THE SEPTUM NARIUM IN ABORIGINES AND THE CAUSE OF DEVIATIONS OF THE SEPTUM IN GENERAL.

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It has always been my impression, and most likely that of others, that the septum of the nose in aborigines is usually straight and the deviations from the normal plane are the exception. This belief was based on the publications of many writers of former years. Thus Morell Mackenzie found amongst 438 specimens of *symmetrical* septa only 22.6 per cent belonging to Europeans; the others were Africans, aborigines of the American continent, of Polynesia, etc. This seems to speak strongly in favor of the above statement, so much the more so as Mackenzie himself had found in 2,152 other skulls which he examined not less than 1,657, or 76.9 per cent, with a more or less symmetric position of the septum narium. Zuckerkandl says that the ratio of symmetrical septa to asymmetrical ones is as 1 to 3. Among 370 crania of Europeans which he examined, he found the septum deviated 140 times, while in 103 crania of non-European races a deviation existed only 24 times. Although this material was not a large one, the difference between these two was so marked that Zuckerkandl became convinced that the symmetrical position of the nasal septum was much more frequent in non-European than in European races, or in other words, more common in aborigines than in highly cultivated races.

Later Bryson Delavan brought out further data which seemed to point "toward the fact that, among primitive types deformities are rare, while among types representing the highly civilized and luxurious they are of such common occurrence as to become almost the rule." Finally, to mention only one more observer, Paul Heyman of Berlin found among 250 nose patients, taken at random, not less than 241 with deviated septa. Such were the prevalent ideas on this question, and I had no reason to doubt them until I was led to examine the collection of skulls at the American Museum of Natural History in the City of New York. My findings I shall now give briefly:

The crania at my disposal came from aborigines from all over the American Continent, *i. e.*, from British Columbia down to

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Mexico, including Arizona, Colorado and Montana and south as far as Peru and Bolivia. Altogether 1,164 crania were examined by me up to the date of writing this paper. 350 had to be excluded, as in these the septum was either missing or its shape unrecognizable; or, as in some instances, the condition of the skull was such that without destroying part of it one could not decide whether the septum was straight or not. These skulls were not macerated. After excluding these 350 crania, there were left 814 which were available for our statistics. It happened that among the first fifty skulls examined there was hardly an asymmetrical septum, but during further investigations they appeared rapidly, so that the total number of deviated septa amounted to 264; or, in other words, more than one-third of the septa showed a pathological condition. There were all varieties and shapes of disfigured and distorted septa to be seen in this collection. The most numerous were deviations in the anterior part of the bony septum; next came those in the middle part, while a deflection extending to the choanal end was quite the exception. Deflections of the cartilaginous septum naturally could not be noticed, since it was only in a very few instances that this part was preserved. The "S" shaped deviations were seen quite often. Furthermore, there were noticed ecchondroses and exostoses of the septum, which I mention here as they seem to have some bearing on the nutrition of these parts. I also noticed septa that looked like the sail of a ship, and others in which the diagnosis of a fracture of the septum was beyond doubt.

We must conclude from these findings that symmetrical septa are not, as was formerly believed, the rule in primitive types, but that they occur in a considerable number of instances (in our statistics in more than $\frac{1}{3}$). Secondly, that all forms of distorted septa found in highly civilized people also exist in aborigines.

But all this does not bring us nearer to the solution of the question concerning etiology of these deviations. Different observers have "definitely settled" this question, only to have their views thrown overboard by others, and the problem is still far from being solved. Our first thought, naturally, is that deflections of the septum in these wild tribes was caused by traumatisms. This undoubtedly is the case in a goodly number of deviations of the cartilaginous and perhaps the anterior part of the bony septum. But it is difficult to believe, as has been stated before, that curvatures in the middle and posterior part of the septum could be of traumatic origin. That factor can also be eliminated in those cases in which the whole septum has the appearance more of the sail of a ship,

as Talbot called it, than that of a broken bone. We must, therefore, conclude that traumatism is not, in the majority of cases, the cause of deflected septa.

Nor can anyone affirm that the use of a handkerchief is a, or the, etiological factor in these wild tribes, as has been suggested to be the cause in civilized people. These races fortunately do not need a handkerchief yet.

The same holds good of a third theory, the high arched palate theory, the untenability of which was shown by Talbot of Chicago. This view as you know, was of late ventilated largely in the medical press and it was believed that in the growing child the high arched palate crowded in the septum. The latter thus had no space to expand in, and grew crooked. Plausible as this appears to be, it is absolutely wrong, and Talbot, who examined thousands of skulls and palates, brings evidence enough to prove the incorrectness of the theory that the high vaults and contracted arches have anything to do with deviations of the septum.

The most plausible explanation, and one which I have held for a long time, is that given by Chiari in his excellent text book¹ on "Diseases of the Upper Air Passages." Most human beings are asymmetrical. This asymmetry is naturally most evident where both halves of the body join together, as in the septum of the nose. On the side on which the growth is strongest, more tissue will develop and a slight convexity will take place. This convexity, according to Chiari, will increase more and more until deflection results. In practice, however, I must say we often see things differently. The septum in its most convex part is sometimes as thin, I might say, as paper. This thinness is seen in both nostrils. Now in these cases, I imagine, the deposition of tissue must have stopped at some period and a rarefying process set in on the concave side. The result is the thinness of the septum.

As to the cause of the rarefying process in these instances, it is hard to give an explanation. But I believe it is caused like the other condition, the increased tissue building by the various human customs. Thus we see one arm, or leg, or side of the chest more strongly developed than the other. Why should not one side of the nose, through increased activity and respiration, build up more tissue than the other? This is the only explanation I can find for the occurrence of curvatures of the septum in aborigines.

The proportion of deviated septa was about the same whether the skulls belonged to races living on the coast or dwelling in the valleys or on the mountains, and irrespective of the occupations (fish-

ing or hunting) and customs (living in the open air or in caves) of the aborigines. In the civilized man, whose customs have so greatly multiplied, we may reasonably expect more deviations from the normal, and so it is. Now, habits may change, and a child that at one time was left-handed may gradually develop the other side equally or more. And I should not be surprised if that is the reason for the occurrence of a rarefying process on one side. On the other hand, if habits are kept up for years, this deposition of tissue will continue, the septum will grow thicker and more deviated and those bony or cartilaginous growths that we see so often on the convex side of the septum will also appear. These exostoses or echondroses are surely due to the same process of increased tissue building in consequence of increased development of one side.

In conclusion, I would express the belief that these constitute the etiological factors of deviations of the septum in most cases, except of course those where a fracture had been sustained, and I hope that future investigations along these lines will verify this theory.

A Case of Chronic Gangrene of the Pharynx —MERCIER BELLEVUE—*Semaine Médicale*, Aug, 25, 1902.

The author reports a case of a woman, æt 40 years, who developed, after an attack of influenza, an ulceration of the left tonsil; the left pillar became infiltrated, and the tonsil was invaded by a sort of nodular infiltration. By raising the tonsil, it could be seen that the gangrenous process affected the whole gland. A bacteriological examination showed the presence of a bacillus similar to that of noma. The disease lasted two months, during which time the general condition of the patient was fairly satisfactory. The author believes that it was not a case of angina of Vincent, but one of simple chronic gangrene of the pharynx.

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