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Technique for removal of the nasosinusal block at autopsy

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SUMMARY

A simple technique for removing the nasosinusal region from the cadaver during the autopsy is described. The anatomical piece preserved in appropriate containers with preserving liquid can be used for anatomical dissection, for the histological study or as didactic material for endonasal microsurgery.

The use of the operating microscope in surgery on the paranasal sinuses, the Vidian nerve, the optic nerve and the hypophysis has led to the development of new techniques, the use of different approaches and the need for additional experience (Bosch et al., 1974; Eichel, 1972; Lee, 1978; Menning, 1974).

The reduction of the visual - and thus the operating - field makes it necessary to adopt not only suitable instruments but also methods appropriate to micro- surgery. With microsurgery the approaches are limited and natural passages are often preferred: this is true in the case of microsurgery of the ear, endoscopic microsurgery of the larynx and now endonasal microsurgery.

The modifications and the inevitable resulting difficulties at first made it seem doubtful to most whether microsurgery could be useful in the field of rhinology. This technique is, in fact, difficult to master, and not only for the neophyte: even the expert rhinosurgeon requires prior study and practice before he is able to employ it with a patient.

The difficulty of obtaining the necessary practice in the post-mortem room has prompted the author to systematize the technique of removal of the nasal fossa and paranasal sinuses of the cadaver during the autopsy without externally disfiguring the head. The nasosinusal block can then be used in the laboratory, either for anatomical and surgical demonstrations, as has long been the practice for the temporal bone, or, after suitable preparation, for histological studies (Belal, 1978).

TECHNIQUE OF REMOVAL

In the craniotomized cadaver the soft tissues of the frontal region are detached from the upper, medial and lower walls of the orbit and the nose.

Through a wide vestibular Caldwell-Luc type incision, the whole anterior wall of the maxillary sinus is laid bare. The tissues are detached medially up to the pyri-

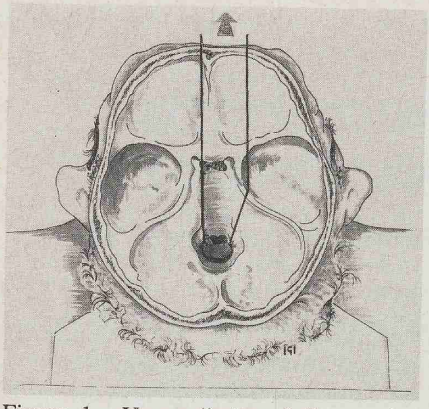

Figure 1. Upper limits of the section of the nasosinusal block.

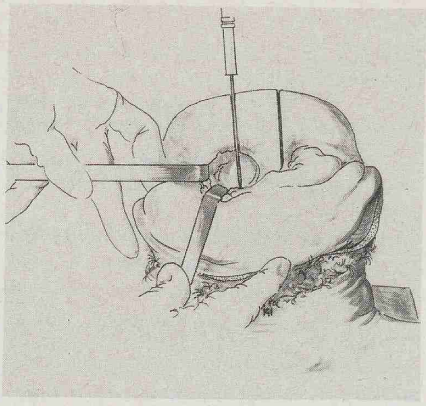

Figure 2. Position of the saw for the outer section, from above.

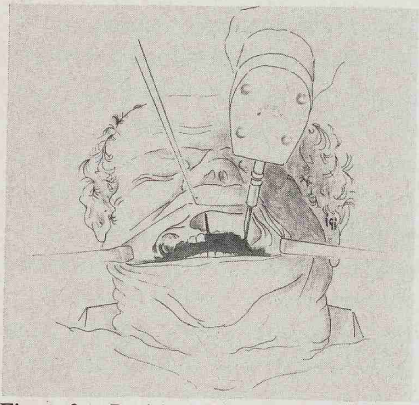

Figure 3. Position of the saw for the outer section, from the mouth.

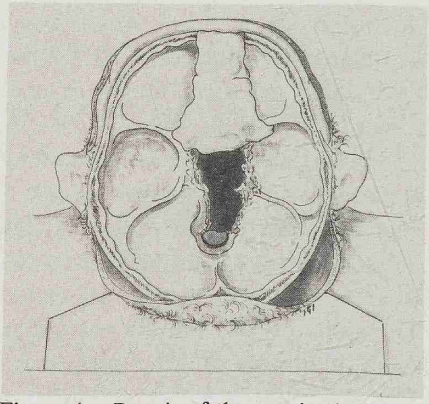

Figure 4. Repair of the gap in the bone with plastilene.

form opening, laterally up to the root of the zygomatic process, and above up to the lower edge of the orbit. Continuing to use the vestibular approach, the cartilaginous septum of the nasal spine is cut vertically with scissors up to the anterior edge of the nasal bones; using a scalpel, the nasal bones are separated from the triangular cartilages; the vestibular mucosa is incised.

In this way the mobile part of the nasal pyramid is detached from the fixed part, and the whole pyriform opening is exposed. The actual removal of the nasosinusal block begins now, requiring the help of an assistent to spread the orbit laterally and raise the detached tissues with two retractors. The sections are done with a Stryker saw in two steps, one starting from above and the other from the mouth.

Placing the saw vertically above the maxillary and the frontal bones, along a straight line running approximately from the infra-orbital to the supra-orbital

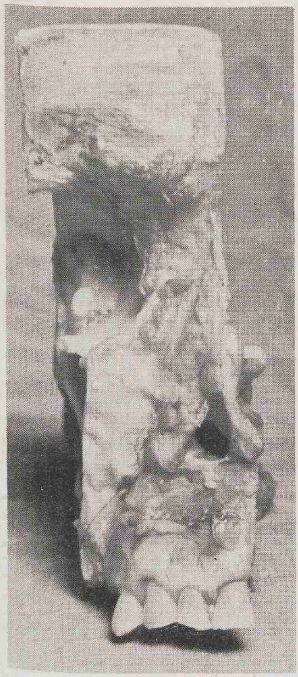

Figure 5.
Front view of the specimen.

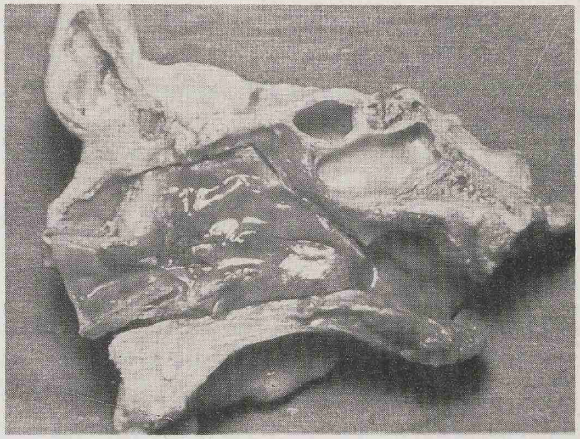

Figure 6. Side view of the specimen.

foramen, the skull is sawed through following a plane parallel to the medial sagittal plane, in such a way as to cut through, from front to back, the anterior wall of the frontal and the maxillary bones and the floor and the roof of the orbit (Figures 1 and 2).

When the posterior wall of the maxillary sinus has been cut through, the direction of the saw is shifted to a slightly more medial position towards the carotid groove and the occipital foramen.

The sectioning becomes more difficult at this point, because of the greater thickness of the frontal bone and the basilar groove of the occipital bone. The section of the alveolar process and the palate, from its alveolar rim to its posterior edge, is then done with the saw inserted horizontally into the oral cavity (Figure 3).

The second section is also done in two steps, following a plane parallel to the preceding one in a paramedial controlateral position. The section continues through the nasal bones along the dorsum, and then one by one through the frontal bone, the cribriform plate, the sella turcica and the basilar groove, and finally, from the mouth, through the alveolar process and the palate. All that is then left to do is to cut a bit of mucosa and some ligaments which join the atlas to the occipital bone, and then the specimen can be extracted simply by pressing anteriorly with the fingers.

The gap in the bones can be filled in with plastilene and the missing palatal material replaced by a dental prothesis (Figure 4).
These simple measures make it possible to replace the skin, the orbital tissue and the nose in the normal position, with no external disfigurement.

USE OF THE NASOSINUSAL BLOCK

The nasosinusal block includes the septum, the lateral wall of the nasal fossa, the ethmoidal, frontal and sphenoidal cavities and the medial half of the antrum (Figures 5 and 6). The specimen, once fixed, decalcified and suitably sectioned, can be used for the macroscopic or microscopic study of normal and pathological structures.
The sections are cut perpendicularly to the sagittal plane either vertically or horizontally.
Vertical sections give the surgeon a better picture of the basic anatomical features of the region.
The whole block can also be used for anatomical dissection and for teaching microscopic nasosinusal surgery. Practical exercises in microsurgery on intact cadavers are rarely feasible in the post-mortem room, not only because appropriate surgical instruments and microscopes are not available, but above all because such procedures interfere with the pathologist's work. On the other hand, they can conveniently be carried out in the laboratory using these specimens, preserved in a suitable liquid.

RÉSUMÉ

On présente ici une méthode simple pour enlever au cadavre la région nez-sinusale, au cours de l'autopsie. Après avoir conservé la pièce d'anatomie dans un liquide approprié on peut l'utiliser pour la dissection anatomique, pour l'étude histologique ou en tant matérial didactique dans la domaine de la microchirurgie endonasale.

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