Utilization of the Seattle Protocol for Incidental Salmon Mucosa

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Introduction

- Barrett's esophagus (BE) is diagnosed when endoscopically visible salmon-colored mucosa (SCM) is biopsied to reveal intestinal metaplasia (IM) with or without dysplasia replacing the stratified squamous epithelium above the level of gastroesophageal junction (GEJ).
- The Seattle Protocol (SP), defined as targeted biopsies of visible lesions and random four-quadrant biopsies every 2 cm, is the gold standard to minimize sampling error in the detection of Barrett's esophagus and dysplasia.

Objectives

- We aimed to assess the utilization rate of the Seattle protocol when salmon mucosa is incidentally found in EGDs performed for reasons other than known Barrett's esophagus, and to determine which factors may affect SP utilization.

Methods

- Patients undergoing EGD from Jan 2018 to March 2019 with findings of salmon colored mucosa were selected for the study from one tertiary and two community hospitals.
- Patients were excluded if they had a previous diagnosis of Barrett's esophagus or esophageal adenocarcinoma (EAC), if the procedure was aborted, or if the indication was for urgent bleeding.
- Patient and procedure characteristics were recorded. The primary outcome was the performance of biopsies according to the Seattle protocol; secondary outcomes were current or future detection of Barrett's esophagus and dysplasia.
- Data was analyzed for descriptive statistics; categorical variables were compared using Chi-square or Fisher's exact test as appropriate.

Characteristic	Total N = 366	SP followed (n=34, 9.2%)	SP not followed (n=332, 90.7%)	p-value
Patient Demographics				
Age	Mean 59.2	62.4yr	59yrs	0.127
Male Gender	208	22, 10.5%,	186, 89.4%	0.36
Female Gender	158	12, 7.5%	146, 92.4%	0.36
Inpatient	9	2, 22.2%	7, 77.8%	0.199
Outpatient	357	32, 9%	325, 91%	0.2
Indication				
Suspected Barrett's	28	3, 10.7%	25, 89.2%	0.73
Abdominal Pain or GERD	174	3, 1.72%	171, 98.3%	0.0001
Dysphagia	50	16, 32 %	34, 68%	0.0001
Anemia work up	34	2, 5.8%	32, 94.2%	0.75
Diarrhea	12	5, 41.7%	7, 58.3%	0.002
Others	37	3, 8%	34, 92%	1.00
Patient Factors				
GERD	217	19, 8.7%	198, 91.2%	0.71
Obesity	126	14, 11.1%	112, 88.9%	0.44
Smoking	166	14, 8.4%	152, 91.5%	0.71
Family history of celiac	5	1, 20%	4, 80%	0.39
Endoscopy Findings				
SCM Length < 1CM	190	12, 6.3%	178, 93.7%	0.04
SCM Length >1CM	100	17, 17%	83, 83%	0.003
Presence of esophageal ulcer	6	0	6	1.000
Presence of Esophagitis	138	12, 8.7%	126, 91.3%	0.85
NBI used	178	16, 9%	162, 91%	0.85

Table 1: Endoscopy Characteristics Associated with and without the Use of the Seattle Protocol

Clinical Outcomes Associated with SP performance	SP followed n = 34	SP not followed n = 332	p-value
Barrett's Diagnosis in index or future EGDs	18, 52.9%	104, 31.3%	0.013
Dysplasia	1, 2.9%	1, 0.3%	0.177

Table 2: Clinical outcomes observed with the SP.

Results

- Three hundred ninety-five patients were identified with "salmon colored mucosa" (SCM) on index EGD.
- Twenty-nine patients with known diagnosis of BE and/or undergoing the EGD for acute GI bleed were removed.
- Out of 366 patients, SP was properly followed in 34 patients (9.2%).
- SP was more likely to be performed when EGD indication was dysphagia (32%) or diarrhea (41.7%), or when SCM length was >1cm (17%), but less likely to be performed when the indication was abdominal pain or GERD (1.7%) (Table 1).
- The utilization of SP showed a higher rate of eventual Barrett's diagnosis (53% vs 31%, p=0.01) (Table 2).

Conclusion

- This study shows that the Seattle Protocol is not consistently applied when salmon mucosa is incidentally found and therefore BE diagnosis may be delayed or missed.
- Procedure indication and endoscopic findings are likely contributing factors to whether SP is utilized or not.

References

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