# 2021 SCSG GI SYMPOSIUM

# Endoluminal Stenting for Benign and Malignant Foregut Strictures

Syed M Abbas Fehmi M.D., M.Sc. Program Director Advanced Endoscopy Fellowship Professor, Division of Gastroenterology Department of Medicine, University of California, San Diego



- Consulting Boston Scientific
- Consulting Cook Medical



# Foregut stricture management by stents

- Foregut
  - Esophagus, stomach and duodenum
- Stricture
  - Benign
  - Malignant
- Stents
  - Covered
  - Uncovered













# Foregut stricture management by stents

- Foregut
  - Esophagus, stomach and duodenum
- Stricture
  - Benign
  - Malignant
- Stents
  - Covered
  - Uncovered



- Fully Covered TTS (through the scope) Metal Stents
  - Varying Length (6cm to 15cm)
  - Varying diameter (10mm-20mm)
  - Lumen apposing metal stents LAMS of label use
- Partially Covered or Uncovered TTS Metal Stents
- Non TTS Stents use is decreasing, have larger diameter option
- Stent Fixation new
- Stent Suturing



- Fully Covered TTS (through the scope) Metal Stents
  - Varying Length (6cm to 15cm)
  - Varying diameter (10mm-20mm)
  - Lumen apposing metal stents LAMS of label use
- Partially Covered or Uncovered TTS Metal Stents
- Non TTS Stents use is decreasing, have larger diameter option
- Stent Fixation new
- Stent Suturing



- Fully Covered TTS (through the scope) Metal Stents
  - Varying Length (6cm to 15cm)
  - Varying diameter (10mm-20mm)
  - Lumen apposing metal stents LAMS of label use
- Partially Covered or Uncovered TTS Metal Stents
- Non TTS Stents use is decreasing, have larger diameter option
- Stent Fixation new
- Stent Suturing



- Fully Covered TTS (through the scope) Metal Stents
  - Varying Length (6cm to 15cm)
  - Varying diameter (10mm-20mm)
  - Lumen apposing metal stents LAMS of label use
- Partially Covered or Uncovered TTS Metal Stents
- Non TTS Stents use is decreasing, have larger diameter option
- Stent Fixation new
- Stent Suturing





- Fully Covered TTS (through the scope) Metal Stents
  - Varying Length (6cm to 15cm)
  - Varying diameter (10mm-20mm)
  - Lumen apposing metal stents LAMS of label use
- Partially Covered or Uncovered TTS Metal Stents
- Non TTS Stents use is decreasing, have larger diameter option
- Stent Fixation new
- Stent Suturing





- Fully Covered TTS (through the scope) Metal Stents
  - Varying Length (6cm to 15cm)
  - Varying diameter (10mm-20mm)
  - Lumen apposing metal stents LAMS of label use
- Partially Covered or Uncovered TTS Metal Stents
- Non TTS Stents use is decreasing, have larger diameter option
- Stent Fixation new
- Stent Suturing







- Esophageal (peptic, caustic ingestion, etc.)
- Anastomotic (EG anastomosis, EJ anastomosis, etc)
- Pyloric/duodenal (GOO)
  - NSAIDs, chronic pancreatitis, GI polyps, post surgical, etc)
- Non-Anastomotic Post surgical (Sleeve, Hiatus, etc.)











#### Case:

- 40 y/o male
- Peptic stricture
- Failed Balloon dilations
- Failed Kenalog
- PPI po bid





#### Stent migrated !

- <u>30-40%</u>
- Type of stent
- Length of stent
- Pathology
- Location







#### Literature Update

COMPARISON OF NO STENT FIXATION, FULL-THICKNESS ENDOSCOPIC SUTURING, AND OVER-THE-SCOPE CLIP (OTSC) IN PREVENTING MIGRATION OF FULLY COVERED SELF EXPANDING METAL STENTS (FCSEMS) – (Su006)

- Lew et al. DDW 2021.
  - Frequency of stent migration with no stent fixation and suturing, and stentfix
  - Retrospective cohort study between January 2013 to October 2020
  - 438 total procedures with 264 (60%) without fixation, 150 (34%) with suturing, and 23 (5%) with stentfix
  - 20% malignant disease, 53% esophagus
  - Migration rate was significantly lower when comparing stentfix and suturing to no fixation up to 8 weeks



#### Literature Update

COMPARISON OF NO STENT FIXATION, FULL-THICKNESS ENDOSCOPIC SUTURING, AND OVER-THE-SCOPE CLIP (OTSC) IN PREVENTING MIGRATION OF FULLY COVERED SELF EXPANDING METAL STENTS (FCSEMS) – (Su006)

- Lew et al. DDW 2021







## My thoughts...

COMPARISON OF NO STENT FIXATION, FULL-THICKNESS ENDOSCOPIC SUT Bottom Line FULL

- Migration is pretty much the only major issue

0-1

- Safe
- Now we have tools to fixate stents
- Maybe the migration rates are decreasing from 35-40% range to 10 % range
- Partially covered stents are more flexible and migrate less
- Fully covered stents easier to remove with less ingrowth

1-2

2-3

6-7

No fixetion = suture = OTSC

7-8

- Good option of stents



Case:

- 75 y/o female with use of NSAIDS
- Presents with GOO
- Biopsies from pylorus and duodenum sweep with benign pathology



#### Literature update

#### EFFICACY AND SAFETY OF LUMEN-APPOSING METAL STENT IN THE TREATMENT OF BENIGN GASTROINTESTINAL STRICTURES: A SYSTEMATIC REVIEW AND META-ANALYSIS (Sa027)

- Beran et al. DDW 2021
  - 12 studies, including 277 patients who underwent 293 LAMS placements
  - Technical success rate was 98.4%, clinical success rate was 82.9%
  - Most common adverse event was migration at 9.7%
  - Re-intervention rate of 28.4% following LAMS removal or migration
  - LAMS offers high technical and clinical success in the management of benign GI strictures, with a low migration rate

#### Literature update

- Luminal-apposing stents for benign intraluminal strictures: a large United
  States multicenter study of clinical outcomes
  - Mizrahi and Adler et al Annals of Gastroenterology (2021) 34, 33-38.
    - retrospective analysis was performed of patients who underwent LAMS placement for benign GI strictures in 8 United States centers
    - 51 patients underwent 61 LAMS placement procedures; 33 (64.7%) had failed previous treatments
    - technical success, short-term clinical response and reintervention rate after stent removal were 100%, 91.8% and 31.1%, respectively.
    - Adverse events were reported in 17 (27.9%) procedures, with stent migration being the most common (13.1%)

# Migration common but do not forget epithelialization!

- 50 y/o patient
- Downs syndrome
- Mid esophageal stricture



# My thoughts...

Migra Bottom Line for LAMS

- Nice addition to stent variety
- Less migration
- 50 Larger diameter and slightly longer options available,
  - but use limited to short strictures
- Dc Remodel GI track and clinical success very high
  - Recurrence occurs in benign disease
  - Mi Destination therapy many times
    - Use is increasing
  - str Stent in stent technique works with LAMS as well

# Malignant Foregut Strictures

#### **Usual etiologies**

- Esophageal cancer
- Gastric cancer
- Duodenal cancer
- Pancreatico-biliary cancer
- Anastomotic cancer recurrence



#### GOO -> MCC



#### Malignant Foregut Strictures

Case: Gastric outlet obstruction GOO post whipple

- 75 y/o male with adenoCa s/p whipple
- Presents with GOO



Mike Chan et al. DDW 2012

#### Literature update

PARTIALLY COVERED VERSUS UNCOVERED PYLORO-DUODENAL STENTS FOR UNRESECTABLE MALIGNANT GASTRIC OUTLET OBSTRUCTION. A RANDOMIZED CONTROLLED STUDY

- Teoh et al. DDW 2021
  - 10 high-volume institutions. Consecutive patients suffering from malignant gastric outlet obstruction
  - March 2017 and October 2020, 117 patients (59 PCDS, 58 UCDS)
  - PCDS was associated with lower risk of tumor ingrowth, however, this did not result in significant differences in clinical outcomes for patients suffering from malignant gastric outlet obstruction
  - Similar results to past systematic review/MA from GIE in 2020



#### EUS GUIDED GASTROENTEROSTOMY VERSUS DUODENAL STENTING FOR PALLIATIVE TREATMENT OF MALIGNANT GASTRIC OUTLET OBSTRUCTION – A SYSTEMATIC REVIEW AND META-ANALYSIS (Su 235)

#### - Bomman et al. DDW 2021

- 3 studies were
- 507 patients, out of which 224 patients had EUS-GE and 283 patients had DS
- Technical success and adverse events statistically similar
- Clinical Success of EUS-GE <u>superior</u> and reintervention was significantly lower



- ENDOSCOPIC ULTRASOUND GUIDED GASTROENTEROSTOMY (EUS-GE) VERSUS ENTERAL STENTING (ES) FOR GASTRIC OUTLET OBSTRUCTION (GOO) - A SYSTEMATIC REIVEW AND META-ANALYSIS OF 659 PATIENTS (Fr267)
  - Chandan et al DDW 2021
    - Five studies including 659 patients were included in final analysis
    - 278 patients underwent EUS-GE and 381 patients underwent ES
    - Technical and clinical success for EUS-GE was 95.2% and 93.3% while for ES it was 96.9% and 85.6%. Adverse events similar.
    - Pooled rate of re-intervention was significantly lower with EUS-GE i.e. 4% compared to ES, where it was 23.6% p=0.001



#### EUS-GUIDED GASTROENTEROSTOMY: A MULTICENTER INTERNATIONAL STUDY COMPARING BENIGN AND MALIGNANT DISEASES (551)

- Kahaleh et al DDW 2021
  - 12 international, tertiary care centers, EUS-GE between February 2017 to November 2020, data -> retrospective manner
  - 80 patients were included: 58 malignant and 22 benign
  - Clinical success, technical success, average procedure time, and hospital length of stay were similar in both groups
  - Benign disease was associated with significantly higher rate of short-term adverse events. This could be related to the higher incidence of altered anatomy in benign diseases



- CLINICAL AND TECHNICAL OUTCOMES OF PATIENTS UNDERGOING EUS-GUIDED GASTROENTEROSTOMY USING 15 MM VS 20 MM LAMS - (553)
  - Khasab et al DDW 2021
    - 267 with malignant GOO from 19 centers, retrospective multi center study
    - 15mm and 20mm LAMS were utilized in 148 (55.4%) and 119 (44.6%) patients
    - Clinical success was similar between the 15 mm and 20 mm groups (89.2% vs 84.1%), but 20mm group tolerated solid diet better 91.2% vs 81.2%
    - Rate of reintervention for the 15 mm group was 8.1% vs 4.2% in the 20 mm group (p=0.22)



- CLINICAL AND TECHNICAL OUTCOMES OF PATIENTS UNDERGOING EUS-GUIDED GASTROENTEROSTOMY USING 15 MM VS 20 MM LAMS - (553)
  - Khasab et al DDW 2021
    - Adverse events:
      - AEs occurred in 33 (12%) patients, with rates being similar between 15 mm and 20 mm groups
      - severe/fatal AEs (2% vs 3.4%, p=0.6)
      - surgical intervention (0.7% vs 2.5%, p=0.71)
      - 3 fatalities



- CLINICAL OUTCOMES AND MANAGEMENT OF PATIENTS WITH MISDEPLOYED STENTS WHILE UNDERGOING EUS GUIDED GASTROENTEROSTOMY-(#3524152)
  - Khasab et al DDW 2021
    - 15 tertiary care centers (8 USA, 7 Europe) from 03/2015 to 10/2020
    - 467 EUS-GE procedures were performed for GOO
    - Stent Mis-deployment occurred in 46 (9.85%)
    - Conservative 3 (6%), Surgery 5 (11%), Endoscopic 38 (83%)



## My thoughts ...

**CLINIC DING EUS-**. GUIDEI **5** - (553) **Bottom Line for Gastro-Jejunostomy** – Kha Higher adverse events than duodenal stenting - Fatality possible ng similar Better clinical success/palliation -- 20mm stent better Re-intervention simpler and easier and more effective No biliary compromise -Mis deployment can be managed endoscopically -



#### Foregut stricture management by stents - Conclusions

- We need to be always very *thoughtful* in the management of foregut strictures
- Endoscopy is extremely effective in the management of *all* foregut strictures
- Stents play a *dominant* role in stricture management
- *Migration* of stents remains a problem but less common
- Stent *fixation* should be done whenever possible
- As more stent *types* became available, management continues to improve
- LAMS have opened the door to variety of novel endoscopic achievements that were only possible via surgery
- Endoscopic *Gastro-jejunostomy* is appearing to be *clinically* the most effective way of malignant GOO palliation. Adverse events need to be further studied ....