

## *The Bluish Sign: IGS-Rainbow View is More Helpful than Grayscale View in Differentiating Mycotic Disease in Sinus Cases*

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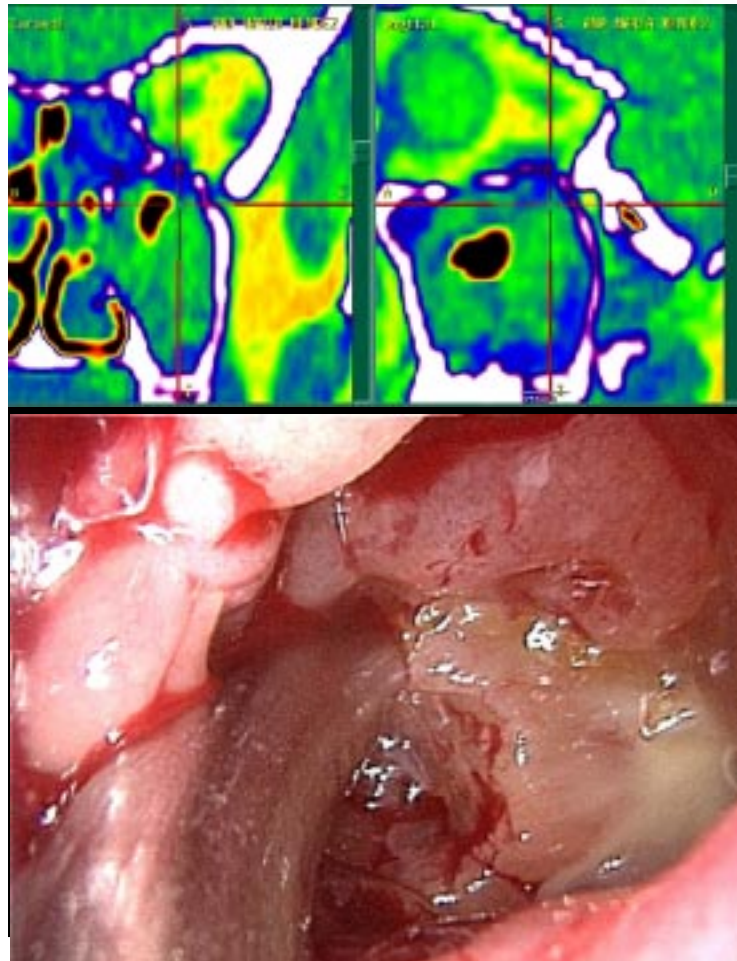
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### Case #1

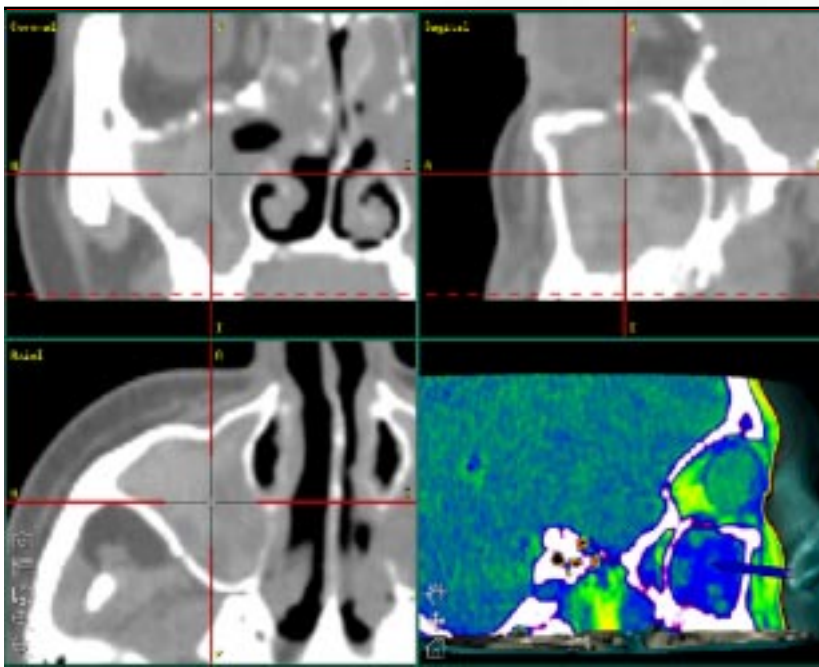
AMR is a 32-year-old woman who presented with chronic cough and a thick postnasal drip associated with a sensation of fullness in the mid face of the left side. A nasal endoscopy revealed a severe left infundibulum disease, a bulged posterior fontanelle and a thick brownish purulent material draining from this area. The CT demonstrated an opacified left maxillary sinus. Any other CT abnormality could not be identified using a 300 mAs window in an effort to identify a possible mycotic content in the maxillary sinus.



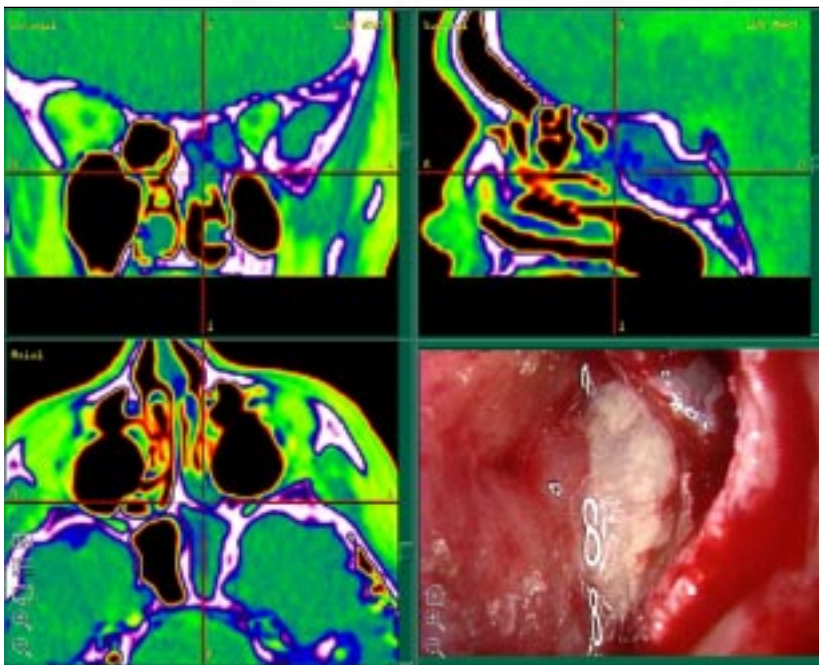
### Surgery

An endoscopic surgical approach to the maxillary sinus was done marsupializing the infundibulum first. The uncinate process was then removed by a blunt dissection using a seeker. The natural ostium was then identified and enlarged cutting the posterior fontanelle with the aid of a microdebrider. An inspissated mucous content of the maxillary sinus was aspirated and a fungus ball was also observed and evacuated by repeated antral irrigations and aspiration.

**Figure 1, Left Maxillary Sinus Views:** *Inspissated secretions and a "peanut butter like" content is observed inside the sinus confirming mycosis. The white arrow shows the "bluish sign."*



**Figure 2:** View of the Screen of the Landmark ENT Navigator which demonstrates the “bluish sign” in the rainbow mode (blue pointer) in the 3D model. Note how regular CT scale shows only a diffuse opacified left maxillary sinus.



**Figure 3:** Posterior ethmoid and sphenoid sinus A, B and C. Rainbow Scale view of the sagittal axial and coronal planes. White arrow shows deep blue granules seen at 400 contrast and 1400 brightness units when using the Rainbow Scale. (Bluish Sign) D. Endoscopic View, 0° 4mm telescope, of mycotic material later documented to be Aspergillus disease draining from the masupialization of the sphenoid sinus ostia.

The surgical finding correlates well with the differences in the color spectrum and densities observed in the IGS Rainbow View in which a granular and a characteristic dense blue image “bluish sign”, is observed when a 400 contrast and a 1400 brightness values are set on the screen views.

## Case #2

MLW is a 62-year-old woman who presented with a severe diffuse headache irradiated over both eyes. The CT scan showed a diffuse left sphenoid sinus and posterior ethmoid sinus opacification. A 300 mAs window was also used in an effort to identify a possible mycotic sinus occupation.

## Surgery

A targeted approach to the posterior ethmoid cell and to the sphenoid sinus was made using IGS. Rainbow views were used to identify differences in the color images and in the densities of content in the sinuses. The IGS Rainbow view revealed a characteristic granular and deep blue image “bluish sign” That was suspect of a mycotic material inside the sinuses. Both sinuses were exteriorized and an extended aspergillus mycotic ball infection was documented as abundant Hyphae in the pathology report as the cause of the disease.

Nota Bene: The technique description herein and the use of instructions for the related procedures are made available by Medtronic Xomed, Inc. to the health care professional to illustrate the author's suggested treatment for the uncomplicated procedure. In the final analysis, the preferred treatment is that which, in the health care professional's judgement, addresses the needs of the individual patient.

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