Modification of a nasal speculum for transsphenoidal surgery

Technical note

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The authors modified a Hardy nasal speculum to improve the access to surgical fields and the handling of various instruments during transsphenoidal surgery. A section of the inferior edge of the speculum was cut out 2 cm from its orifice on both sides. The thickness of the tip of the speculum was also reduced. The authors are prepared to operate using a variety of speculum lengths (the distance between the tip and the cutting level), and this length is selected depending on the distance between the anterior wall of the sphenoid sinus and the surface of the gingiva in the individual patient.

A modified nasal speculum was used in transsphenoidal surgery for a pituitary adenoma. With use of this device, the protrusion of the speculum above the gingiva was markedly decreased. Because most instruments are inserted into the inferior portion of the speculum orifice, this approach facilitated the handling of all surgical instruments through the modified nasal speculum. The actual surgical field became shallow and wide, and the long surgical instruments that are generally used for transsphenoidal surgery were unnecessary in most cases.

KEY WORDS • pituitary adenoma • transsphenoidal approach • nasal speculum

Description of the Modified Nasal Speculum

A section of the inferior edge of the speculum is cut out 2 cm from its orifice on both sides (Fig. 1 upper). The thickness of the tip of the speculum is also reduced. We are prepared to operate using a variety of speculum lengths (distance between the tip and the cutting level), and this length is selected depending on the distance between the anterior wall of the sphenoid sinus and the surface of the gingiva in the individual patient.

Clinical Application and Results

We used the modified nasal speculum in transsphenoidal surgery for a pituitary adenoma. With use of this device, the protrusion of the speculum above the gingiva was markedly decreased. Because most instruments are inserted into the inferior portion of the speculum orifice, this approach facilitated the handling of all surgical instruments through the modified nasal speculum. The actual surgical field became shallow and wide, and the long surgical instruments that are generally used for transsphenoidal surgery were unnecessary in most cases.

FIG. 1. Upper: Photograph showing the modified nasal speculum. Lower: Photograph showing the clinical application of the modified nasal speculum.
al surgery for pituitary adenoma. Compared with a conventional nasal speculum, the protrusion of the speculum above the gingiva was markedly decreased (Fig. 1 lower). With this modification, the surgical field became shallow and wide, and we could handle all surgical instruments with greater ease. In most cases, the long bipolar forceps and suctioning devices generally used in transsphenoidal surgery were unnecessary.

Discussion

When a modified nasal speculum of the proper size is used, the protrusion of the instrument above the gingiva is markedly decreased, which makes the surgical field shallow and enhances visualization and lateral accessibility. Because most surgical instruments are inserted into the speculum orifice from the inferior direction, handling of all instruments during surgery markedly improves with application of the modified nasal speculum.

The aforementioned modifications to the nasal speculum effectively reduce the degree of its protrusion, and provide a wider surgical field. If distances from the levels of the labium, gingival surface, and anterior wall of the sphenoid sinus to the sella floor are 8, 6, and 1 cm, respectively, and a bone window of the sphenoid sinus is 2 × 2 cm, the surgical field at the level of sella floor will become approximately 2 mm larger laterally (Fig. 2). This is a dramatic difference in what was originally a narrow surgical field.

A wider and shallower surgical field and easier handling of all instruments achieved with the aid of the modified nasal speculum will decrease incidental arterial injuries in transsphenoidal surgery. Cutting a section of the inferior edge of the nasal speculum does not affect the durability of the instrument.

Disclaimer

The authors do not have a proprietary or financial interest in the modified nasal speculum.

References


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Fig. 2. Comparison of the surgical fields available with application of a modified nasal speculum and a conventional speculum.