

**Anatomy.** — *Opposite developmental tendencies in human denture. Third Communication: Tuberculum paramolare, mesiobuccal edge-prominency or both of them.* By TH. E. DE JONGE. (Communicated by Prof. M. W. WOERDEMAN.)

(Communicated at the meeting of November 29, 1947.)

*Introduction.*

After having read our *First Communication* on this subject<sup>1)</sup> our colleague BLANKEVOORT was so kind as to place the plaster cast of the lower jaw, discussed by us, at our disposal, in the buccal interstice of which another paramolar II was situated between the second and third right molars, which was extracted by him afterwards (c.f. picture in this and in our first communication).

On that account we claim — be it under quite another aspect — once more the attention, in the following, for the case, that constituted point de départ of our speculations under the title of "*Multiple hyperodontia in upper and lower jaw*" in our first communication. In the present communication we might as well speak of a "missing link".

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The occurrence of superfluous elements, laterally off the row of the molars — either in the shape of free paramolars or of tubercula paramolaria, fused with the molars — was already known by the elder anatomists (e.g. ZUCKERKANDL (I)). BOLK, however, was the first to describe and explain them in their systematic connection.

As typical localization of the paramolars, alternating with the row of normal molars, he described the vestibular interstice between first and second molar (*paramolar I*), resp. second and third molar (*paramolar II*); the tubercula paramolaria, identic with these paramolars, turned out to be linked up, as a rule, with the mesiobuccal crown-cusp of second resp. third molar, as regards their localization and they were somewhat distally displaced. As superfluous elements they no more constitute an essential component of the well-known cusp-pattern of the permanent molars than e.g. the tuberculum Carabelli does: when ignoring them, a normal relief of the occlusal surface remains!

BOLK explained them as being rudiments of a third and fourth deciduous molar, that had got lost<sup>2)</sup>.

The fact that he did not find even one single case where the paramolar had been implanted in the buccal interstice between second premolar and first molar, neither in his exceedingly rich material of skulls, nor in casuistic literature, — the same holds good for the tuberculum paramolare

mutatis mutandis — reveals the lactal character, already accepted by him before, of our first permanent molar<sup>3)</sup>.

Shortly afterwards GREVE (IV) not being aware as yet of BOLK's researches on this subject — and undoubtedly this increases the objectivity of his observations — differentiated in the superfluous buccal crown-cusps between two forms, in a brief casuistic communication, that remained almost unnoted in odontologic literature. Of his speculations, pertaining to two molars of the lower jaw a.o. we quote the passage, that is of most interest for our exposition: "The two other cases both concern a lower second molar, one of which being a right one and the other a left one. Not the same holds good for their shape that holds good for the upper ones, but one right additional tuberculum conveys obviously the impression of having arisen by division resp. splitting from the mesio-buccal cusp of the tooth. Both parts are separated by a groove, distal end of which opens into the buccal side-groove. *If one were to resect the outer part, the entire tooth would not have the well-known rectangular shape of the lower second molars anymore*<sup>4)</sup>. The left lower molar, on the contrary, has exactly the same shape, the upper one has. The tuberculum looks entirely like the tuberculum Carabelli *and if it should be removed, the tooth would not be different in any respect from a normally shaped second lower molar*<sup>5)</sup>).

The picture of the unquestionable difference in appearance in the occurrence of the buccal tubercula faces us with the question as to the meaning of these facts<sup>4)</sup>."

Referring to a number of examples we were able to demonstrate that in the lower molars we should definitely distinguish between the paramolar tubercles proper and those edge-tubercles that originate in the formation of grooves on the buccal surface of the mesiobuccal crown-cusp and which we have designated on that account as *mesio-buccal edge-prominencies*.

For further particulars we refer to our publications on that subject (V and VI), we wish to stress however, that the manifestation of this edge-prominency in the first lower molar may undoubtedly be regarded as one of the very greatest rarities; this is not absolutely true anymore of its distal synergist. In the third molar on the contrary the presence of the anterolateral prominency constitutes a phenomenon coming fairly near to the limits of a normal variability. It is evident therefore that, besides differentiation into a tubercle of a clearly defined individuality, we shall find transition forms in many variegation.

A systematic description of these would lie beyond the scope of this communication. Therefore we will only stress two peculiarities: In normal development of the prominency the groove that is separating it from the

<sup>3)</sup> We are well aware that without some further explanation this thesis is no doubt debatable. Nevertheless it would carry us too far to go into it further here.

<sup>4)</sup> The italics are ours.

<sup>5)</sup> l.c. pag. 394—395.

<sup>1)</sup> Proc. Ned. Akad. v. Wetensch., Amsterdam, Vol. XLIX, No. 7 (1946).

<sup>2)</sup> The distomolar resp. tuberculum distomolare likewise described by BOLK in this connection, are left out of the question in this communication.

mesio Buccal cusp proper, forms from basally to occlusally "a line that is convex at first and concave afterwards and ends near the mesial surface" [JANZER (VII),] <sup>6)</sup>: like this we once described in the oral crown-cusps of the molars of the lower jaw the outlines of their occlusal edges (VIII) <sup>7)</sup>.

On the other hand its developmental tendency may prove so weak, that only a foramen coecum in the centre of the buccal surface of the anterior cusp marks the line of separation between mesio Buccal edge-prominency and the homonymous crown-cusp: it is this very foramen that we do not infrequently come across on the third molar!

For the sake of completeness we may add, that identical differences are to be observed in the formation of the roots of the lower molars. Summarizing these we may state that we know the radix paramolaris, occurring besides the vestibular aspect of the real mesial root — however, the buccal segment of the mesial root itself may gradually free itself and grow into an independent element, a mesio Buccal root, *which has nothing in common with the real radix paramolaris, however, but, at most, its corresponding mesio Buccal localization.*

In view of his own researches our co-operator VISSER (IX) was able to confirm our findings to this effect, afterwards.

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In the foregoing we have briefly formulated our point of view with regard to the tuberculum paramolare as well as to the mesio-buccal edge-prominency and we are granted a really unique confirmation of our conception by the structure of the denture for more extensive description of which we refer to our *First Communication* on this subject (X).

The site of the paramolar (*Pa II inf. dext.*) claims the attention for two reasons. Firstly because its buccal crown-cusp, although situated slightly outside of the curve of the upper molars when the rows of the teeth are occluded, nevertheless articulates with the two analogous cusps of the third upper molar in an exact interdigitation.

Moreover the second and third lower molars on the right are characterized by an, assumedly, consecutive lingual displacement: for on the left, where no paramolar has developed, the relation of lower molars with their antagonists proves to be entirely normal — at least in this respect <sup>8)</sup>.

When premising that tuberculum paramolare and anterolateral edge-prominency have nothing to do with each other from genetical point of view, there must exist a possibility of both occurring together in one denture. On the other hand, when buccally from the edge-prominency a paramolar has forced its way, either in the shape of a free paramolar or

<sup>6)</sup> Op. cit. page 411, last paragraph.

<sup>7)</sup> Op. cit. page 57, fig. 47 and 48.

<sup>8)</sup> In our *First Communication* we stated already, that in upper and lower jaw the first molar was not present anymore.

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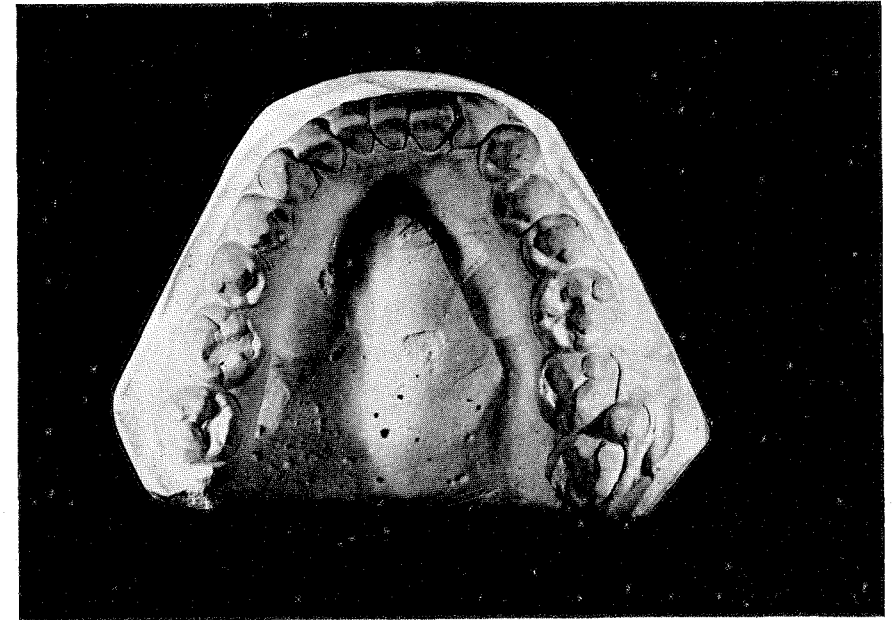


Fig. 1.

as a tuberculum, then at one stroke the truth of the premise is above all doubt!

One should bear in mind that both paramolar and mesiobuccal edge-tuberculum fall, from teratologic point of view, into the category of rarely occurring dysmorphoses of human denture. In our case, however, for detailed structure of which we refer to the picture, the bilaterally-symmetrical development of mesio-buccal edge-prominency of the right molars is associated with that of a free paramolar II.

Thus the truth of our conception, that paramolar and mesio-buccal edge-prominency have a very individual and different character, not only from anatomical but especially from genetical point of view, is confirmed in an irrefutable way, quod erat demonstrandum.

Finally the objections raised by ADLOFF (XI) to our speculations, are, in our opinion, conclusively refuted here.

#### *Samenvatting.*

Aan de hand van eene uitzonderlijk zeldzame gebitformatie wordt het genetisch en morphologisch geheel verschillend karakter van paramolaris en mesiobuccale randprominentie in het licht gesteld.

#### *Résumé.*

On démontre à l'aide d'une formation de denture extraordinairement rare le caractère génétiquement et morphologiquement tout à fait différent d'une paramolaire et de la prominence latérale mesiobuccale.

#### *Zusammenfassung.*

Mittels einer überaus seltenen Gebissformation wird der genetisch und morphologisch ganz verschiedene Charakter des paramolaris und der mesiobuccalen Randprominenz erklärt.

#### *Summary.*

In connection with an exceptionally rare teeth-formation the genetically and morphologically entirely different character of paramolar and mesio-buccal edge-prominency is shown.

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Neurology. — *Carcinoma ovarii and cerebellar degeneration*. By B. BROUWER and F. G. SCHLESINGER. (From the neurological clinic and laboratory of the Wilhelmina Hospital and the Dutch Central institute for Brain Research at Amsterdam.)

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In 1919 one of us (B.) described the histopathological findings in a case of progressive diffuse cerebellar degeneration, which was combined with a sarcoma in the pelvis. The alterations were limited to the cerebellar cortex in which the Purkinje cells were selectively destroyed. The cells in the cerebellar nuclei were normal but the surrounding fibres, originating in the Purkinje cells, showed secondary degeneration. The pons Varoli, the inferior olives and the nuclei laterales medullae oblongatae were normal. The degeneration of the Purkinje cells was considered to be the consequence of a toxic influence from the sarcoma. In 1935 Dr. M. KENNARD described from our neurological laboratory a similar case of pure cerebellar degeneration in a woman who had suffered from a carcinoma of the ovarium. She also assumed this cerebellar degeneration to be the consequence of the malign tumour. In their report on the parenchymatous affections of the cerebellum BROUWER and BIEMOND mentioned 4 other similar observations from the literature and united these cases in a special group of cerebellar toxicosis, which they opposed to the cerebellar degenerations of MARIE, FOIX and ALAJOUANINE. In the first group the alterations are diffuse, in the second they are localised. In both groups an endogenous factor (abiotrophy) had to be assumed. In the following pages we report on a new case of cerebellar toxicosis.

On the first of May 1944 Mrs. T., aged 51, was admitted at the psychiatric-neurological clinic of the Wilhelmina Gasthuis (Director Prof. Dr. K. H. BOUMAN) with psychical disturbances, vomiting and difficulty in walking. She had complaints since six weeks, after having lived in heavily bombed cities in Germany. She had never been ill before and belonged to a healthy family. In the clinic the psychical disturbances disappeared after some time, but several symptoms of a severe affection of the central nervous system were found. Dysarthria, nystagmus horizontalis and verticalis, general ataxia were present. The tendonreflexes were normal and the optic nerves did not show alterations. The lumbar puncture showed a normal pressure of the spinal fluid, but an increase of protein in the spinal fluid. A process in the posterior fossa was suspected. After consultation with the neurosurgeon Dr. C. H. LENSHOEK the patient was brought to the neurological clinic (3 July 1944). Here also many symptoms of cerebellar disorder were found (dysarthria, ataxia, dysmetria, dysdiadochokinesis, nystagmus, hypotonia). Again the pressure of the spinal fluid was normal, but the reactions of NONNE and PANDY were positive. The colloidal reaction of LANGE was 444333100 and the mastix reaction