Peroral Endoscopic Myotomy; What is the Learning Curve?

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Introduction

- Peroral Endoscopic Myotomy (POEM) is an endoscopic procedure that lyses the inner circular muscles of the lower esophageal sphincter (LES) in order to treat achalasia and other spastic esophageal disorders
- It is a novel alternative to Heller Myotomy and requires no skin incisions
- **We seek to define the learning curve of POEM for a foregut surgeon with no formal endoscopic or POEM training by analyzing different intraoperative factors in a single series**

Methods and Procedures

- The first 38 consecutive patients undergoing POEM by a single foregut surgeon were included in this retrospective study
- Inverse curve regression models were used to analyze Total Operative Time (TOT), Total Operative Time Per Centimeter of Myotomy (TOT-CM), Number of Instrument Passes/Exchanges Through the Endoscope (NIP), and Total Number of Clips Used for Tunnel Closure (TNC)

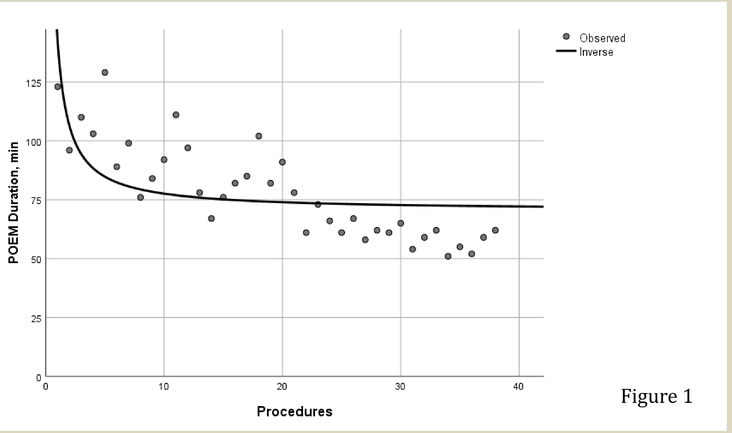


Figure 1

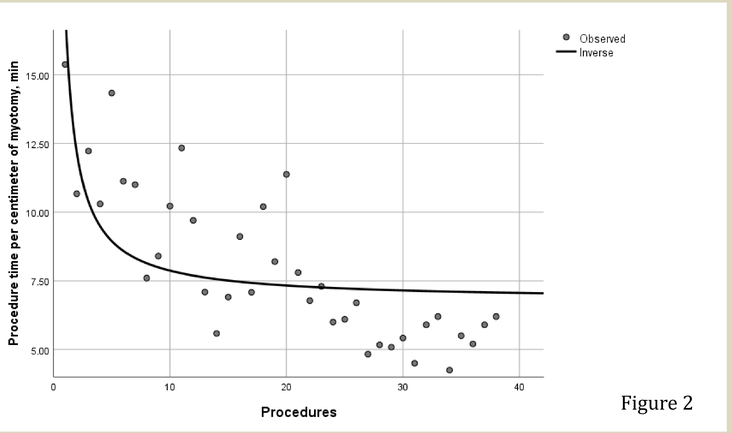


Figure 2

Fig. 1 Total procedure time significantly decreased over the course of POEM procedures, with a learning plateau at 70 minutes and a learning rate of 12 cases.

Fig. 2 Total procedure time per centimeter of myotomy significantly decreased over the course of POEM procedures, with a learning plateau at 7 minutes/cm and a learning rate of 12 cases.

Results:

- The total operative time (median 76 minutes, range 51–129) decreased significantly over the course of the series (R^2=0.38, P <0.001), with a learning plateau at 70 minutes and a learning rate of 12 cases (Figure 1)
- Total Operative Time Per Centimeter of Myotomy (median 7.08 min/cm, range 4.25 to 15.38) decreased significantly over time (R^2=0.45, P<0.001), with a learning plateau at 7 minutes/cm and a learning rate of 12 cases
- The number of instrument passes (median 19, range 12–37) decreased significantly for consecutive POEM procedures (R^2=0.47, P <0.001) with a learning plateau at 18 instrument passes and a learning rate of 14 cases
- The Number of Clips Used (median 7 clips, range 4–12) decreased significantly (R^2 = 0.47, P<0.001) over the series as well

Discussion/Conclusion:

- The number of cases for a foregut surgeon to become proficient in a POEM procedure was found to be **12-14 cases**
- The learning curve of a POEM can be defined by analyzing the time to case plateau in Total Operative Time, Total Operative Time Per Centimeter of Myotomy, Number of Instrument Passes/Exchanges Through the Endoscope, and Total Number of Clips Used for Tunnel Closure
- **Based on these findings, the learning curve for a POEM in a foregut surgeon is similar to that of an expert intervention endoscopist.**

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