



New Commercially Available Digital Camera System Provides Real-Time Visualization During Transesophageal Echocardiography (TEE) Probe Placement

Observational Data From 5 Real-World Use Patient Cases Concludes Successful First Pass Intubations with No Adverse Events

Authors, S. Mankad¹
1Mayo Clinic, Rochester, MN, USA

INTRODUCTION

TEE probe intubation can be difficult as clinicians have no direct visibility of the esophagus and the surrounding anatomy while navigating the probe. This can lead to esophageal injury, perforation, or failed intubation. A recent study found new esophageal injuries in 86% of patients (n=50) post TEE with complex lesions in 40% (n=20 of 50) of those cases. The newly commercialized TEECAD[®] System uses an FDA-cleared digital camera technology to provide physicians with real-time visualization during TEE probe placement to help reduce intubation times and complications. This paper reviews the use of TEECAD in 5 patients on a single day at the Mayo Clinic in Rochester, MN.

METHOD

The TEECAD System was used on 5 patients undergoing TEE on August 2, 2022. There was no specific requirement or rationale as to which patient received TEECAD. All patients were male with diverse age (40 – 80 years old) and clinical presentations including stroke, valve disease, afib, PFO, and LAAO.

RESULTS

All TEE cases were performed using TEECAD attached to a Philips X8 TEE probe. Intubation time from insertion into oral cavity to correct probe placement was observed to be under one minute in all cases. First pass intubation success was achieved in all cases. TEECAD created no image artifact even when left in place during TEE imaging. There were no adverse events or complications reported. TEECAD was effective in all cases with qualitatively faster probe placement compared to conventional TEE procedures.

The last patient was a 50-year-old male. The TEE probe was advanced into the oropharynx with TEECAD. The esophagus was tight and advancement of the probe required careful maneuvering. Without the use of TEECAD, the tight esophagus may have caused the physician to remove the probe and restart the procedure, possibly increasing the risk of injury to the patient and adding time. Instead, with the use of TEECAD, the probe was advanced efficiently and effectively to the lower esophagus on the first pass and the TEE study was performed without difficulty, complications, or escalation of care.



Image: Physician noting the esophageal inlet during intubation.

CONCLUSIONS

The experience in all cases was that TEECAD was safe and effective in imaging the esophagus and surrounding anatomical structures. Use of TEECAD was effective in reducing the time needed for accurate probe placement and promoting first pass intubation success with no adverse events. It may also help reduce the cost-of-care for TEE as additional staff do not need to be called in to support intubations. TEECAD shows promise as a new, but essential device, for cardiology TEE intubation.

REFERENCES

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