

## Patency and resistance tests of the maxillary ostium

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PATENCY and resistance tests are certainly the most often utilized methods in clinical evaluation of the function of the maxillary sinus ostia. In the patency test the passage of pressure changes from the nasal cavity to the maxillary sinus is measured. In the resistance test the overpressure needed to make saline flow through the maxillary ostium is estimated. Neither of these tests measures all the functions of ostia, e.g. the transport of secretion through the ostium.

The resistance test is performed by measuring the difference in height between the inferior orbital rim and fluid level in an irrigation bottle connected through maxillary sinus trocar into the sinus. The bottle is slowly raised until the flow through the nose starts. The difference at this moment is a measurement of the resistance (Drettner, 1965b; Zippel and Meier, 1968). Another method uses a manometer for the same purpose (Rantanen and Kortekangas, 1971; Rantanen, 1974).

Drettner (1965b) estimated 20 cm H<sub>2</sub>O to be the upper limit of normal resistance, Zippel and Meier (1968) gave a little higher value (30 cmH<sub>2</sub>O) but Rantanen (1964) suggested a considerably lower value for normal (7 cmH<sub>2</sub>O). The differences may partly reflect differences in technique.

The patency test comprises comparison of nasal reference pressure fluctuation to the corresponding fluctuation inside the maxillary sinus. In the early work in this field only the pressure variation in the sinus lumen was observed (Döderlein, 1932; Schmücker, 1932; Proetz, 1932 and Kerekes, 1964). Drettner (1965a) introduced the simultaneous patency test which is physically the most accurate method. In practice we found this simultaneous method rather inconvenient to the patients and have been using a consecutive patency test developed from the test which Cottle (1968) introduced. Our modification of the patency test has been described earlier (Rantanen and Kortekangas, 1971; Kortekangas, 1974 and Rantanen, 1974). There are three steps in our modification:

- A reference pressure recording via anterior rhinomanometry.
- Antral pressure recording via Lichtwitz trocar.
- Nasopharyngeal-antral pressure reference recording.

This gives a quick confirmation of a comparison between the reference and the antral recordings which are the main elements of the patency test. (Kortekangas, 1970).

Three different types of ostial patency can be distinguished.

- Patent ostium
- Partially patent ostium
- Obstructed ostium.

Rantanen (1974) suggested the use of sniff and blow penetrance as an additional step in the patency test. He considered this a possible way to distinguish obstruction due to secretion from that due to mucosal swelling.

More critically evaluated experience with patency and resistance tests must be gained before their importance in the clinical rhinology can finally be determined. In their present development they are already applicable with fairly little additional trouble and recommended for every day clinical practise.

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