BRINER Bipolar Coagulation Suction Cannula
BRINER Bipolar Coagulation Suction Cannula

Hemostasis in operations in the paranasal sinuses and on the anterior skull base

Advances in endoscopic surgical procedures now allow the performance of extensive interventions in the region of all of the paranasal sinuses and the anterior skull base. The prerequisite for safe working is an operating field with as little blood as possible. This allows precise visualization of the anatomic landmarks and thus safe ‘navigation’ in this anatomically complex region.

Precise surgical procedures which preserve tissue, such as the use of cutting instruments, allow the creation of an operating field with as little blood as possible. However, the monitoring of the large blood vessels in the anatomic region, in particular the branches of the sphenopalatine artery and the anterior ethmoidal artery, is also indispensable. One effective method of stilling hemorrhaging from these arteries is the monopolar or bipolar coagulation of these vessels using high frequency current.

Nevertheless, the coagulation of large arteries in the region of the paranasal sinuses and the anterior skull base represents a challenge: on the one hand, because of the small available space resulting from the anatomic conditions and, on the other hand, because of the immediate vicinity to the delicate adjacent organs, the orbit, and the brain. There is a risk here of damaging the neighboring structures, for example via flowing current during monopolar coagulation or via heat during imprecise bipolar coagulation.

Where possible, bipolar coagulation techniques should be used for hemostasis in the region of the paranasal sinuses and the anterior skull base. In contrast to the monopolar technique, in this technique the high frequency current only flows between the poles of the bipolar coagulation instrument, rather than through the entire surrounding anatomy between the electrode on the body and the pole of the monopolar instrument. Bipolar coagulation thus allows more precise application of the energy and reduces the risk of damaging the surrounding tissue.

The most commonly used bipolar coagulation instruments are bipolar forceps.

Fig. 1: The electrodes of the conventional bipolar coagulation forceps are compressed by the narrow anatomic conditions in the region of the anterior wall of the sphenoidal sinus. This renders the use of this instrument for bipolar coagulation difficult or impossible.
However, as a result of the anatomically narrow conditions, their usage can sometimes be restricted or completely impossible. For example, the use of bipolar coagulation forceps to coagulate the septal branch of the sphenopalatine artery on the anterior wall of the sphenoid bone often proves impossible, as the two tips of the forceps are compressed by the nasal septum and the middle turbinate. Coagulation of the anterior ethmoidal artery on the roof of the ethmoid bone using bipolar forceps also often proves impossible.

The requirement for effective bipolar coagulation even in narrow conditions led to the development of an instrument with a fixed distance between the electrodes and integrated suction tube: the ‘BRINER bipolar coagulation suction cannula’.

**BRINER bipolar coagulation suction cannula**

The functional principle of the BRINER bipolar coagulation suction cannula is coagulation using high frequency current via two electrodes which are a fixed distance apart. These cannot be compressed by the surrounding anatomy and thus also function in narrow conditions, for example on the anterior wall of the sphenoid bone. The electrodes are of sufficiently large dimensions to allow coagulation of larger vessels. The integrated suction tube allows the suctioning of the blood between the electrodes. This leads to improved vision of the site to be coagulated and increases the efficiency of the coagulation. The design of the BRINER bipolar coagulation suction cannula largely reflects the design of conventional suction tubes in paranasal sinus surgery.

Dr. med. Hans Rudolf BRINER, Clinical Lecturer ENT Center, Klinik Hirslanden, Zurich, Switzerland
Use of the BRINER bipolar coagulation suction cannula

Case 1

Fig. 2: Hemorrhaging of the branch of the sphenopalatine artery at the dorsal margin of the sinusotomy of the left maxillary sinus

Fig. 3: Coagulation using bipolar suction coagulator

Fig. 4: View after bipolar coagulation

Case 2

Fig. 5: Hemorrhaging of the septal branch of the sphenopalatine artery on the anterior wall of the left sphenoidal sinus

Fig. 6: Bipolar coagulation of the septal branch of the sphenopalatine artery

Fig. 7: Status after bipolar coagulation
Special features:
• Bipolar coagulation
• Fixed distance of electrodes allows coagulation even in narrow anatomic conditions
• Instrument without moving parts

Application area:
• Hemostasis during interventions in the region of the paranasal sinuses and the anterior skull base
• For hemostasis of the large arterial vessels:
  Branches of the sphenopalatine artery and anterior ethmoidal artery
Instruments

839330  BRINER Bipolar Suction Cannula, angular, insulated, length of electrodes 3.5 mm, with cut-off hole, outer diameter 4.5 mm, working length 11 cm, for use with Bipolar High Frequency Cords 847000 or 847000A, 847000E, 847000M, 847000V

839320  BRINER Bipolar Coagulation Suction Cannula, curved upwards, insulated, length of electrodes 3.2 mm, with cut-off hole, outer diameter 3.5 mm, working length 16 cm, for use with Bipolar High Frequency Cords 847000 or 847000A, 847000E, 847000M, 847000V

Bipolar High Frequency Cord

847000E  Bipolar High Frequency Cord, length 300 cm, for AUTOCON® II 400 SCB systems (111, 113, 115, 122, 125), AUTOCON® II 200, AUTOCON® II 80, Coagulator 26021B, 26021C, 26021D, 860021B, 860021C, 860021D, 27810B, 27810C, 27810D, 28810B, 28810C/28810D, AUTOCON® systems (50, 200, 350), Erbe-Coagulator, T and ICC series and bipolar coagulation forceps

847000  Bipolar High Frequency Cord, with 2x 4 mm banana plug to KARL STORZ Coagulator 26020XA, 26020XB for KARL STORZ bipolar coagulation forceps, length 300 cm

847000A  Bipolar High Frequency Cord, length 300 cm, for Coagulator 26020XA, 26020XB, Bircher, Bovie, Keymed, Mallis, Valleylab, Neomed, Bard and bipolar coagulation forceps

847000M  Bipolar High Frequency Cord, length 300 cm, for AUTOCON® systems (50, 200, 400), for Martin and Berchtold coagulators, Aesculap coagulator (latest version) and bipolar coagulation forceps

847000V  Bipolar High Frequency Cord, length 300 cm, for AUTOCON® II 400 SCB systems (112, 114, 116, 122, 125), Valleylab coagulators and bipolar coagulation forceps
Notes

It is recommended to check the suitability of the product for the intended procedure prior to use.
Please note that the described products in this medium may not be available yet in all countries due to different regulatory requirements.