

A biopsy method to obtain high quality specimens of nasal mucosa

W. J. Fokkens¹, Th. M. Vroom², V. Gerritsma³
and E. Rijntjes¹

¹ Dept. of O.R.L., Leyenburg Hospital, The Hague, The Netherlands

² Dept. of Pathology, Slotervaart Hospital, Amsterdam, The Netherlands

³ Dept. of O.R.L., University Hospital Leiden, The Netherlands

For a study on immunological changes in the nasal mucosa of patients with an isolated grass-pollen allergy, we needed a satisfactory method for nasal biopsy that would provide biopsy specimens of adequate size (ca. 2.5 mm in diameter), sufficient depth of the lamina propria, and with undamaged epithelium. Because the biopsies had to be repeated several times in each patient, the method had to be quick, easy to perform, and cause the patient as little stress as possible.

A review of the literature indicated either a high percentage of damaged specimens, especially with disturbance of the epithelium, or a high incidence of dropping out of patients when the biopsy was performed more than once.

In collaboration with Mr. V. Gerritsma, precision-instrumentmaker of the ENT Department of the Leiden University Hospital, a forceps fulfilling our criteria was designed. This instrument (Figure 1), called the Gerritsma biopsy forceps, makes it possible to take a specimen without visibly damaging the epithelium. The cutting mechanism of the instrument is particularly important. The design, providing a kind of quillotine effect, gives specimens with smooth edges (Figure 2). The knife-sharp edge of the cutting cup (A) meets the sharp edge of the conical receptacle (B) squarely, without putting tangential pressure on the specimen. The conical shape of the receptacle is intended to reduce friction on the sample to a minimum. The circular opening in the bottom of the receptacle permits passage of the specimen without squeezing of the tissue (Figure 2). The angle formed by the open forceps is so large that even a thick hypertrophic turbinate can be biopsied without difficulty.

Biopsy specimens were routinely taken from the lower edge of the inferior turbinate, about 2 cm posterior to the anterior edge. Local anaesthesia was obtained by placing a cotton-wool carrier holding 100 mg cocaine and 3 drops of adrenalin (1 : 1000) under the inferior turbinate without touching the site chosen for the biopsy. The specimens were frozen immediately after being embedded in

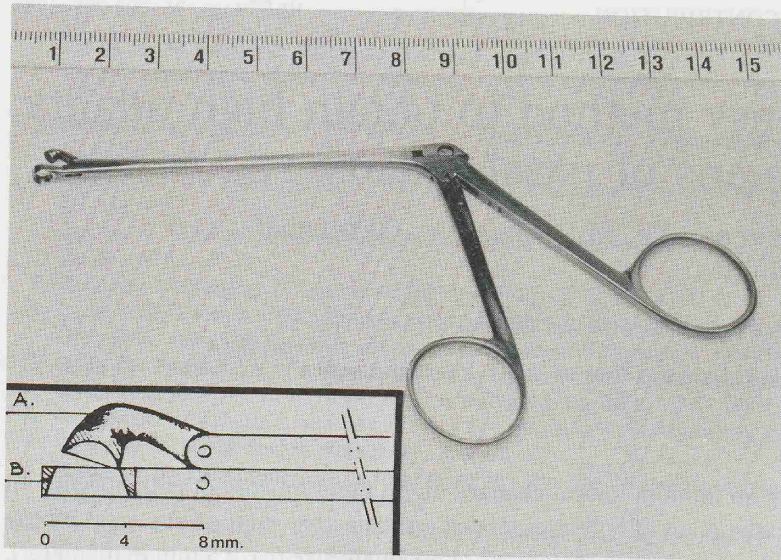


Figure 1. Gerritsma forceps, showing (inset) the knife-sharp edge of the cutting cup (A) that meets the sharp edge of the conical receptacle (B) squarely, without putting tangential pressure on the specimen.

Tissue-Tek II O.C.T. compound in a gelatin capsule, in which they were given a standardized orientation.

After excision of the specimen, a small piece of gauze with vaseline was placed in the nose. The patient was expected to remove this tampon between 2 and 12 hours after the biopsy. Some patients preferred not to have the gauze. The patients were advised to use xylomethazoline nosedrops at 6-hours intervals during the first 24 hours after the biopsy.

To date, we have performed 135 biopsies in 63 patients with this Gerritsma forceps. Twenty-seven of these patients had more than one biopsy and some of them as many as five.

As a rule, the quality of the specimens was excellent (Figure 2). The samples, which had been taken sufficiently deep to permit evaluation of the epithelium as well as all of the layers of the lamina propria, showed no signs of compression. Damage to the mucosal epithelium only occurred in eight of the 135 biopsies. The lamina propria could always be judged reliably. The patients underwent the biopsy procedure without problems. One patient had a significant epistaxis. Of the 29 patients in whom a second biopsy was needed, only two refused.

Our experience has led us to conclude that the Gerritsma forceps enables us to perform biopsies of nasal mucosa that provide specimens of high quality and cause minimal stress for the patient. This forceps is not only an invaluable instru-

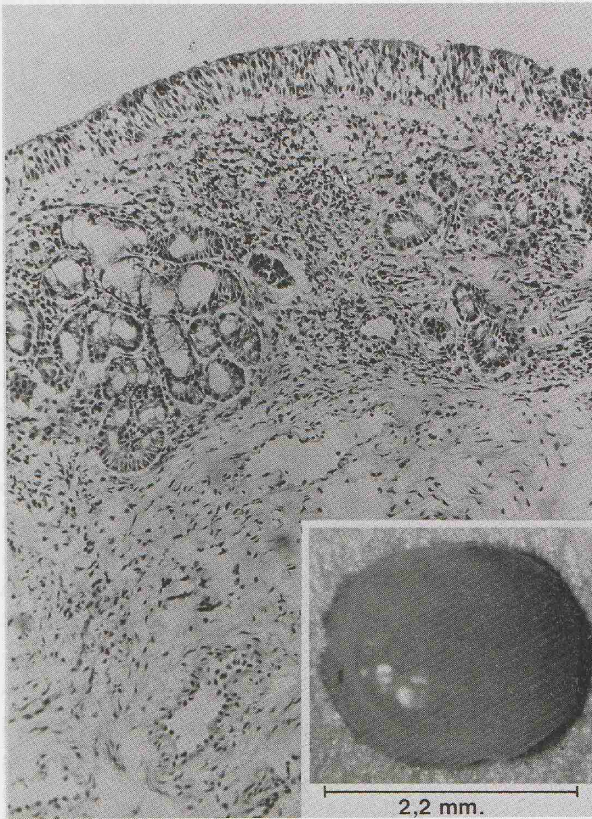


Figure 2. Light micrograph of a section of nasal mucosa biopsied with the Gerritsma forceps, showing intact epithelium and lamina propria. The specimen itself (inset) has smooth edges and no sign of compression. HE. $\times 100$.

ment for scientific research on nasal mucosa but will certainly prove useful for the biopsy of pathological tissue in the nose and in other mucosa, especially at sites where access is difficult. Use of this Gerritsma forceps for mucosal biopsies will enable the pathologist to make more accurate histologic diagnoses, and the all too often encountered comment "squeezed rags of tissue; definite diagnosis not possible" will no longer appear on his reports.

W. J. Fokkens, M.D.
Dept. of O.R.L.
Rotterdam University Hospital Dijkzigt
Dr. Molewaterplein 40
3015 GD Rotterdam
The Netherlands