**History of Fiberoptic Endoscopic Evaluation of Swallowing (FEES)**

Fiberoptic Endoscopic Evaluation of Swallowing (FEES) is a procedure employed to assess the area surrounding larynx and the opening of the pharynx, using a small flexible endoscope passed across the floor of a patient’s nasal passage in order to evaluate the swallowing function and associated pathologies. The modern FEES equipment bears little resemblance to preliminary procedures carried out in the mid 1980s. The modern FEES equipment comprises of a flexible endoscope passed transnasally by a speech-language pathologist into the upper pharynx to observe the swallow and structures involved. Typically, the procedure falls within the scope of practice of speech-language pathology.

# **Early Procedures:**

The earliest description of FEES in literature dates back to 1988. Fiberoptic laryngoscope technology was just introduced in the otolaryngology. Around this time, laryngoscopy was performed using a mirror or more invasive equipment comprising of a direct laryngoscope. The exam was not recorded using a camera, the equipment only allowed the speech-language pathologist (SLP) to look through an eye hole, and most of the swallow was missed as it is a dynamic process. Additionally, the SLP being the sole viewer of the procedure, had to remember what they saw in order to prepare a report.

The first fiberoptic laryngoscopy is usually credited to Swashima and Hirose in 1968. They transformed the practice of a laryngoscope by using a transnasal approach while the patient remained conscious during the process. It provided a view of vocal folds during natural speech.

## **Technological advances over the years**

Over the year, technology has drastically improved. Owing to cameras, monitors, video recorders, and other technological advances, the procedure has become far less invasive and much more sophisticated. Using advanced camera chip technology, a high definition video can be obtained, enabling the swallowing structures to be seen on a monitor. The recording can be viewed by multiple viewers in real-time, allowing for a better understanding of anatomy, physiology, or any associated pathology.

### **Development of modern technology:**

The development of modern technology is credited to Dr. Susan Langmore (SLP), Dr. Nels Olson (ENT), and Ken Schatz (SLP). Working in an ENT clinic, they came up with the idea to use a laryngoscope to view the process of swallowing. Initially, when flexible nasal endoscopy was used on healthy volunteers, the results were disappointing as there was a lack of characteristic findings. However, when the same equipment was used on patients with dysphagia, the results were promising—the technology allowed for clear visualization of structural movements, secretions, spillage, aspiration, and residue.

At first, FEES was not readily accepted as a standard procedure and was dismissed by many clinicians. However, the situation has drastically changed over the years, and it is now recognized as a gold-standard procedure along with the Modified Barium Swallow Study (MBSS), also known as videofluoroscopic swallow procedure (VFSS).

**References:**

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