Closure of a septal perforation by means of an obturator

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SUMMARY

The surgical closure of a naso-septal perforation is accompanied by many problems which can interfere with the good result.
The authors describe a technique by which a naso-septal perforation can be closed by placing an obturator without performing any surgery.

ONE of the problems with which the rhinosurgeon is often confronted in his practice is whether or not he should close a perforation of the nasal septum, and if so, how he will manage it. In this paper we shall describe a procedure to close a septal perforation by a non surgical technique.

A perforation of the nasal septum can have repercussions upon the whole respiratory tract. So the function of the nose, which consists of the cleansing, moistening and warming of the inhaled air, can be partially lost. The secretions due to the chronic irritation of the mucous membrane, and because of which a partial septal resection has been decided upon, will leave the nose with the greatest difficulties because of the changed physiological conditions. As a result of a perforation blowing of the nose in a correct manner has become impossible. The secretions which remain on the floor of the nose will dry up and cause an irritable cough. The perforation will be followed by crust formation, which gives rise to an unpleasant sensation in the nose. This condition incites nose picking which, in turn, is followed by epistaxis and restless sleep.

It is, in particular, this lack of a night's rest that is detrimental to the general condition of the patient. Furthermore, this will provoke swelling of the mucous membrane.

The localization of the perforation is determining for the complaints it provokes. In the areas 1, 2, and 3 the breathing will be hampered, and, because of lack of support, the nasal dorsum will sag. In perforations in areas 4 and 5, problems with regard to the removal of the secretions will occur.

For the treatment of a perforated nasal septum there are several possibilities. Conservative therapy may be adequate for the case. This consists of cleansing the nose regularly. The patient is instructed on how to remove the pathological collections.

If the rhinosurgeon finally elects to operate, he must be sure of what it is that he wants to improve and of how he proposes to do so. He must, therefore, be able to differentiate between the complaints and the symptoms, and there may be a great discrepancy between these two premises. Also he has to find out what precisely was the cause of the septal perforation. For instance: if the aetiological factor was a systemic disease or an automutulation of the nose, no operation must be performed.

Although there are many operative techniques to close a septum perforation, it is always difficult to make a correct choice among them. And, even after the decision has been made as to which operation is to be used, disappointment very often results. The blame for the failure is mostly laid on secondary complications. Infection, atrophy of the mucosa, insufficient mobility of the tissue flaps and - especially - a common cold interfering with the healing process are held responsible for the non-success. The nose is an organ that is always in motion, so that to bring about healing in it will always be a difficulty.

Our recommendation in many cases is the placing of an obturator, because disappointment after operation can be avoided and this simple method may also give positive results.

In such cases the technique mostly recommended is to insert a plastic plate between the mucosal flaps. Small perforations on the periphery of the prothesis should ensure the fixation of the graft (Link, 1952). Another possibility is to place a disc between the mucous membranes according to Papangelou, (1969). This author believes in a better fixation by means of a greater hole in the prothesis.

The disadvantages of these techniques are: an operation is needed in an already weak mucous membrane area; the mucosal flaps must be separated and it may be necessary to remove more cartilage.

An even greater disadvantage may be the occurrence of a space between the mucosal flaps that opens the way to invasion by micro-organisms, with the consequent risk of septicemia.

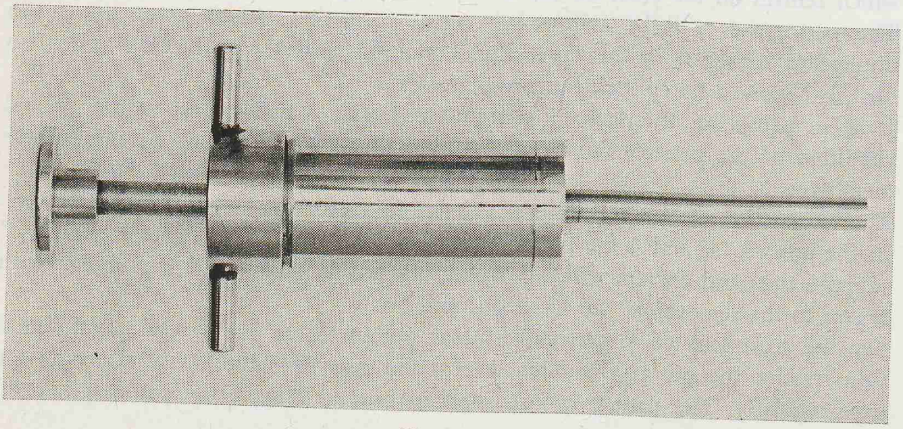

Figure 1.

Also, hemorrhage at the border of the perforation may occur during this operation. To avoid these hazards we decided to develop a technique in which an obturator is placed in the perforation without altering the latter. Our aim was reached thanks to the experience and knowledge of the department of oral surgery of the University of Amsterdam, which has applied itself for a long time to the many problems in connection with surgical prothesis.

The following is the technique adopted:
First of all a print of the perforation is made. For this purpose an elastic paste (Sta-seal)* and a syringe developed by us are used. (Figure 1). This syringe - by which the paste is injected into the nose - must have a large container and a long nozzle. Furthermore, it must be easy to clean and sterilize the instrument.
In order to prevent filling up the nose completely - which would make it impossible to remove the paste afterwards - one has to wall-off the space around the perforation with cotton wool. On each side of the perforation a disc that protrudes out of the nose, and is made of x-ray film material, is placed so as to protect the lateral wall of the nasal cavity. This results in a filling up of the space between the discs with the paste, prepared according to the directions given by the manufacturer. This procedure has to be performed starting from the posterior end of the cavity and proceeding to the anterior end in order to avoid air bubbling. When the paste has stiffened the negative print is removed from the nose and

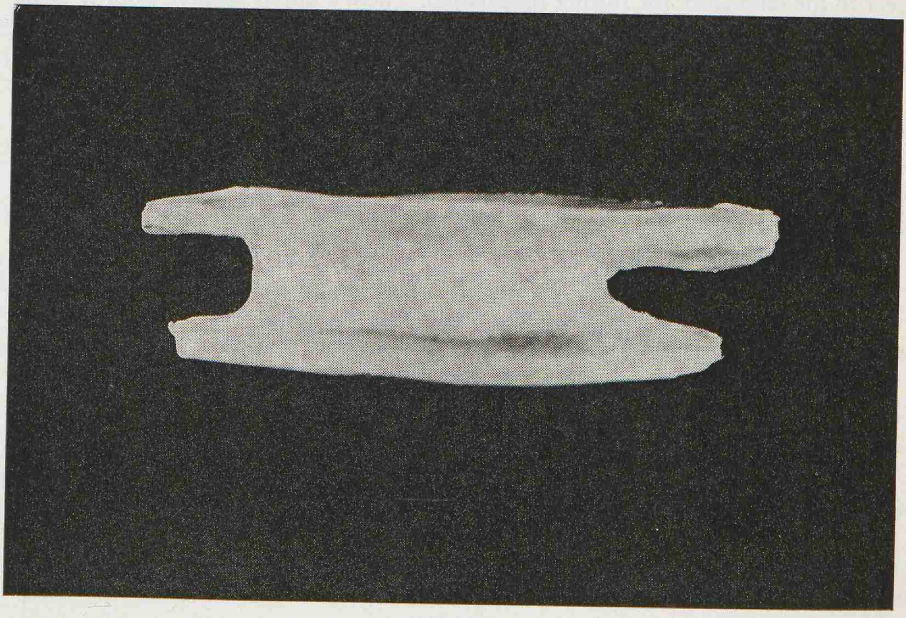

Figure 2.

* Sta-seal detax Karl Huber KG, Karlsruhe (W.-Germany).

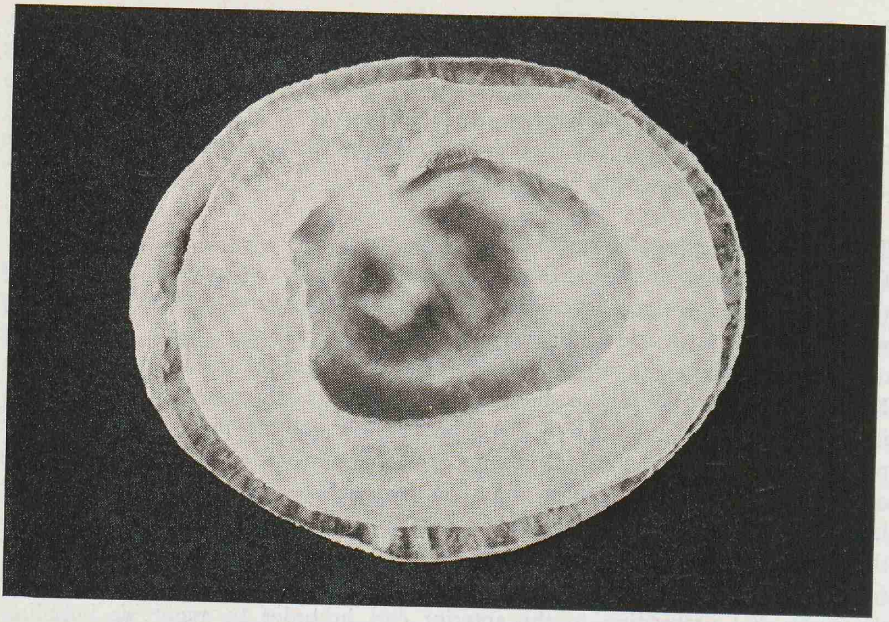

Figure 3.

sent to the laboratory for further preparation. There a duplo positive print is made in hard plaster of Paris.

One of these plaster models is ground in such a way that the edge about the perforation becomes thinner. Care has to be taken not to enlarge the surface of the perforation. From this model an obturator will be pressed in Luxene® material. This is a rather flexible plastic material without free monomeres. Because of the properties of this material allergic reactions are kept to a minimum. (Figures 2 and 3).

The ground obturator is put into place, with only slight pressure.

A satisfactory counter-pressure is exercised by the rim of the prothesis that fits over the septum. We used this method with success in 30 patients. The protheses caused no inconvenience to the patients and could not be removed. The formation of crusts decreased considerably. Any small crusts that formed on the prothesis could be removed by the patients themselves with cotton wool applicators imbedded in vaseline or by nose washing.

The patients are able again to blow the nose in a normal manner and are much better able to tolerate any secondary discomforts.

Although complete natural closure of a perforation is to be preferred, we think that by this simple method a good and useful alternative has been provided.

RÉSUMÉ

La fermeture chirurgicale d'une perforation de la cloison pose plusieurs problèmes qui peuvent troubler la réussite de l'opération. Les auteurs décrit une methode avec

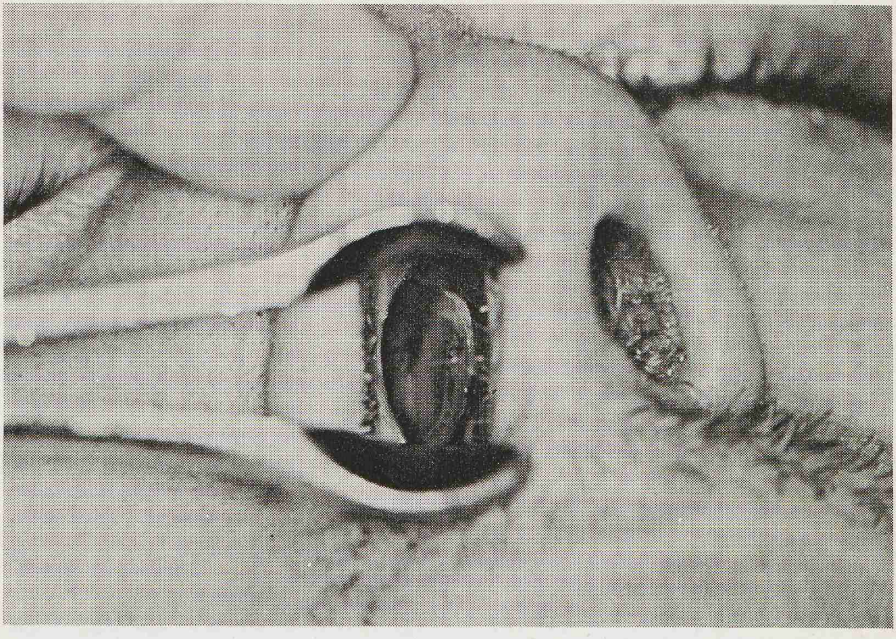

Figure 4.

laquelle une perforation de la cloison peut être fermée à l'aide d'un obturateur d'une façon non chirurgicale.

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