

## PRESENT AND FUTURE OF CHRONIC NASAL DISEASES IN JAPAN

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Chronic nasal diseases are the disorders which we otolaryngologists encounter most often in our daily performance of medical care in Japan.

The etiological factors or the mechanism of the development of chronic nasal diseases have not yet been described precisely.

Although it is generally agreed that infection or allergy could play significant parts in the development, it is not always that every case with infection or allergy of the nose that proceeds to chronic nasal disease. There must be other factors involved which might be as important as infection or allergy in the development of chronic nasal disease.

This paper proposes to present the results of our long term study on the morphological basis of the nasal and paranasal cavities which has been found to be in closely related to the development of chronic nasal disease. Comparative anatomy of the nasal septum indicates the different anatomical relations between the septal cartilage and the vomer in different animals. In the dog, fat tissue is interposed between the two structures, but this tissue cannot be seen in monkeys. In human we noticed that the edge of the vomer is partially absorbed due to impingement of the septal cartilage, and that the septum is deviated in many cases.

A comparison of the surface areas of the cartilaginous portion, of the median plate, and of the vomerine portion among different animals revealed that the cartilaginous portion in human has the least proportion of all.

We observed two different types in the cartilaginous portion of the human nasal septum.

The first type has the sphenoid process and the other has the vomerine process. The latter type is the typical form in the human septum, and may be considered to be the most developed form of the septal cartilage.

We observed a tendency in those septal cartilages that sphenoid process gradually change into vomerine process associated with increasing severity in septal deviation.

It was observed that the septal deviation did not only develop at the anterior part of the septum but also, in some cases, at the perpendicular plate of the ethmoid.

The latter form of septal deviation at the perpendicular plate of the ethmoid is usually mild, and this form may be called "septal deviation due to conchal development" or "septal deviation due to the development of the ethmoid sinuses".

This type of nasal septal deviation is often associated with narrowing of the olfactory slits and quite often adhesions exist between the nasal septum and

the upper turbinates. The common nasal meatus at the level of the middle turbinate, in such cases is not narrow but usually asymmetrical.

Our study revealed that the incidence of chronic inflammation in these cases with adhesions at the olfactory slit was twice as high as in those cases without.

We believe that there exists a definite relation between the structure of the internal nose and the development of chronic sinusitis in this respect.

Adhesions at the olfactory slit would frequently be a result of local inflammation. However, we feel that such adhesions would only develop in cases with narrow olfactory slits.

Although it was not observed that the width of the common nasal meatus at the level of the middle turbinate was related to susceptibility to chronic sinusitis, our observation indicated that chronic sinusitis which developed in such noses tended to become more severe in pathology. This may probably reflect the insufficient function of the maxillary ostium.

During our long term observations, we noticed that many cases with chronic sinusitis were preceded by findings indicating that the maxillary ostium was closed. Also a comparison of the incidence and severity of chronic sinusitis between school children in urban and rural areas as studied during the 10 years between 1953 and 1963 revealed a striking difference. The children in the rural area were much more susceptible to chronic sinusitis than those in the urban area. We also noticed a difference in the height of the external nose between the two groups.

Our extensive study led us to conclude that the most possible factor that created such difference was the difference in nutrition. Our observation indicated an opposite relation between the amount of animal protein intake and the incidence of chronic sinusitis.

The Japanese Government offered a new standard and started to subsidize school lunches all over the country.

The improvement in nutrition among the school children together with a gradual improvement in the food standard following the war decreased markedly the incidence of chronic sinusitis in the rural area in Japan.

No septal deviation was observed among animals. The external nose in human may be called a symbol of mankind because of its unique structure.

We feel that septal deviation in man developed together with the development of the external nose. A positive decrease has been shown in a recent study in such diseases as severe chronic sinusitis, rhinogenic meningitis, rhinogenic orbital phlegmon, rhinogenic sepsis, ozena, and idiopathic frontal pyocele. The incidence of severe chronic sinusitis among Japanese school children is steadily decreasing. In contrast, we have an increasing trend in such diseases as minimal and mild chronic sinusitis, which we call the unstable stage of chronic sinusitis, nasal allergy, reflex neurosis and also various disturbances of the autonomic nervous system.

Our study on the development of the nasal structures suggest that the Japanese people are likely to have higher noses in the future and more cases of deflected nose, hump nose, and long nose.

We may have an increased incidence of septal deviations in the future. The incidence of purulent chronic sinusitis appears to be decreasing further. However, the susceptibility of the sinus mucosa appears to be increasing.

### SUMMARY

Our study revealed that the incidence of chronic inflammation in cases with adhesions at the olfactory slit is twice as high as in those cases without. Our observation indicated an opposite relation between the amount of animal protein intake and the incidence of chronic sinusitis. The incidence of severe chronic sinusitis among Japanese school children is steadily decreasing with a gradual improvement in the food standard following the war.

In contrast, we have an increasing trend in such diseases as mild cases of chronic sinusitis, which we call unstable stage of chronic sinusitis, nasal allergy, reflex neurosis, and also various disturbances in the autonomic nervous system. Our study on the development of the nasal structures suggest that the Japanese people are likely to have higher noses in the future and more cases of deflected noses, we may also have an increased incidence of septal deviations in future.

### RÉSUMÉ

Les auteurs présentent le résultat de recherches prolongées sur la base morphologique de la fosse nasale et du sinus nasal qui est considéré d'avoir des relations avec le développement de l'affection nasale chronique.

Il était observé que la déviation de la cloison nasale se développe non seulement au point de la partie antérieure de la cloison, mais également en certains cas au point de la lame verticale de l'ethmoïde. Mais celle-ci est en général légère.

Ce type de la déviation septale est associé au rétrécissement de la fente olfactive et plus fréquemment à l'adhésion entre la cloison nasale et le cornet supérieur.

Notre travail montre que l'incidence de l'inflammation chronique en certains cas est deux fois plus fréquente que parmi les cas sans adhésions. De plus, la fréquence de la sinusite a des rapports très intimes avec l'ingestion de protéine animale.

L'incidence de la sinusite chronique plus grave des élèves japonais se diminue constamment avec l'amélioration progressive de la nutrition après la seconde guerre mondiale. Au contraire, la sinusite chronique très légère, que les auteurs appellent la phase instable de la sinusite chronique, la rhinite allergique, la névrose réflexe et les troubles variées du système nerveux végétatif, s'accroissent de plus en plus.

L'étude sur le développement de la structure du nez indique que le nez japonais deviendra plus haut dans l'avenir en que l'incidence de la déviation de la cloison nasale augmentera.

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