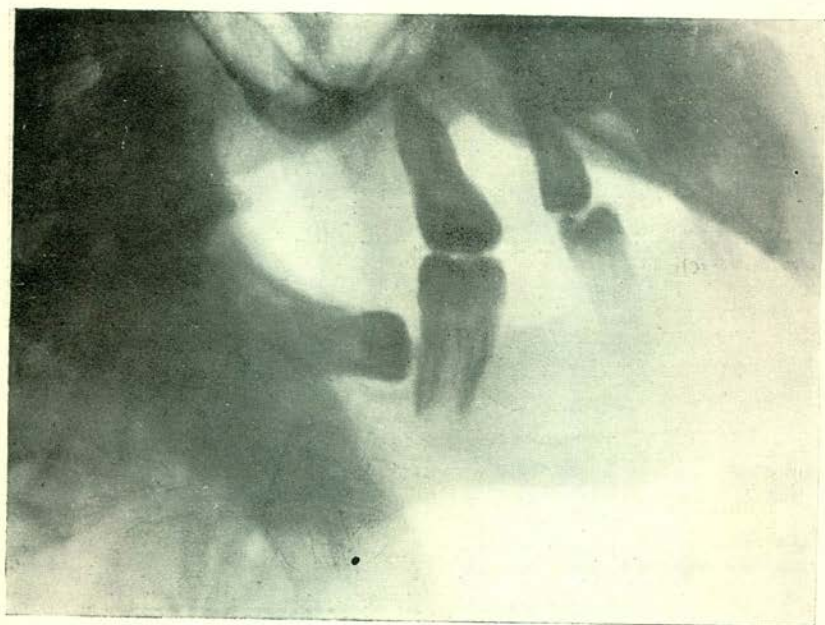


Fig. 9.

- No. 6. Ditto, including bicuspid.
- No. 7. Upper canine impacted in the palate, directed backwards.
- No. 8. Canine, lower, impacted causing exaggerated pain in premolar.
- No. 9. Impacted third molar.

Presence of unerupted teeth in edentulous or nearly edentulous cases.

Some years ago when in practice an Irishman consulted me, and with his droll humour asked if I could make him a denture which he could wear, and immediately produced out of his pocket some seven or eight dentures which he had had made for him. The prognosis was not encouraging. All his teeth were missing except the two upper central incisors. These were very much elongated and I extracted them with a view to making a complete denture and getting better adhesion. Dentures were made and he said they were very comfortable, remaining so for some time. Then he complained of much pain on the right side and the denture was eventually eased to such an extent that it became useless, and I had to refuse to cut away any more, and he went back to the same state of discomfort. There was nothing evident. Some months after he suggested that he had cancer and on examining the spot with a probe (radiographs in those days were practically unknown) I discovered an unerupted canine trying to erupt. At this stage he did not want it extracted. Ultimately a cavity arose and pain occurred in the tooth itself and it was extracted in a horizontal direction. After extraction the pain ceased, the dentures were modified and there was no further trouble. Much about the same period a lady was wearing full dentures. She had very similar symptoms of pain, nothing evident. Later on I discovered that she also had an unerupted canine. This was removed and she has worn her dentures for many years since.

SLIDES. *Edentulous Cases.*

- No. 10. Impacted 2 upper molars.
 No. 11. Impacted lower premolars.
 No. 12. Two impacted lower premolars.
 No. 13. Unerupted upper canine.
 No. 14. „ both canines.

GALVANIC or ELECTRIC.

Another source of pain not generally recognised in that arising out of galvanic action by the use of different metals or amalgams in one tooth and consequent disturbance of the pulp. The galvanic action between different metals in contiguous teeth and under certain circumstances when in contact with other fillings in opposing jaw, with metal dentures and even the introduction of a metal such as a spoon, or, in fact, a dental mirror. I find the modern types of amalgam fillings containing zinc are more prone to give rise to galvanic action.

My first attention to the possibilities of severe pain arising between different metals in the mouth I had in Bordeaux many years ago. The patient had a shell gold crown in the second upper premolar and I inserted an amalgam filling in a mesial interstitial cavity in the first molar. When trimming the latter the patient surprised me by starting and jumping up in the chair. I was at a loss to explain this as neither pulps were involved. Ultimately I found I could create the spasm at will by connecting the crown and filling with a plated spatula. The case was relieved by inserting a thin layer of varnished paper between the two.

Having had several of these experiences between two different types of amalgam fillings I requested Dr. Brislee to ascertain its possibilities and by experiment he found that an electric current up to half a volt or even more could be generated.

On one occasion I inserted for a patient an amalgam filling in the mesial surface of a second upper molar, the first molar and second bicuspid were missing. Some time after he tele-

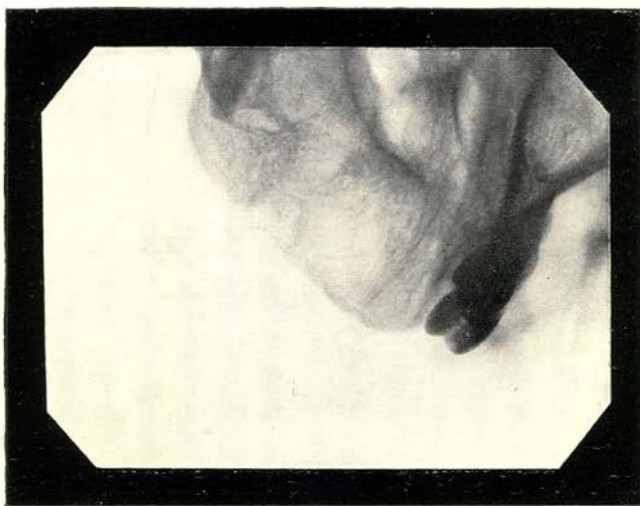


Fig. 10.



Fig. 11.



Fig. 12.



Fig. 13.



Fig. 14.

phoned to say that the filling had come out because he had had pain in the tooth. When he attended I found, as I expected, the filling was 'in situ', no change. He explained that the pain came on when he had soup. I tried heat and cold without result. After further questioning I discovered that he introduced the spoon so far back as to bring it into contact with the filling, and an electric shock resulted. This I could also cause by touching the filling with the back of the dental mirror. Patient advised not to introduce the spoon so far into the mouth — no recurrence.

Female aged about 40. This patient desired a partial upper denture. For the impression a cast metal tray and comp. were prepared. On its introduction the patient was thrown into a violent spasm of pain reflected to the base of the spine. My demonstrator unable to find any cause brought her to me. I found she had a fair number of filled teeth, upper and lower, some anteriorly (gold) rather large. Heat and cold were tried, in these nothing abnormal resulted. I then made metallic contact with a plated instrument between various fillings and eventually connected an amalgam filling (crown) in a lower molar with a gold filling in the centre of an upper molar. Immediately the patient cried out, arched back her body and gripped her hips. The spasm lasted for some minutes. I had the fillings removed and gutta percha inserted, and later filled with cement. The pain did not recur nor could I induce it. Both fillings were comparatively small, the lower amalgam, the upper gold inserted over an old copper amalgam. This latter combination I think mainly accounted for the exaggerated pain and spasms.

PULP STONES.

I have been particularly struck by the number of pulp stones one sees in examining films. The majority appear to cause no pain—they are always suspicious. On the other hand they have been the cause of much referred pain which has been relieved by devitalising the pulp and the removal of calcified content.

ANTRUM OF HIGHMORE.

Gross affections of the antrum give referred pain in the posterior teeth on the affected side. But I have remarked that even very slight disturbance (hyperaemia) ignored by the medical man will give rise to severe toothache. This is hardly to be wondered at when one so often discovers in films the low level of the floor of the antrum in relation to the teeth and in which the nerves supplying the teeth are situated.

SLIDES.

No. 15. Note floor of antrum.

No. 16. Very low — note between the molars and premolars.

No. 17. Cyst invading the antrum.

No. 18. Root in antrum. History of obscure pain, attributed to second molar. Only sign slight discharge from pocket by the molar (Collinge).

TEMPORO-MANDIBULAR JOINT. — Following multiple extractions with consequent loss of the normal occlusal plane I have had many cases of acute reflex pains in the ear and in the head. Sometimes the patient suggests even fracture or dislocation has occurred. This I have frequently found to be due to pressure on the back portion of the glenoid cavity and the stretching of ligament, and remedied by restoring the occlusal plane by dentures.

Another source of obscure pain is to be found arising from unevenly absorbed bone leaving ragged edges of either compact bone or softened areas, ultimately relieved by reflecting periosteum and paring the bone.

Slides 19 and 20.

It is astonishing what an amount of pain over long periods may arise from minute spiculi of fractured roots almost invisible even in film.

The possibility of the inclusion of small fractured portions



Fig. 15.

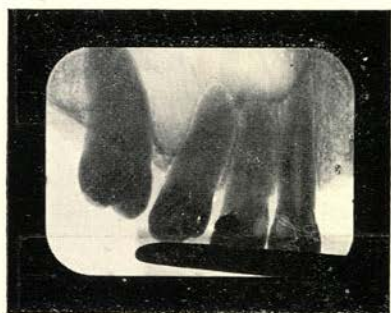


Fig. 16.



Fig. 17.

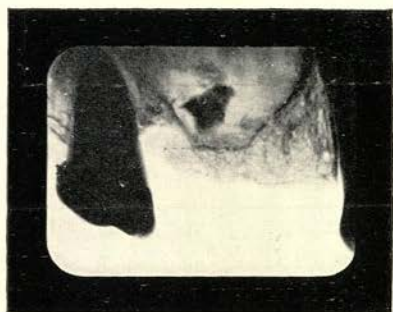


Fig. 18.

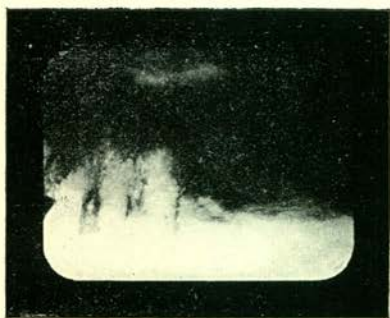


Fig. 19.



Fig. 20.



Fig. 21.



Fig. 22.

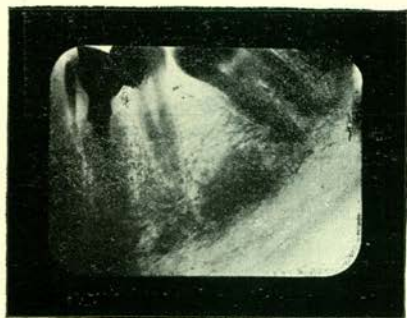


Fig. 23.

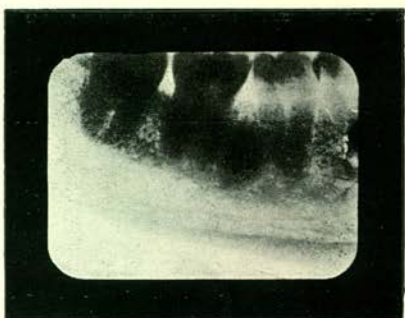


Fig. 24.

of fillings becoming involved during extraction in the socket of a tooth, particularly in the mandible, must not be overlooked.

Slide 21.

This patient complained of neuralgia during a long period. Ultimately cured by the removal of the infinitesimal root marked.

CYST — *Edentulous Case.* Woman aged about 48, upper jaw edentulous. Complained of pain of a neuralgic character affecting the whole of the left maxilla during a long period. Clinical examination revealed nothing. Ultimately radiographed and cyst revealed as shown.

Slide 22.

TISSUE.

Slide 23. O Male aged 29. Complained of pain in right side of mandible. Consulted several medical men. Symptoms vague, with pain in the mental region. Had an idea he was developing cancer. Medical men were of the opinion that it was all imagination as there was nothing revealed by examination. Case came under the notice of the Radiographer (Mr. Roberts) The part was radiographed and the condition as shown in the film was discovered. (note contact points).

Slide 24. (Mr. McNaught's Case)

Mrs. H. aged 29 years. Presented herself complaining of acute neuralgic pains on left side. Teeth present $\overline{4. 5. 7. 8}$. Small cavities in $\overline{8}$ and $\overline{4}$, not sufficient to give rise to such an acute condition. Lost weight rapidly due to pain. Radiographs disclosed a calcified body lying between 5 and 7. After removal of this body pain cured. Sections of this tissue revealed enamel, dentine and well marked cementum.

I expect you will have noted that I have only illustrated cases suggesting neuralgia of dental origin. I am pleased to say that it has been my good fortune not to have had many

cases of true neuralgia (major) and as the subject is too big I have not referred to it. In such cases I have done my best to examine for dental origin and if not found they have been referred to the medical practitioner.

I have noted, however, that the extraction of teeth is too readily resorted to in most cases with no relief and with rather added discomfort to the patient.

(Behan 2).

"Central trigeminus pain (tic douloureux), either from involvement of the ganglion itself or its internal roots, or as a result of pressure (cerebello-pontine angle, tumour, neuroma), often leads to a faulty diagnosis of teeth pains. Many patients suffer the loss of one tooth after another in the vain search for the affected one. After the sacrifice of the teeth the dentist or physician wakes up to the fact that the disorder is central, and that a great mistake has been made."

Further I have not exhibited any slides showing exostosis of the roots of teeth. They are exceedingly common and are well known to be the source of neuralgia or referred pain.

Absorption of the roots is less common and the pain in such cases is more acute.

Rarefied areas round the roots are again exceedingly common and well known to be both a menace to health and to give rise to referred pain.

In practice I never refused to immediately treat a patient in pain and always encouraged patients when they had pain to obtain relief if possible at the earliest moment for if relief is to be obtained why suffer a moment too long or why delay for matters to become more difficult to treat. I had less sympathy with a patient if for example he had had curable pain for about three months and expected to be cured in about three minutes.

If it were not for the symptom of pain or the fear of it occurring when the teeth and associated parts are damaged the dentist would have a lean time, and whilst I do not wish to be unkind I think it is a pity pain does not occur immediately

caries commences. If it did patients would consult earlier and more teeth and pulps be thereby saved.

In conclusion may I sum up by remarking that the subject of my paper is one with which we are all familiar and its elimination calls forth our highest endeavour.

The relief of pain is a most humane calling and when successfully accomplished most gratifying to the clinician and certainly most pleasurable acceptable to the patient. In order, however, to bring it about the cause must be diagnosed. Here lies the difficulty.

What a dreadful world it seems when in a state of intense pain! What an extraordinary change in one's outlook when it ceases!

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