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Radiofrequency in Endoscopic Endonasal Skull Base Surgery

Paolo Cappabianca; Felice Esposito; Oreste de Divitiis; Luigi M. Cavallo; Enrico de Divitiis Università degli Studi di Napoli Federico II, Department of Neurological Sciences, Division of Neurosurgery, Napoli, ITALY

Introduction

Bleedina control

Extended endoscopic endonasal transsphenoidal surgery is an innovative and minimally invasive approach to the lesions involving the midline skull-base. Besides the numerous advantages of such approach, there is the need of a reliable and safely maneuverable tool for bleeding control. We report our initial experience with dedicated radiofrequency-based bipolar and monopolar instruments.

We have been evaluating the usefulness and the efficacy of radiofrequency-based endonasal bipolar forceps and monopolar sticks and loop-wires in the last 6 months for a variety of pituitary and skull-base lesions including pituitary adenomas, tuberculum sellae meningiomas and suprasellar craniopharyngiomas.



progress in diagnostic imaging techniques and the intraopeative neuronavigation systems, that have boosted the development of the extension of the transpheroidal approach to the entire midline skull base. Because of the increased visualization offered by the endoscope, a variety of modifications of the standard transpheroidal approach have been described, which have created new surgical nucles targeted for the extension around the have been described, which have created new currical nucles targeted for the extension comparison of the entire of an one contemporary knowledge of the possibilities of the transpheroidal approach. Such considerations give an idea of the extended endoscopic endoscal nucles as a vesselia expranch that offices the possibility to expose the entire midline skull base from below, with the possibility to pass through the near cavity in modern with the intera entire in the nucles.



For the endoscopic approach, the instruments need to be inserted along the same axis as the endoscope and need to maintain the same position with inspect to the endoscope for their entitle length. For such neason the need to be straight and not bayoneted. Furthermore, the absence of the russal speculum allows a better angling of the instruments.



One of the most difficult and common problems of endoscopic surgery is the control of bleeding. The monopolar cautery with the classical Bovie's slick and the bipolar coagulation with the commo byometed bipolar forceps are usually used for bleeding control.



Cogulation of the mucosa over the spheroi-ethmoid recess, before the bone drilling No: nasil aptimi, SER: sphero-ethmoid recess, Mit middle turbinate; SC: categories (Category inside the node MICHONG CATEGORY inside the node MICHONG CATEGORY (State) (



Use of radiofequency morpolar coogulation during either the endonesial phase of the surgical procedure, while coogulating the nesal muccea over the spheno-ethmoid eccess (eft), and the intraductal manevers, while debulking a luberculum sellae mening/one with a radiofequency volume (conte) and radiofequency volocitation (eff).



The use of the microsurgical bipolar forceps, developed for the microscope, is usually not easy every time, such as in case of transsphenoidal approaches to the skull base.



Consequently, different cylindical bipolar forces have been designed, with various diameters and lengths, that have proven to be quie deflective in bipolar control of bieding. The bipolar forces for endoscopic surgey need to have some special features to be easily introduced in the ramow surgical control. Even though the current prototypes of radiofleguency bipolar forces have been found to be quie effective easily harding and the for such instrument the work is still in organisa.

Conclusions

We have found the radiofrequency bipolar forceps and monopolar stick quite useful during the different steps of the approach. In particular, they are useful during the intradural maneuvers, where the room for the movements is limited, but also during the nasal and sphenoid phase of the approach, where the bipolar forceps was found easy to handle and to use within the nose, where we try to avoid, if possible, the monopolar coagulation in order to spare the mucosa and the olfactory nerve fibers. Furthermore, the spatial heat dispersion with the radiofrequency instruments is minimal, with consequent minimal risk of heating injury of the neurovascular structures. Besides, the radiofrequency bipolar forceps do not need to be used with irrigation or to be cleaned every time.

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