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Frontal sinus approach: the 'vertical bar' concept

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Sir,

Endoscopic frontal sinus surgery is considered difficult and risky to the patient by many surgeons. Surgery on the frontal recess and frontal sinus remains a challenge because it requires experienced surgeon, who has a precise knowledge of the anatomy of the lateral nasal wall and skull base.[1–3]

The frontal sinus outflow tract has a complex and variable anatomy. It is tightly situated between the orbit and the anterior skull base at an angle that makes visualisation difficult from an intranasal approach.[1,2]

This study has an objective to describe our frontal recess and sinus approach surgical technique, presenting the concept of the 'vertical bar'.

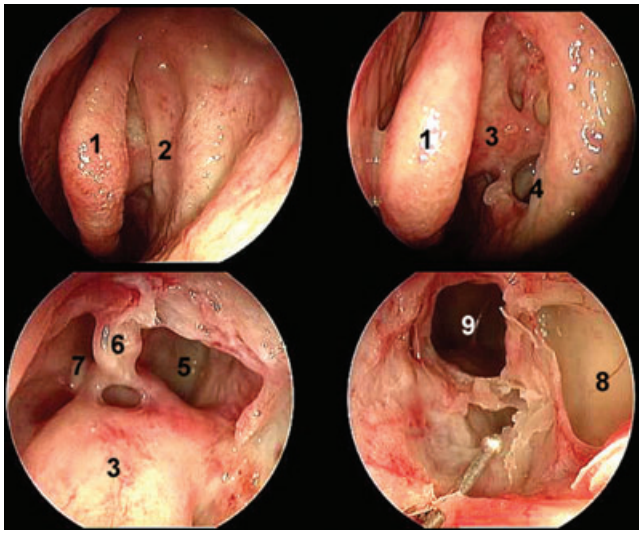

Fig. 1. Steps of our frontal sinus approach technique (left side). 1 – middle turbinate, 2 – uncinate process, 3 – ethmoidal bulla, 4 – maxillary ostia, 5 – agger nasi, 6 – vertical bar, 7 – frontal sinus drainage pathway, 8 – lamina papyracea, 9 – frontal sinus.

Surgical technique

The surgery is performed under general hypotensive anaesthesia. With a 0-degree 4-mm endoscope, the uncinate process is carefully removed, trying to save its most superior edge. With a 45-degree 4-mm endoscope, we use as landmark for the frontal sinus drainage pathway in the medial wall of the agger nasi (Fig. 1). This structure we denominate 'vertical bar'. In most of the cases, medial or posterior to the 'vertical bar' we find the frontal sinus drainage pathway.

Discussion

The endoscopic access to the frontal recess is quite difficult and some anatomical landmarks are necessary. Special attention must be given to the agger nasi and the uncinate process (UP)[4]. The UP has a free posterior border. Yoon *et al.*[5] described eight types of the postero-inferior portion of the UP during anatomical studies of the fontanelle and UP.

However, there is still some controversy about the upper insertion of the UP. Some authors describe that it ascends isolated to the skull base, lamina papyracea, or middle turbinate, while others affirm that it extends into the frontal recess and may insert into the lamina papyracea, skull base, middle turbinate and, in most of the cases, a combination of these structures.[5]

The postosuperior portion of the UP, together with the agger nasi cell, is the key that unlocks the frontal recess.[2] The 'vertical bar' is one of the superior insertions of the UP that forms the agger nasi's medial wall.

Since 2005, we use this frontal sinus approach technique. No complications were observed. The frontal sinus was successfully addressed in all cases.

Conclusion

This technique can help surgeons in the identification of the frontal sinus and recess, providing a safe and predictable access to this challenging region.

Conflict of interest

None to declare.

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