Sinus Surgery

SURGICAL TECHNIQUE

The Minimally Invasive Approach using the MicroFrance® Parsons Minimally Invasive Instrument Set

The MicroFrance® brand is a premier line of ENT instruments, designed with world-renowned ENT surgeons to facilitate new techniques and improve patient outcomes.
“The key steps in the minimally invasive approach are designed to assure the drainage of offending sinus cavities without injury to any drainage pathways.”

DAVID S. PARSONS, MD, FAAP, FACS

Philosophy

Every sinus cavity has a drainage pathway for mucus to exit the sinus and be transported to the nasopharynx. Sinus surgery techniques that do not advocate the total preservation of the ciliated membrane-covered pathways cannot be termed “minimally invasive.” All surgical steps in this technique are directed toward assuring unobstructed drainage of natural ostia. The purpose for the design of the described instruments is to provide precise dissection with optimal visualization. The Integrated Power Console (IPC® System), used in combination with these instruments, provides the finest state-of-the-art capability to enhance all minimally invasive sinus surgery.

Step 1: Addressing the Middle Turbinate

The initial step in the minimally invasive approach is to deal with obstructive concha bullae, if present. The removal of the lateral wall of the middle turbinate must be extensive enough to include the natural ostium of the concha. Failure to address this ostium can lead to a very deceptive recirculation that is difficult to see in postoperative office examinations. Follow-up CT scans can be mistakenly read as primary frontal recess/frontal sinus disease (FR/FS) when, in fact, it is mucosal edema at the recirculation site causing secondary FR/FS disease. After incising the anterior/inferior wall of the concha, removal of its lateral wall is augmented using the sharp suction freer (MCEN764) to dissect tissue to find the natural ostium. Complete removal is accomplished using a microdebrider (Figures 1 and 2).

Nota Bene: The technique description herein and the use of instructions for the related procedures are made available by Medtronic ENT to the healthcare professional to illustrate the author’s suggested treatment for the uncomplicated procedure. In the final analysis, the preferred treatment is that which, in the healthcare professional’s judgement, addresses the needs of the individual patient.
Sinus Surgery: The Minimally Invasive Approach

Step 2: Creating the Uncinate Window

The next step is removal of the uncinate process. If the FR/FS disease is non-existent, or only the sinus has mucosal edema, the FR/FS does not require any surgical debridement. The lower portion of the uncinate that covers the maxillary sinus ostium is all that needs removal. A preferred method of resection is to utilize the “window” technique. A 135° probe (MCEN762) specifically designed to reach into the infundibulum is positioned, then pulled toward the surgeon. A flattened 135° probe (MCEN763) provides easier access to the infundibulum and greater elevation of the uncinate. This elevates the uncinate away from the lateral nasal wall and prepares it for precise removal with the backbiter (Figure 3). Nota Bene: The technique description herein and the use of instructions for the related procedures are made available by Medtronic ENT to the healthcare professional to illustrate the author’s suggested treatment for the uncomplicated procedure. In the final analysis, the preferred treatment is that which, in the healthcare professional’s judgment, addresses the needs of the individual patient.

The backbiter (MCEN27-2) removes the uncinate from posterior to anterior. It is critical that the entire uncinate be removed in this line of dissection. Any of the anterior portion of the uncinate process that is not removed can obscure visualization of the natural maxillary ostium (Figure 4).

Author’s Note: The MicroFrance® Pediatric Backbiter (MCEN27-2) is inserted into the middle meatus with the cutting jaw in the closed position. The jaw is opened in a near vertical orientation, then rolled behind the free edge of the uncinate. It is optimally positioned with gentle opening and closing of the jaw; the posterior to anterior dissection now begins. This is best achieved using a controlled, consecutive series of bites in a retrograde fashion to form a window in the uncinate.

Step 3: Enlarging the Uncinate Window

This window is then enlarged with a microdebrider at 3,000 RPM in oscillate mode for optimal visualization of the maxillary sinus ostium. Using an angled endoscope with a microdebrider assures continuous protection of the ciliated mucosa of the maxillary sinus outflow tract and the final common pathway (Figure 5).

The bony portion of the most inferior uncinate is positioned for removal by shaving off some of its medial mucosa with a microdebrider. Using the flattened 90° probe (MCEN763), the lateral mucosa and remaining medial mucosa are dissected from the uncinate bone. The bone is then elevated from the surgical field with the 90° probe. Under endoscopic vision, a microdebrider gently shaves the remaining inferior uncinate mucosa, taking care not to touch the membrane of either the maxillary sinus outflow tract or final common pathway (Figure 6).

Step 4: Inspecting the Maxillary Ostium

The 110° olive tip suction (MCEN766 and MCEN767) are designed to cleanse the operative site of blood, allowing the best possible view of the natural maxillary sinus ostium (Figure 7).
If an accessory ostium is found in the final common pathway, it may be connected to the natural ostium using either the push or the pull end of the antrostomy blade (MCEN761 and MCEN760). The push blade is inserted into the natural ostium and, with a sawing motion, a cut is made to the accessory ostium. Sometimes it is easier to use a pull blade sawing from the accessory to the natural ostium (Figure 8). The mucosa between the two ostia is then removed with a microdebrider (Figure 9).

**Step 5: Dissection of the Ethmoid Bulla**

The bulla ethmoidalis is then opened on its anterior/inferior surface using the sharp suction elevator (MCEN764). Dissection is continued until its natural ostium is identified on its posterior surface (Figure 10).

The medial wall of the bulla is then completely removed with a microdebrider (Figure 11). When the posterior medial wall is completely removed, the natural ostium of the bulla is adequately dealt with and recirculation will not occur. In the majority of the patients, this is all the surgery that is required.

Secondary FR/FS, posterior ethmoid or sphenoid disease will usually resolve with typical postoperative care having effectively drained the ostiomeatal complex.

**Other uses for these instruments:**

**Endoscopic Septoplasty**

If a septoplasty is required, the dull suction elevator (MCEN765) elevates the septum mucosa from the cartilage or bone with reduced risk of mucosal tears while keeping the operative site free of blood. The sharp suction elevator can be used to incise the mucosa or the cartilage as necessary (Figure 12).

**Use of the Suction Curettes**

When the basal lamella or anterior wall of the sphenoid sinus requires removal, the 60° or 90° suction curette (MCEN769 or MCEN768) can be placed in the surgical opening made in the inframedial quadrant. A pulling motion resects bone and this is repeated to the base of the skull. The suction provides clear visualization during this dissection (Figure 13).
**MicroFrance® Parsons Minimally Invasive Sinus Instruments Set**

*MCEN7600*

For close-up photographs and more details about set instruments, please see the following spread.

**Set Includes:**

- **MicroFrance® Pediatric Backbiting Forceps, Curved Down**
  - MCEN27-2
    - Overall Length 105.0 mm (4.1”)
    - Working Length 90.0 mm (3.5”)
    - 1.5 mm x 3.0 mm Bite

- **Push-Pull Antrostomy Blade, 10.0 mm**
  - MCEN760
    - Overall Length 240.0 mm (9.4”)
    - Working Length 75.0 mm (3.0”)

- **Push-Pull Antrostomy Blade, 7.0 mm**
  - MCEN761
    - Overall Length 247.0 mm (9.7”)
    - Working Length 75.0 mm (3.0”)

- **Sinus Probe, 50/90°, 7.0 mm**
  - MCEN762
    - Overall Length 245.0 mm (9.6”)
    - Working Length 75.0 mm (3.0”)

- **Sinus Probe, 50/90° Flat, 7.0 mm**
  - MCEN763
    - Overall Length 245.0 mm (9.6”)
    - Working Length 75.0 mm (3.0”)

- **Suction Elevator, Sharp, 3.0 mm x 8.0 mm Tip**
  - MCEN764
    - Overall Length 190.0 mm (7.5”)
    - Working Length 84.0 mm (3.3”)

- **Suction Elevator, Dull, 3.0 mm x 8.0 mm Tip**
  - MCEN765
    - Overall Length 190.0 mm (7.5”)
    - Working Length 84.0 mm (3.3”)

- **Sinus Suction Tube, 3.0 mm Diameter**
  - MCEN766
    - Overall Length 150.0 mm (5.9”)
    - Working Length 90.0 mm (3.5”)

- **Sinus Suction Tube, 4.0 mm Diameter**
  - MCEN767
    - Overall Length 150.0 mm (5.9”)
    - Working Length 90.0 mm (3.5”)

- **Suction Curette, 90°, 2.0 mm x 3.0 mm Cup**
  - MCEN768
    - Length 150.0 mm (5.9”)

- **Suction Curette, 60°, 2.0 mm x 3.0 mm Cup**
  - MCEN769
    - Length 150.0 mm (5.9”)

- **One-Level Instrument Tray**
  - 3717010
    - 25.0 cm Wide x 53.0 cm Long x 4.0 cm Deep

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**Parsons Minimally Invasive Sinus Instrument Accessories**

- **Sharp Hockey Stick Seeker**
  - MCEN720
- **Uncinate Seeker, Angled**
  - MCEN721
- **Maxillary Seeker, Angled**
  - MCEN723

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*This kit/set is only available in the US. If you are outside the US, items in the kit/set must be ordered individually.*
**BACKBITER**

Backbiter
*MCEN27-2*

**ANTROSTOMY BLADES**

*Push-pull Antrostomy Blade, 10.0 mm*
*MCEN760*
- 10.0 mm

*Push-pull Antrostomy Blade, 7.0 mm*
*MCEN761*
- 7.0 mm

**PROBES**

*Sinus Probe, 50°/90°*
*MCEN762*

*Sinus Probe, Flat, 50°/90°*
*MCEN763*

**SUCTION CURETTES**

Suction Elevator, Sharp
*MCEN764*

Suction Elevator, Dull
*MCEN765*

**SUCTION ELEVATORS**

*Sinus Suction Tube, 3.0 mm*
*MCEN766*

**SUCTION TUBES**

*Sinus Suction Tube, 4.0 mm*
*MCEN767*

Suction Curette, 90°
*MCEN768*

Suction Curette, 60°
*MCEN769*
**SEEKERS**

- Sharp Hockey Stick Seeker
  - MCEN720

- Uncinate Seeker, Angled
  - MCEN721

- Maxillary Seeker, Angled
  - MCEN723

**IPC®**

IPC® System Kit*

**IPCSYSKIT**

- Kit includes:
  - IPC® Console 1898001
  - IPC Multi-Function Footpedal 1898430
  - Power Cord, 6 Meter, IEC 320, 115V 1897821
  - IPC Manual 1898851
  - Basket 1897510

Please note: Alternate power cords and manuals are available in the catalog.

**MICRODEBRIDER**

Straightshot® M4 Microdebrider and IPC® Accessories Set*

**M4KIT1**

- Set includes:
  - Straightshot® M4 High-Speed Microdebrider 1898200T
  - Straightshot M4 Instrument Tray 1898400

*This kit/set is only available in the US. If you are outside the US, items in the kit/set must be ordered individually.
For further information, please call Medtronic ENT at 800-874-5797 or 904-296-9600. You may also consult our website at www.MedtronicENT.com.

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