



# Treatment Options for Chronic Sinusitis

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# Disclosures

- I have no financial relationship with any of the companies or products discussed in this presentation.

# Sinusitis: Definition

- Chronic Sinusitis
  - Symptoms for more than 12 weeks
    - Nasal congestion
    - Post nasal drip
    - Facial pressure/fullness/headache
    - Decreased sense of smell
  - Evidence of inflammation on exam or imaging
- Recurrent Acute Sinusitis
  - More than four acute sinus infections per year
    - Patients feel fine in between episodes
    - May have normal exam and imaging between episodes

# Sinusitis: Overview

## Statistics

- 37 million afflicted in the US alone
- \$8.6 billion in healthcare costs
- Over 58 million days of restricted activity/year
- Accounts for 1 in 5 antibiotic Rx
- 525,000 sinus surgeries per year in the US

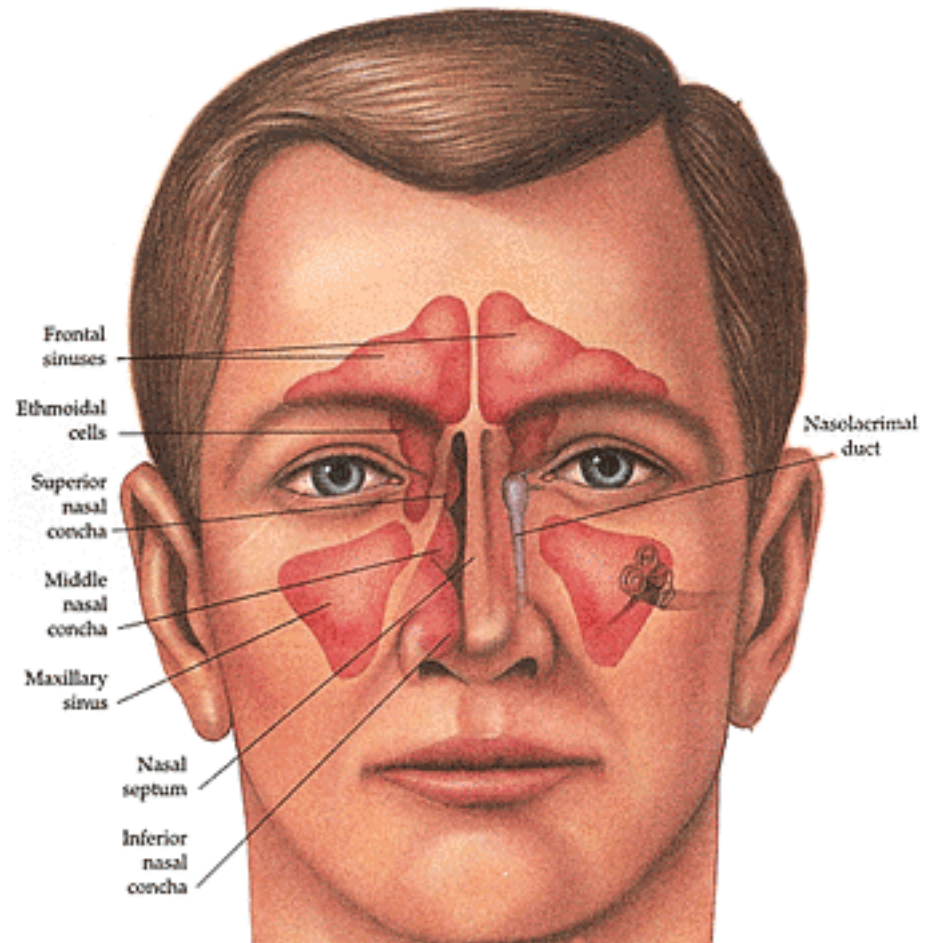
## Common Symptoms

- Purulent drainage
- Facial pressure and fullness
- Nasal congestion
- Fatigue
- Facial or dental pain
- Headache

- Anatomy
- Historical Context
- Progression of Surgical Techniques

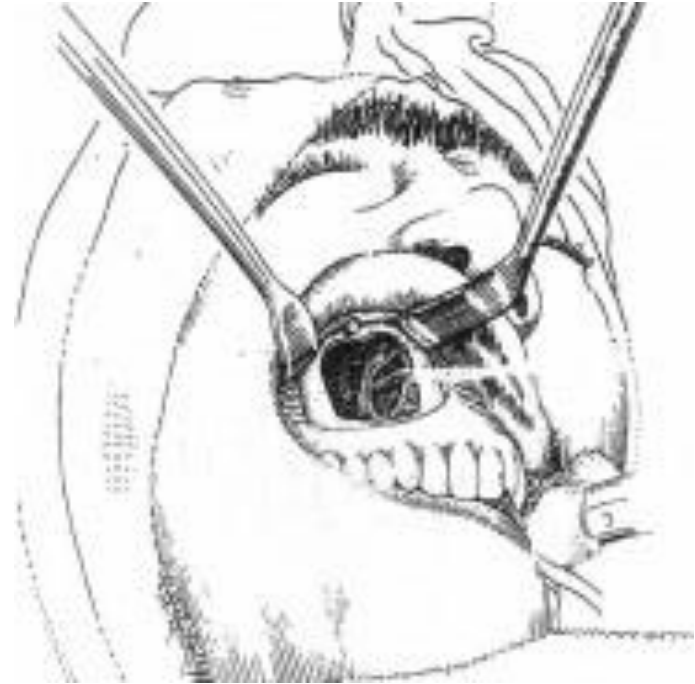
# Anatomy

- 8 paired sinuses
- Development continues into adulthood
- Significant variability
- Drainage pathways
  - Anterior (Front)
  - Posterior (Back)



# History

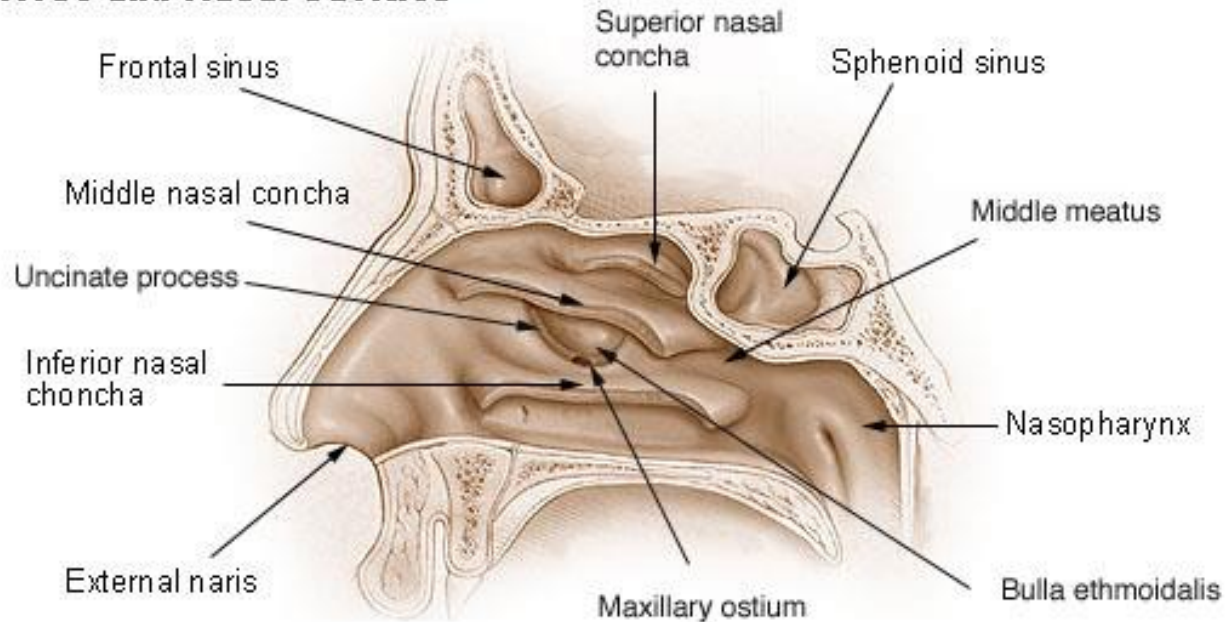
- Early sinus surgery was done through incisions in the skin or under the lip
- Today this approach is reserved for more complicated cases
  - Trauma
  - Tumors
  - Severe infections



# History

- Technical advances
  - Use of flexible and rigid endoscopes – 1950s/60s

## Nose and Nasal Cavities





# Functional Endoscopic Sinus Surgery

- Term FESS described by Dr. David Kennedy in 1985
- Less invasive than external approaches
- Goal is to create controlled openings into the sinuses
- Incorporate natural drainage pathways
- Remove inflammatory tissue
- Preserve normal landmarks, mucosa, and functional structures (turbinates) as much as possible

# Functional Endoscopic Sinus Surgery

- Technological advances
  - High definition cameras
  - Refinement of surgical tools
- Image guided surgery
  - Mapping a CT scan to instruments used during surgery
- Dramatic changes over the past 10 – 15 years
- **But** – still a surgery in the operating room with general anesthesia and extended recovery



# Sinus Balloon Dilation

- Part of the overall evolution in medicine toward less-invasive approaches
- FDA approved in 2005
- Balloon tool has expanded our ability to treat sinus disease safely, effectively, and less invasively
- Able to care for patients in the office setting, using local anesthesia
- Lower risks, less pain, faster recovery

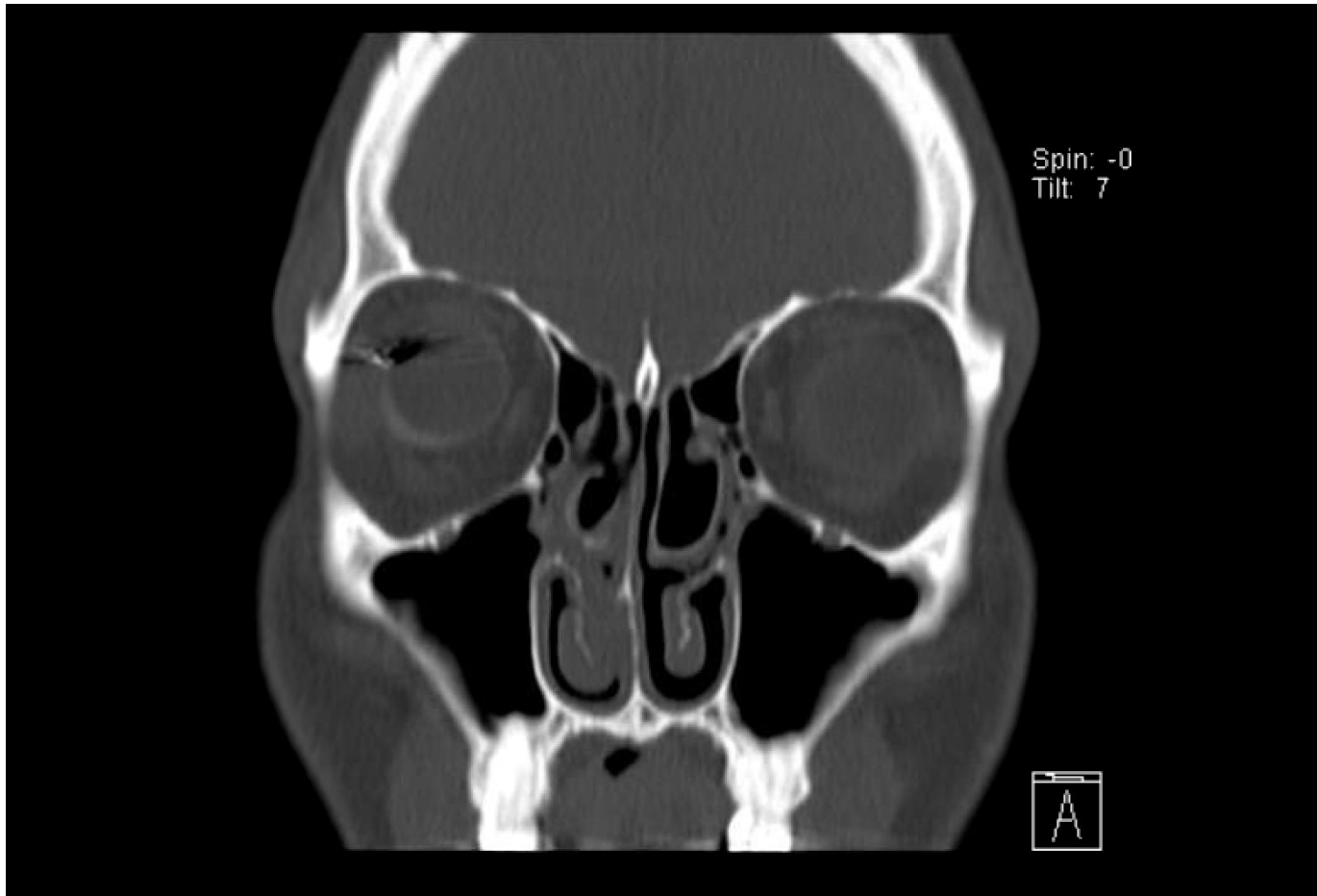
# Case Presentation

- 55 year old male with greater than 6 months of nasal congestion, post nasal drip, sinus pressure
- His symptoms worsen several times per year
- Sometimes diagnosed with an acute infection and given antibiotics, which do help
- Has tried nasal steroids (flonase, nasonex), antihistamines (claritin, allegra, zyrtec) without relief
- Referred to ENT by his primary care physician

# Case Presentation

- Exam in ENT office shows severe nasal congestion but otherwise not remarkable
- Optimize medical management
  - Nasal steroid sprays
  - Nasal saline
  - Longer course of antibiotics, possibly oral steroids
  - Consider allergy testing
- CT scan of the sinuses obtained after “maximal medical therapy”

# Case 1



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# Case Presentation

- What are the options for this patient?

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- Continued medical management?



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- What are the options for this patient?
- Continued medical management?
- Sinus surgery in the operating room?
- Office-based intervention?

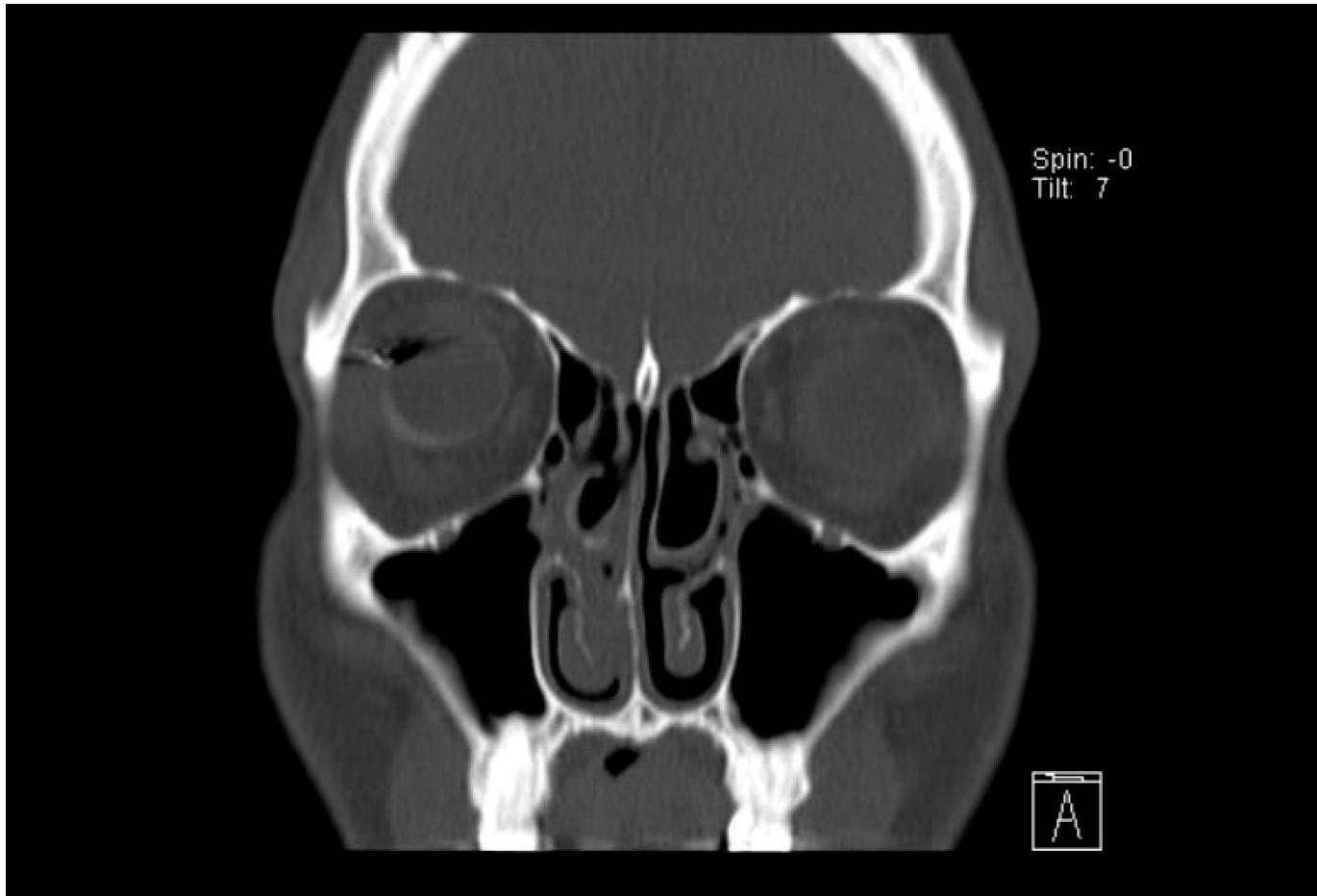
# Evidence

- Multiple studies have been done comparing outcomes, cost, and safety of balloon dilation vs. traditional sinus surgery (FESS)

# Balloon Sinus Dilation Data - Summary

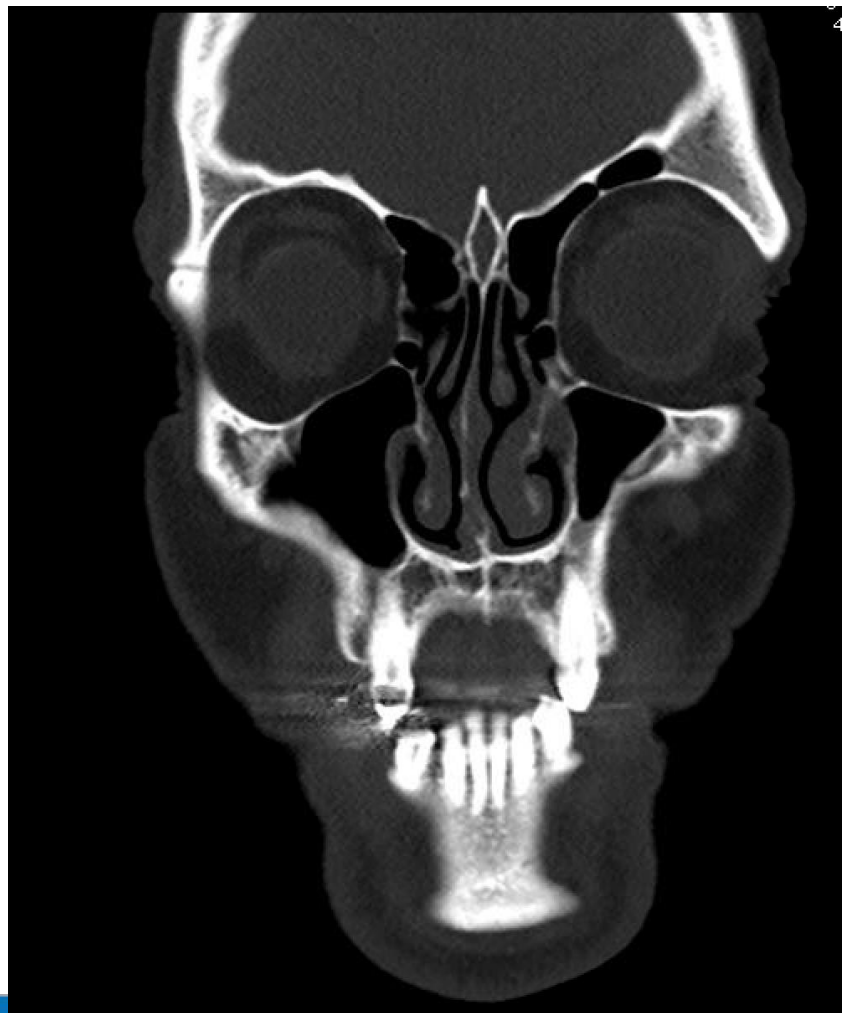
- High patient satisfaction, well tolerated in office setting
- Significant reduction in symptoms (similar to FESS)
- Low revision surgery rates (~ 5%)
- Faster return to normal activities (24-48 hours)
- Decreased costs to health care system
- Consistently good results across numerous clinical studies

# Case 1



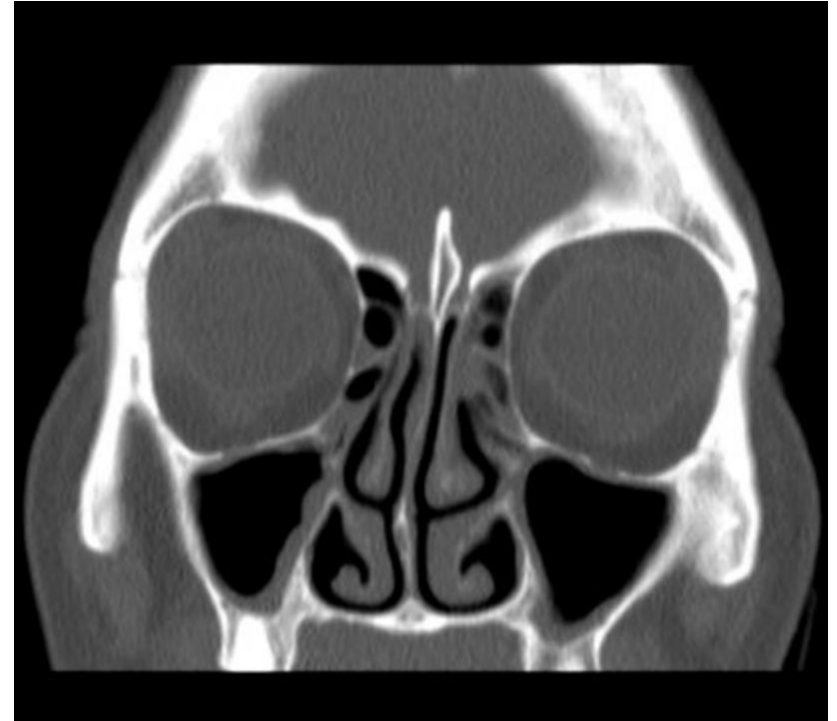
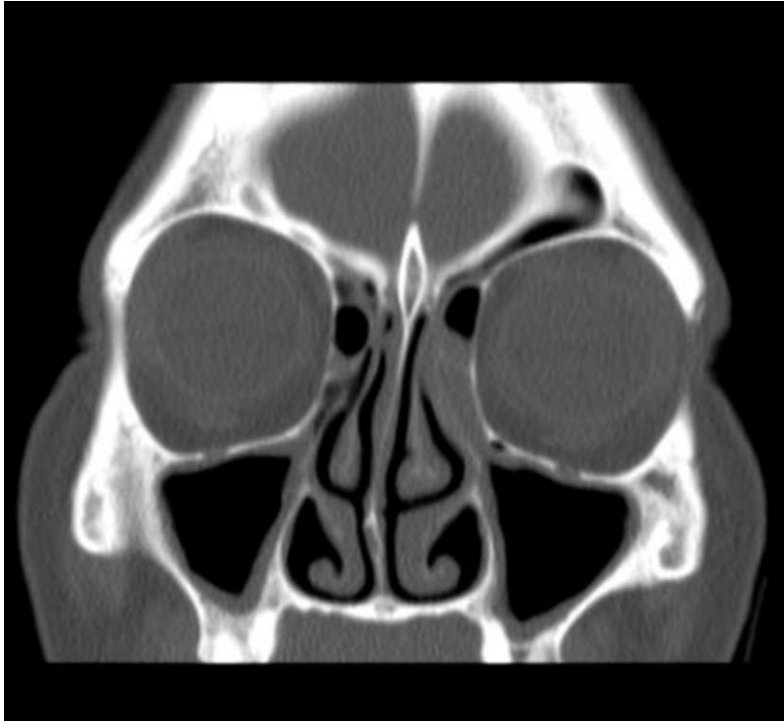
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# Case 2



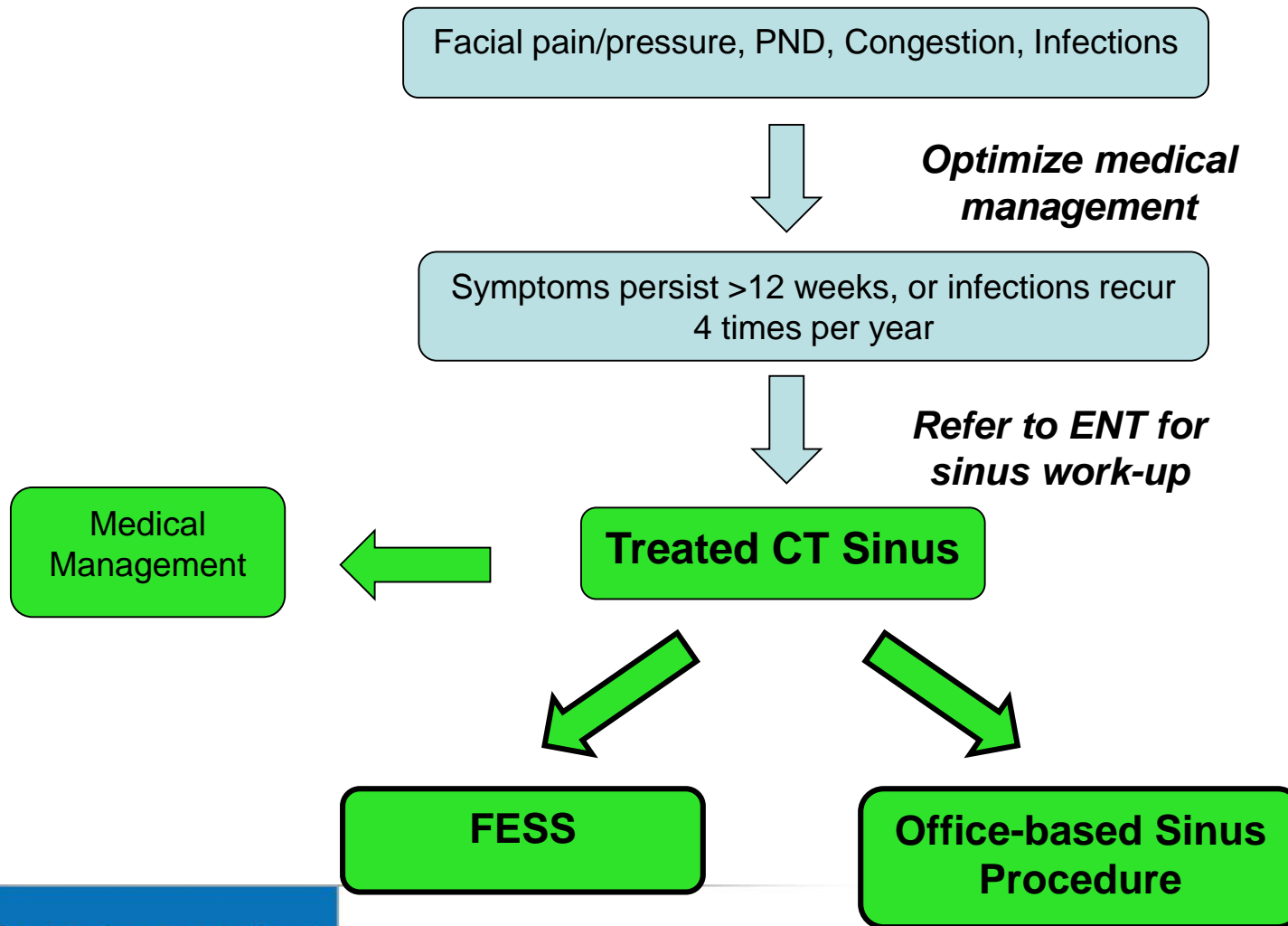
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# Case 3



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# Chronic Sinusitis Treatment Flow



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# Sinusitis: Treatment options



## Medical Therapy

Medicines commonly used to treat bacterial infection and allergies and provide symptomatic relief to the patient.

### Limitations:

- Does not address underlying anatomy
- Side effects



## Office Sinus Dilation

Ideal for patients who fail medical therapy but do not need, want, or are unable to have sinus surgery.

### Limitations:

- May not be able to treat some complex sinus disease



## Sinus Surgery

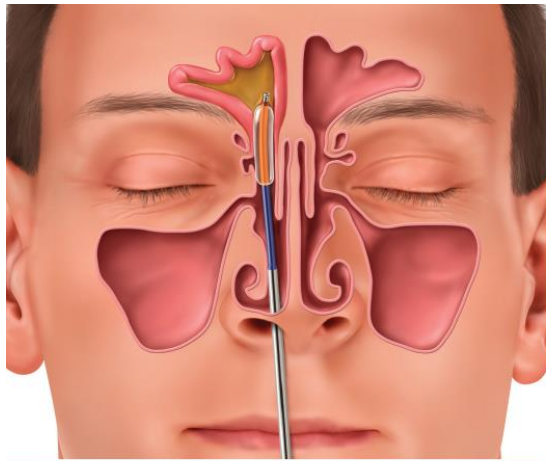
For patients who fail medical management and suffer from complex sinus disease. More invasive than balloon dilation.

### Limitations:

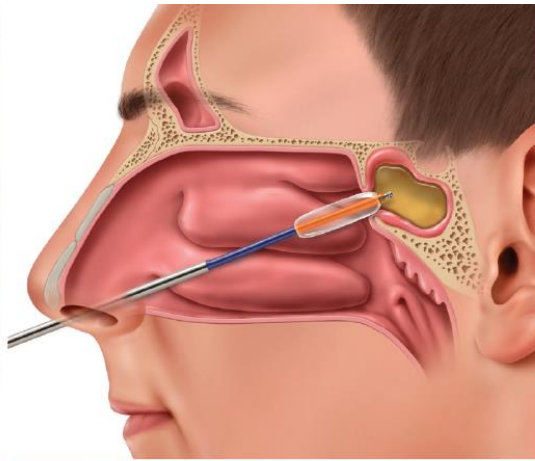
- Requires general anesthesia
- Longer recovery

# How does it work?

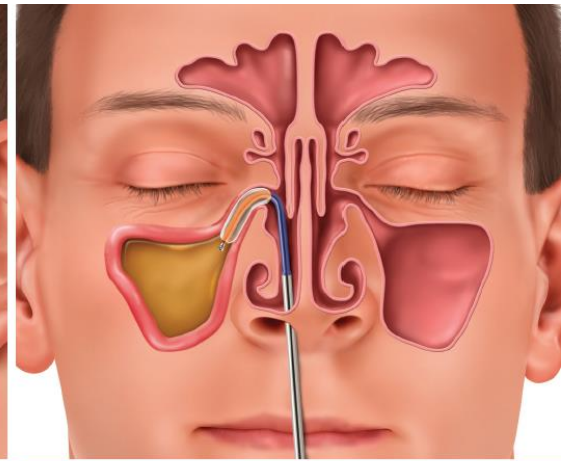
Treat frontal (forehead), maxillary (cheek), sphenoid and front part of the ethmoid sinuses by dilating/opening natural drainage pathways



FRONTAL SINUS



SPHENOID SINUS



MAXILLARY SINUS

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# Procedure overview

- Office procedure – approximately 60 minutes
- Pre-procedure pain medication, anti-anxiety medication, topical/local anesthesia
- Balloon is gently inserted into natural drainage pathways of affected sinuses
- Expanded to dilate and remodel drainage pathways of the sinuses
- Can also remove polyps, shrink turbinates, and perform other procedures
- Image guidance

# Sinus balloon example



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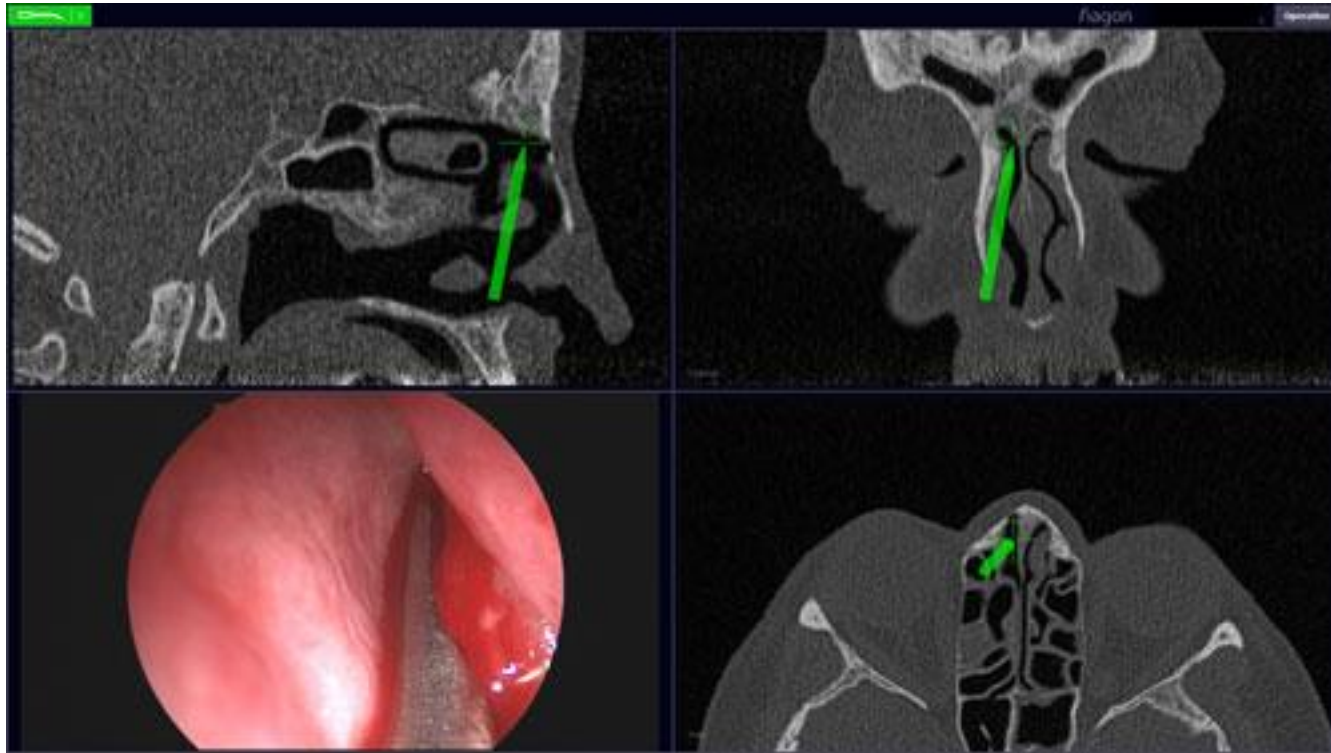
Courtesy of Entellus Medical

# Sinus balloon example



Acclarent Relieva Scout Multi-Sinus

# CT navigation for the office



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# Other tools designed for office



Entellus shaver

# Other tools designed for office



Entellus Cyclone

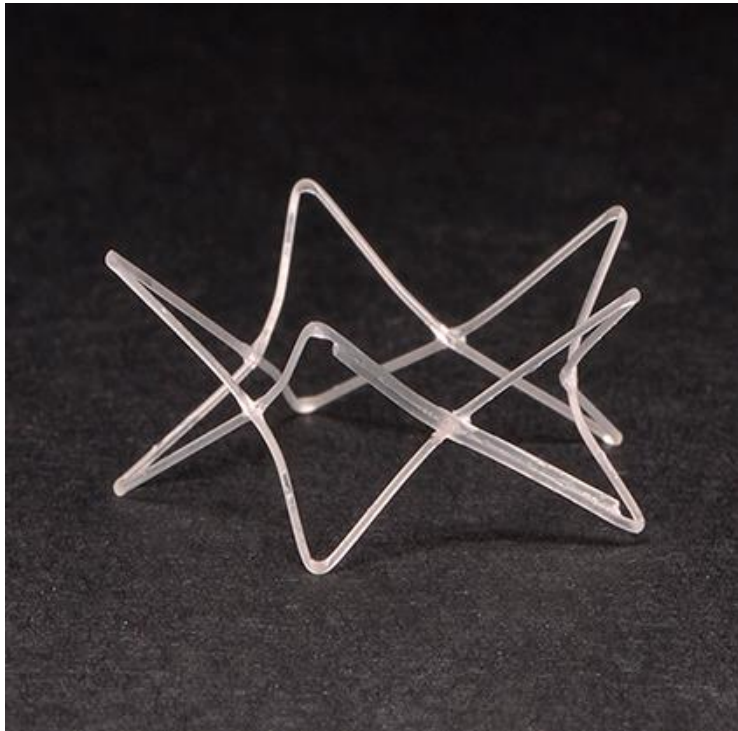


# Sinus balloon example

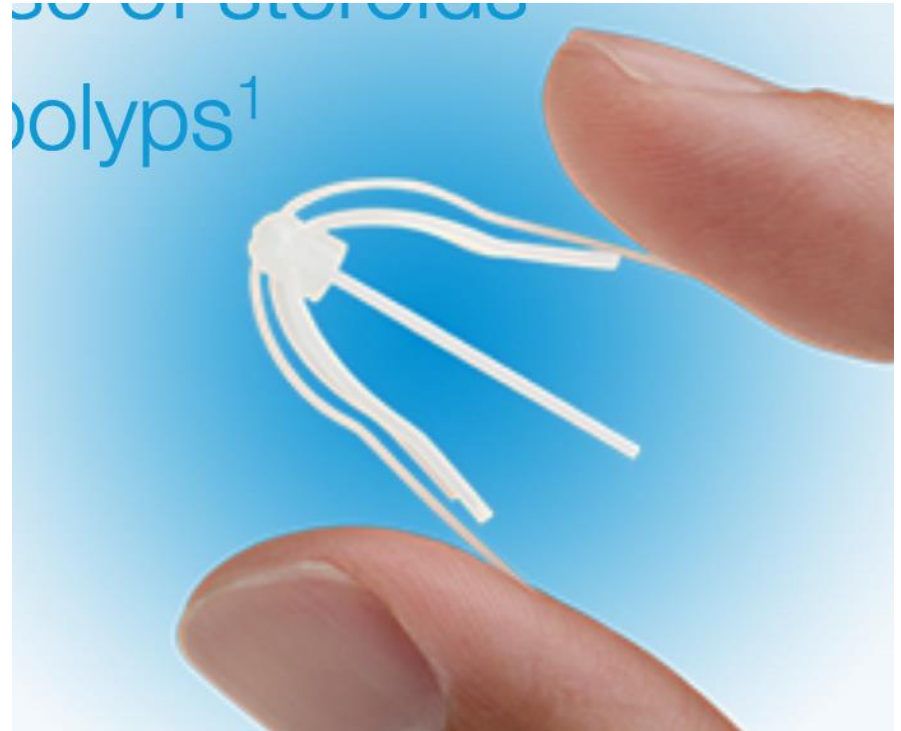


Medtronic NuVent compatible with  
Fusion image guidance

# Products for nasal polyps

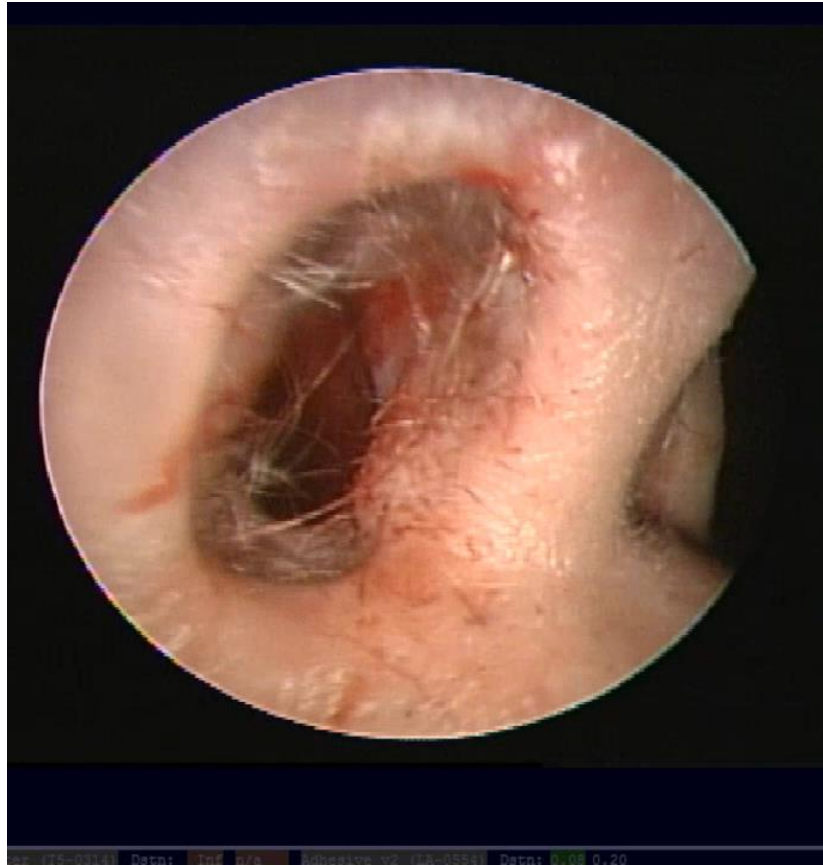


Propel Contour



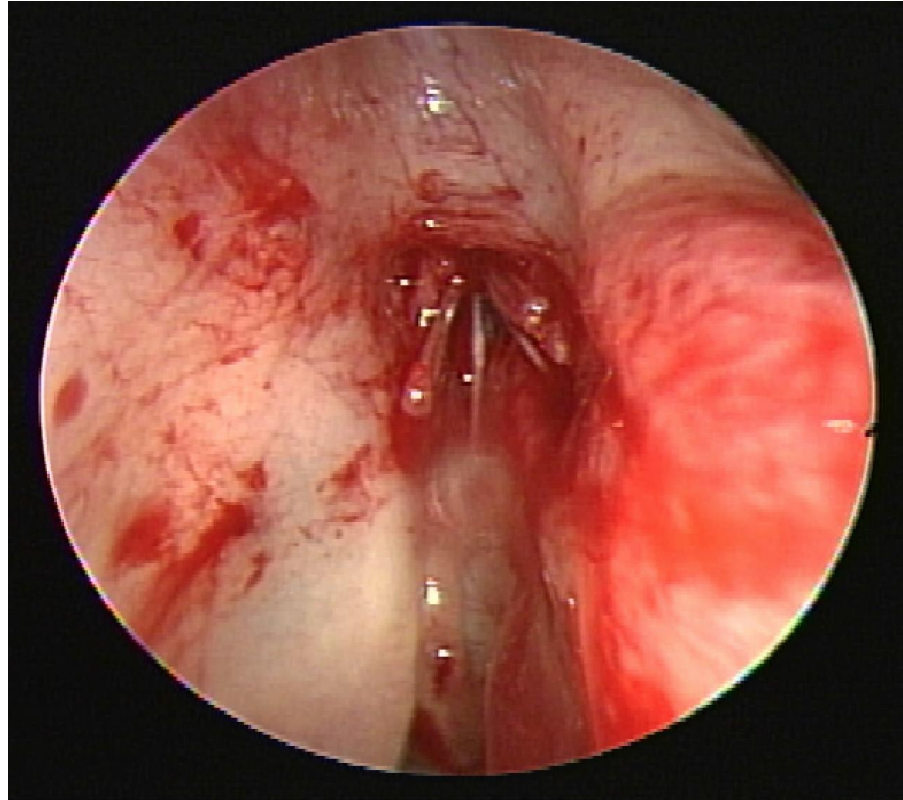
Sinuva

# Dissolvable steroid implant placement



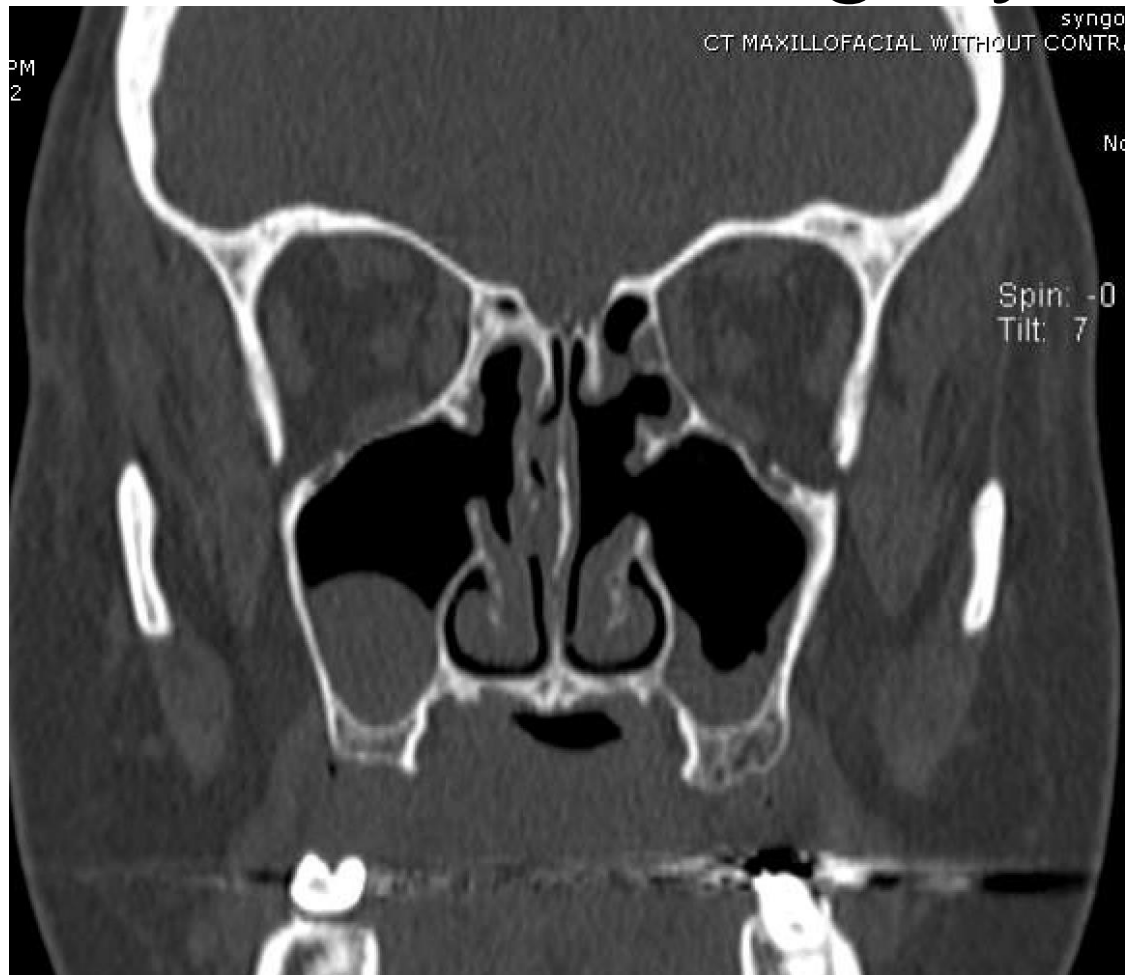
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# Dissolvable steroid implant in frontal sinus outflow tract



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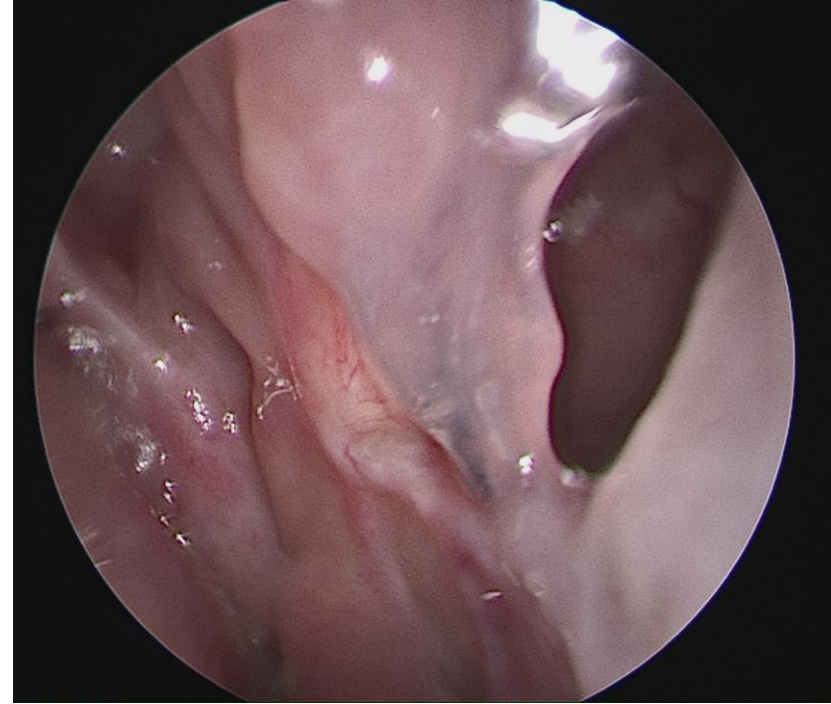
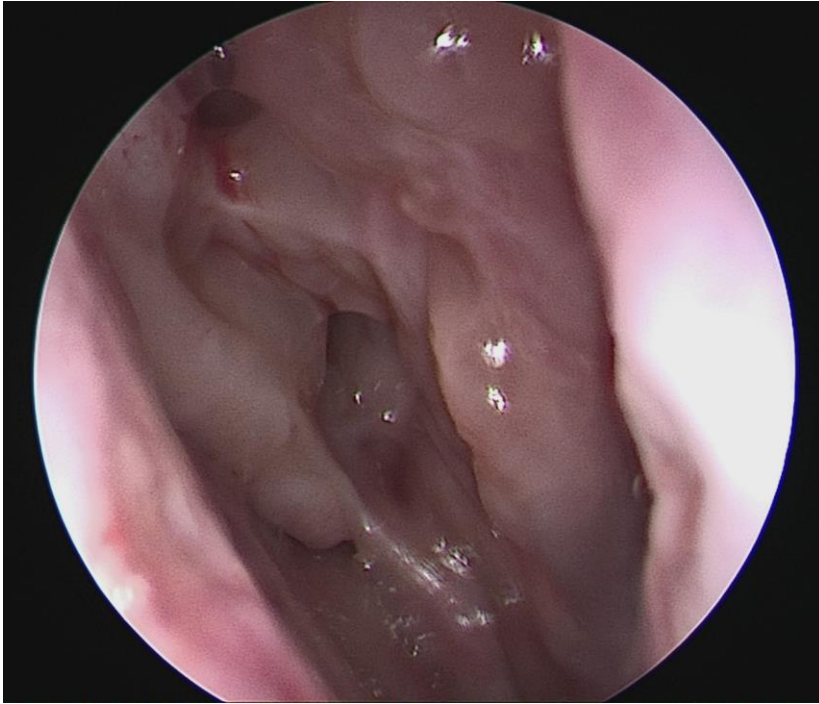
# Revision surgery



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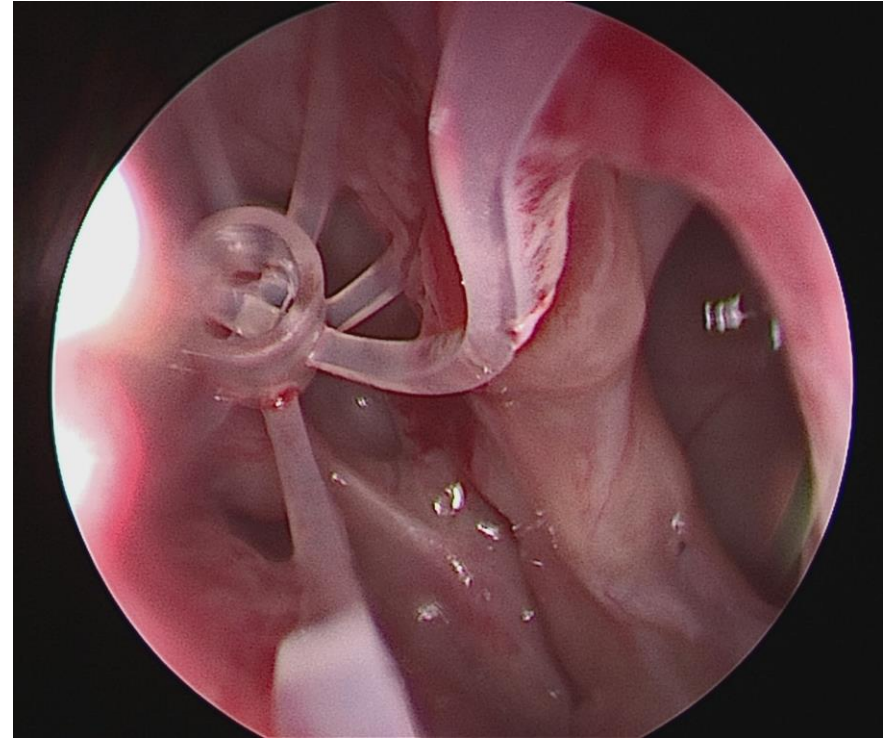
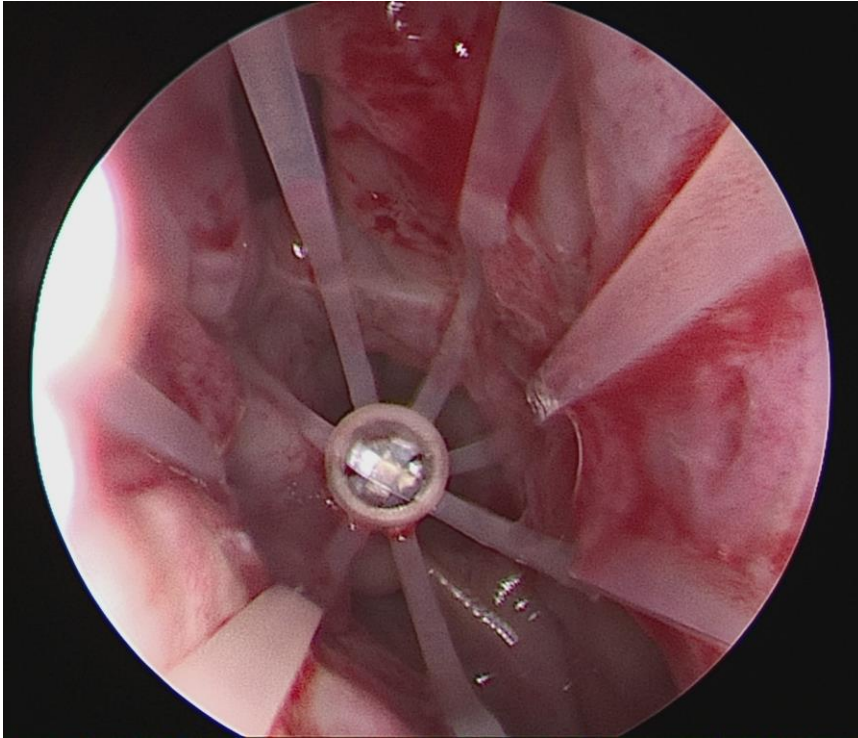


# Revision surgery



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# Polyp removal; implant placement



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# Office sinus dilation

- [Syracuse Channel 9 News Story](#)



# Conclusions

- Balloon sinus dilation is a tool that enables a less invasive, office-based intervention for chronic sinusitis
- Has been shown to be safe and effective
- Part of the progression in medicine toward minimally invasive surgery and office-based procedures
- Decreased costs to the health care system

# Conclusions

- New tools and improved local anesthesia techniques are expanding our ability to treat variety of conditions in the office setting under local anesthesia
- Revision procedures
  - Image guidance
  - Smaller instrumentation
- Polyp removal
  - Shaver
  - Long acting steroid implant
- Equipment often as good or better than what is in the operating room

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# QUESTIONS?

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