

Mo1229: TRANSORAL INCISIONLESS FUNDOPLICATION (TIF) TO THE RESCUE: IS TIF THE ANSWER TO POST-POEM GERD? (ASGE)

- Poster
- Time: Noon – 2:00 pm; Date: Mon. May 20th; Room: Halls C-E
- Main session: Esophagus 1
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- **Background:** POEM is highly effective and safe in the management of achalasia. However, its main shortcoming is the high incidence of post-procedural GERD. Transoral incisionless fundoplication (TIF) may be an ideal endoscopic treatment option as it mimics a surgical partial fundoplication procedure that is typically performed with Heller myotomy. **Aims:** To report (1) technical success of TIF, defined as the ability to create a flap valve at the level of the gastroesophageal junction; (2) safety (rate/severity of adverse events (AE) per ASGE lexicon) of TIF; (3) change in GERD symptoms after TIF; (4) change in Proton-pump inhibitors (PPI) use after TIF. **Methods:** This is a multicenter, retrospective series at 4 tertiary centers between 12/2016 and 10/2018. All post-POEM patients with GERD who underwent TIF were included. **Results:** A total of 9 patients (66.7% F, 88.9% achalasia, mean age 52.3 yr.) underwent TIF at a median of 236 [IQR74.5-390] days after POEM. The mean Eckardt and dysphagia scores after POEM were 1.1±1.2 and 0.4±0.88, respectively. Five patients reported heartburn, 3 regurgitation and 1 extra-esophageal symptoms pre-TIF. Most (n=6) had daily symptoms. Patients reported moderate (n=5) or severe (n=4) (Likert scale) symptoms, occurring daily, in 89% requiring daily double dose PPI pre-TIF. All patients had an EGD pre-TIF and 5 had esophagitis (3 LA grade A, and 2 grade C). Technical success was achieved in all patients using a median of 24 (IQR 21-25.5) fasteners. The mean flap valve length and circumference were 3.3±1.5 cm and 283.3±15.8 degrees, respectively (**Figures 1-2**). Mean procedure time was 64.8±15.1 min. One moderate AE occurred (bleeding, treated with blood transfusions; EGD showed no active bleeding). After a median follow up of 87.5 [IQR35.25-439.5] days post TIF, 6 (66.67%) patients reported improvement of GERD symptoms. Furthermore, 6 (66.67%) had decrease in PPI usage [62.5% are on once daily PPI and 25.5% on occasional PPI]. One patient failed TIF and was treated with a redo-TIF resulting in mild heartburn requiring PPI only as needed. There was a statistically significant decrease in the GERD-HRQL score (n=5; 29±8.8 vs 13±10.72; p=0.001), mean DeMeester score (n=4; 61.23±27.01 to 20.5±6.37; p=0.04) and mean overall % acid exposure (n=4; 17.53±6.4 to 6.25±1.13; p=0.047) post-TIF. There was a significant decrease in the percentage of patients on twice daily PPI post-TIF (88.9% vs 12.5%; p=0.03). **Conclusion:** This early experience suggests that TIF may be effective and safe in treating GERD after POEM in primary achalasia patients. Larger prospective studies including optimization of TIF protocols to include objective measurements of GERD pre- and post-TIF are needed.

TRANS-ORAL INCISIONLESS FUNDOPLICATION (TIF) TO THE RESCUE: IS TIF THE ANSWER TO POST-POEM GERD?

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Introduction

- Peroral endoscopic myotomy (POEM) is currently a widely accepted treatment modality for achalasia
- However, its main shortcoming is the high incidence of post-procedural GERD
- Transoral incisionless fundoplication (TIF) may be an ideal endoscopic treatment option as it mimics a surgical partial fundoplication procedure that is typically performed with Heller myotomy

Objectives

- To report technical success of TIF
- To determine safety of TIF
- To demonstrate changes in GERD symptoms and proton-pump inhibitors (PPI) use after TIF

Materials and Methods

- American, multicenter, retrospective study involving 4 tertiary centers
- All post-POEM patients with GERD symptoms who have undergone TIF between 12/2016 to 10/2018 were included
- Primary outcome:**
 - Technical success: defined as the ability to create a flap valve at the level of the gastroesophageal junction
- Secondary outcomes:**
 - Safety: determined by rate/severity of adverse events (AE) per ASGE lexicon
 - GERD symptoms pre and post-TIF (GERD-HRQL, GERD-RSI)
 - PPI use pre and post-TIF
 - Other collected data: achalasia type, Eckardt score pre and post-POEM, pH monitoring data pre and post-TIF [DeMeester score and acid exposure time (AET)], esophagitis rate pre and post-TIF, time between POEM and TIF, length and circumference of the flap valve, dysphagia score pre and post-TIF

Statistics

- Continuous variables were reported as standard deviations. Categorical variables were reported as proportions and 95% CIs.

Results

Table 1 - Baseline and Procedure Characteristics

Baseline and Procedure Characteristics	N=9
Mean age (mean±SD)(years)	52.3±11.4
Female gender; n (%)	6(66.7)
Type of esophageal motility disorder; n (%)	
Achalasia	8(88.9)
Achalasia Type I	3(33.3)
Achalasia Type II	3(33.3)
Achalasia Type III	2(22.2)
Jackhammer esophagus	1(11.1)
Eckardt score pre-POEM (mean±SD)	6.9±1.8
Eckardt score post-POEM (mean±SD)	1.1±1.2
Type of GERD symptom:	
Heartburn; n (%)	5(55.6)
Regurgitation; n (%)	3(33.3)
Atypical; n (%)	1(11.1)
Time between POEM and TIF (mean±SD)(days)	271.4±219.6
Procedure time (mean±SD)(min)	64.8±15.1
Length of flap valve (mean±SD)(cm)	3.3±1.5
Circumference of flap valve (mean ± SD)(degrees)	283.3±15.8
Number of fasteners (median)(IQR)	24(21-25.5)
Technical success; n (%)	9(100)
Adverse events*, n (%)	1(11.1)

* Bleeding (moderate per the ASGE lexicon)

Table 2 - Procedure and Clinical Outcomes

Variables	Pre-TIF N=9	Post-TIF N=8	p value
GERD-HRQL (n=8); (mean±SD)	n=5;29±8.8	n=5;13±10.72	0.001
GERD-RSI (n=8); (mean±SD)	n=5;17±3.2	n=5;12.6±7.05	0.342
Dysphagia score; (mean±SD)	0.44±0.88	0.125±0.35	0.685
pH monitoring findings:			
DeMeester score (n=8)(mean±SD)	n=6;53.5±25.5	n=4;20.5±6.37	0.04
Acid exposure time (n=8)(%)	n=6;15.4±6.1	n=4;6.25±1.13	0.047
Esophagitis; (n=8)(%)	n=9;5(55.6)	n=4;1(25)	1
Additional treatment post-TIF; n (%)	-	1(12.5)	-
Follow up time (median)(IQR)(days)	-	87.5 [35.25-439.5]	-

* Los Angeles Classification (pre-TIF: Grade A+3, Grade C+2, post-TIF: Grade A+1)

Figure 1. Proton-pump inhibitor (PPI) Use Pre and Post-TIF

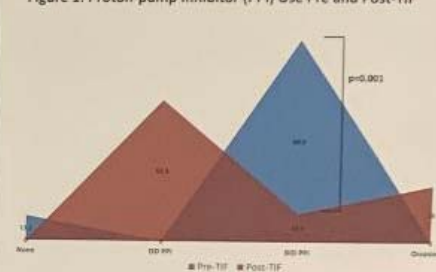


Figure 2. Flap Valve During and After TIF



Left: TIF device identified on retroflexed view. There is gastroesophageal tissue within the device's tissue mold and rotation towards the anterior aspect at the lesser curvature is noted while creating the fundoplication. Middle: On retroflexed view, and after the device was withdrawn, the final flap valve is seen with an approximate length of 3 cm and circumference of 100 degrees. Right: The flap seen on a follow up EGD at 6 months.

Conclusion

This early experience suggests that TIF may be effective and safe in treating GERD after POEM in primary achalasia patients. Larger prospective studies including optimization of TIF protocols to include objective measurements of GERD pre- and post-TIF are needed

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