There were 105 CRS patients who received FESS incorporating IGS by Drs. Jiang and Liang between January 2010 and August 2011. Group 1 had 50 primary patients without nasal polyps operated on by Dr. Jiang. Among these patients, 43 endoscopic sphenoidotomies were successfully performed and 2 sphenoid sinus fenestrations were successfully opened. The success rate for the sphenoid sinus penetration was 93.3%.

Group 2 had 53 primary patients with nasal polyps operated on by Dr. Jiang. Among these patients, 51 endoscopic sphenoidotomies were successfully performed and 5 sphenoid sinus fenestrations were successfully opened. The success rate for the sphenoid sinus penetration was 94.2%.

There were 178 CRS patients who received FESS without IGS performed by Dr. Jiang between September 2007 and December 2009. Group 1 had 70 primary patients with nasal polyps. Among these patients, 137 endoscopic sphenoidotomies were performed and 12 sphenoid sinus fenestrations were successfully operated on. The success rate for the sphenoid sinus penetration was 98.6. Group 8 had 78 primary patients without nasal polyps. Among these patients, 116 endoscopic sphenoidotomies were performed and 116 sphenoid sinus fenestrations were successfully operated on. The success rate for the sphenoid sinus penetration was 100%.

There were 50 primary patients without nasal polyps operated on by Dr. Liang. Among these patients, 49 endoscopic sphenoidotomies were successfully performed and 41 sphenoid sinus fenestrations were successfully opened. The success rate for the sphenoid sinus penetration was 92%. Group 2 had 94 primary patients with nasal polyps operated on by Dr. Liang. Among these patients, 90 endoscopic sphenoidotomies were successfully performed and 81 sphenoid sinus fenestrations were successfully opened. The success rate for the sphenoid sinus penetration was 88.6. Group 3 had 38 patients who received revision FESS performed by Dr. Jiang. Among these patients, 68 endoscopic sphenoidotomies were performed and 62 sphenoid sinus fenestrations were successfully opened. The success rate for the sphenoid sinus penetration was 94.2%.

When IGS was performed, the success rates for the sphenoid sinus penetration between IGS and non-IGS primary patients with and without nasal polyps and patients who received primary FESS with and without IGS were compared. When IGS was performed, there was no difference in the success rates for the sphenoid sinus fenestration between IGS and non-IGS primary patients with and without nasal polyps and patients who received primary FESS with and without IGS. When IGS was performed, there was no significant difference between patients with and without nasal polyps, although the success rates for the sphenoid sinus penetration in revision FESS with IGS were significantly higher than those in revision FESS without IGS. Therefore, when IGS was used, the success rates in revision FESS were almost the same as those in primary FESS. However, if IGS was not used, revision FESS without IGS. Moreover, with IGS, the success rates were higher than 90%, for both surgeons.

An optical-based image-guidance system (StealthStation Treon; Medtronic, Inc., Louisville, CO) has been available for use at Taichung Veterans General Hospital, Taiwan, since January 2010. Patients with CRS who underwent FESS incorporating IGS were selected for this study. Any patient whose surgical specimen confirmed fungal infection or tumor growth was excluded from the study. Endoscopic sphenoidectomy was performed by 3 surgeons. A diagnosis of sinonasal mucosal infection was defined as the presence of mucosal infection or tumor growth.

Table 1 shows the comparison of the success rates for the sphenoid sinus fenestration between IGS and non-IGS primary patients with and without nasal polyps and patients who received primary FESS with and without IGS. The success rates for the sphenoid sinus fenestration were compared between IGS and non-IGS primary patients with and without nasal polyps and patients who received primary FESS with and without IGS. The success rates for the sphenoid sinus fenestration were compared between IGS and non-IGS primary patients with and without nasal polyps and patients who received primary FESS with and without IGS. The success rates for the sphenoid sinus fenestration were compared between IGS and non-IGS primary patients with and without nasal polyps and patients who received primary FESS with and without IGS. The success rates for the sphenoid sinus fenestration were compared between IGS and non-IGS primary patients with and without nasal polyps and patients who received primary FESS with and without IGS.

Our results showed IGS was a beneficial procedure for opening the sphenoid sinus, especially in the revision cases. Moreover, IGS might be considered as a routine technique for opening the sphenoid sinus, especially in the revision cases.