

Resumen por el autor, Edgar D. Congdon.

Un seno paranasal supernumerario.

La cavidad situada medialmente en la región de la fosa incisiva y los canales del mismo nombre de un adulto, presentaba forma ovoidea y poseía una capacidad de unos 3 centímetros. Su pared ósea no era completa por debajo, mientras que por encima se continuaba con las cavidades nasales mediante los cortos canales incisivos.

La formación de esta cavidad debe atribuirse probablemente a la fusión incompleta de los procesos nasales medio y lateral, así como a la actividad formadora de senos del epitelio respiratorio, que ocupa normalmente el extremo superior de los canales incisivos en vías de desarrollo.

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A SUPERNUMERARY PARANASAL SINUS

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ONE FIGURE

The cavity shown in the accompanying figure was found by a student while making a sagittal section of an adult head. It is medially placed and extends upward from the region usually occupied by the incisive fossa. It is of a regular ovoid form, 9 mm. in height, 5.5 mm. in anteroposterior diameter, and its width is 8.5 mm. if 2 mm. be allowed for the section removed by the saw. Its interior is lined by a smooth membrane which contained a cyst in the right-hand wall 2 mm. in diameter, whose contents was evidently mucoid in nature. A small deposit of similar appearance lay upon the floor of the cavity.

The bony wall of the space contained above a pair of symmetrically placed short passageways, one of which opened into each nasal cavity, where their location and contents of nerves and blood-vessels identified them as the upper ends of incisive canals. At the palatine end bone was lacking over an area several millimeters in diameter, but the gap was filled upon either side of the saw cut by the membrane lining the cavity and the layers investing the bone of the palate. No communication into nose or mouth was found.

Upon microscopic examination the lining membrane proved to be largely fibrous, but covered on the inner surface by a thin layer of columnar epithelium whose precise structure could not be made out because of maceration.

The frequent presence of abscesses in the alveolar process makes it necessary to consider the likelihood of a pathological origin of the cavity. The neighboring bone and teeth seemed sound. The osseous and membranous walls showed no deteri-

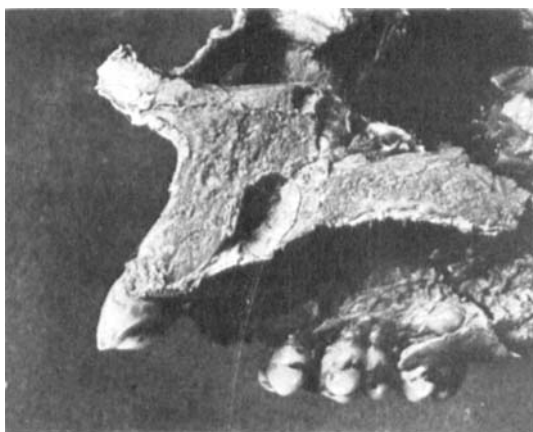
oration other than the maceration of the epithelium, and this was judged to have taken place after death.

The region of the incisive fossae was examined in 128 paired and single maxillae in a search for other cavities similar to the one under discussion. The fossae not infrequently bear a slight resemblance to it, as they may be deeper than wide and somewhat narrowed at their inferior end. They are, of course, much smaller and usually of slightly irregular outline. Two of the series, however, show a distinct resemblance to it in the regularity and roundness of their contour, though they differ in being but slightly constricted below. There is a remote possibility, then, that they also may have contained cavities lined with mucoperiosteum.

The continuity of the bony cavity with the incisive canals in our specimen is an indication that it may have been related to them in development. Leboucq ('81) agrees with the observations of Dursey ('69) and His ('01) whose work was accessible only in references from other writers, that the bony incisive canals surround in the embryo an epithelial tube called the incisive duct which is the result of a reopening of a part of the originally free communication between the spaces above and below the palatine processes. For a time after the median nasal and the palatine portion of the maxillary processes have fused, the duct, though closed, is represented by an epithelial cord continuous with the lining of the nose and mouth. The lumen of the incisive duct which develops in this cord usually disappears a second time permanently before birth.

It seems probable that the cavity here described had its beginning either in the incisive ducts or the passageway from which they are derived. If it arose from one or both ducts, it must have undergone a subsequent enlargement, and since it is lined with columnar epithelium which was probably once continuous with the nasal cavity, it would have claim to classification as a paranasal sinus. This interpretation encounters the difficulty that the connection of the bony cavity with both incisive canals must have been the result of a fusion of their lumina—a process rare in sinus development.

It is more probable that the cavity came into existence as a result of a failure in the meeting of the median nasal and the maxillary processes in this region so that a single large space remained where the lower parts of the incisive ducts usually developed. If this supposition is correct, both a change in the form and an increase in the size of the cavity must have occurred, since a space left between three rounded processes would not have an ovoid form and it could not have equalled in size this cavity of the adult bone. A possible difficulty for either explanation is that the columnar epithelium extends close to the



Right half of sinus at (a) exposed by a median sagittal saw cut. $\times 1$

oral surface of the maxilla, while Leboucq found that it gave way in the incisive ducts to the pavement type midway in their course. The exact position of the boundary line is probably not significant, however, since the corresponding transition zone also varies considerably in the nasopharynx.

Works upon palatine malformations and upon the development of the incisive ducts were consulted, including Leboucq ('81), Merkel ('92), Le Double ('96), and His ('01), without finding any reference to a cavity in this region. The studies of the paranasal sinuses by Zuckerkandl ('82), Gruber ('88), Onodi ('07, '08), Underwood ('07), and Shaeffer ('10 and '10 a) do not de-

scribe a sinus here. There is a single record of a similar cavity by Meyer ('13).

In his specimen the position was also medial and the bony wall connected with the osseous enclosures of the nose by short incisive canals, but there was no communication with the oral cavity. The dimensions of the cavity were so considerable (1.6 mm. x 1.35 mm. x 2.2 mm.) that the walls were flattened against various areas of the surrounding compact bone, giving it decidedly the appearance of a sinus. A smooth lining membrane was present. No opening into nose or mouth was found. Professor Meyer concluded that it was a paranasal sinus in a very unusual situation and called attention to Underwood's description ('07) of a sinus similarly placed in the chimpanzee.

The characteristics of the cavity found by Professor Meyer and of the subject of the preceding description are so similar that in the writer's opinion the two must have had a similar origin. The dimensions of the cavity in Professor Meyer's specimen are much greater than possible for an unmodified gap left by the medial nasal and maxillary processes. The probable independence of the two from the nasal cavity at all stages of their developmental history sets them apart from the paranasal sinuses more in appearance than in reality since the evidence points to their origin from a membrane that was once at least in continuity with the nasal lining and similar to it in character.

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