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Esophageal Anastamotic Perforation Closure Leak Prevention

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ABSTRACT

A simple cheap effective method to markedly diminish esophageal gastric and esophageal perforation suture line/anastomotic leaks is presented. A leak from an esophageal /gastric-colon anastomosis or esophageal perforation closure is accompanied by a 25% to 50% mortality and is to be avoided at all costs. Conservative therapy of either occurrence is to be avoided.

KEYWORDS

Esophageal anastomotic leaks; Esophageal perforation closure leaks

1. INTRODUCTION

One of the major problems in chest surgery is how to seal a esophageal perforation and a very similar problem evolves from esophageal to esophageal or esophageal to gastric/colon end to end anastomosis. The problem is one of leakage of the repair/anastomotic site or total breakdown of the anastomotic site. Total breakdown may start with local leakage and local infection compromising the vascularity of the entire anastomosis or from devascularization of the gastric or colonic end of the anastomosis (this event does not concern this research paper). The esophagus swims in a sea of bacteria and oral/gastric enzymes. Its mucosa keeps it from being infected and dissolving. When it is perforated (foreign body/anastomosis) the enzyme/bacterial brew can attack it from both sides and unzip the repair or anastomotic suture line.

2. MATERIAL

Eleven patients with either perforation from trauma (foreign body or endoscopic 24 to72 hours post event) or primary end to end anastomosis of esophagus to esophagus/gastric tube were treated in this research paper by the author over a span of 24 years with the same technique.

3. METHOD

I will describe a successful addition to the technique of esophageal perforation /anastomotic suture line closure independent of the length of time since perforation/anastomosis occurred which uses all common techniques with the simple addition of one other element costing less than $10. It is also used with anastomosis of esophagus to esophagus / stomach. Lateral thoracotomy is performed over whichever side the perforation is located on or the anastomosis is most easily performed. The esophagus is dissected free from and elevated from its mediastinal position; it is suspended on Penrose drains. The laceration is visualized and debrided of necrotic tissue if any is present so that it bleeds. Prior to closure of the esophagus a 40 French bouge' is passed though the mouth and into the stomach using the surgeon's hand to guide it past the hole or through the anastomosis. An 18 gauge double lumen N-G tube is passed into the stomach with the bouge'. The mucosa and sub mucosa are closed either in one layer or two if the tissue

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is thick enough using 4-0 interrupted absorbable suture. The muscularis is closed with a running non- absorbable of 3-0 size. A 24 French chest tube is placed next to and parallel to the open mediastinum and esophagus Then the bouge' removed, leaving the N-G tube is in the stomach, a second 18 French double lumen N-G tube is passed to level just cephalad (above) the anastomosis and the two 18 French double lumen N-G tubes are taped securely to the nose. The chest cavity is copiously bathed in 1 to 3 liters of hot saline containing bacitracin, neomycin, and kanamycin. An additional apical chest can be added to deal with pulmonary air leaks as needed. The chest wall can be closed in layers / the surgeon's training.

4. RESULT

All eleven patients had uneventful post- operative courses with no leakage from esophageal anastomosis or perforation closure suture lines as confirmed first by gastrogeraphin swallow and later barium swallow prior to N-G tube removal on the 7^{th} to 10^{th} post-operative day [1]. No esophageal narrowing, stricture, or web occurred in early or late post-operative periods. No empyemas occurred. The major patient complaint was 2 N-G tubes in the nose. In two patients, a gastrostomy tube was used instead of the distal N-G tube with ho change in result.

5. DISCUSSION

The percentage of esophageal anastomotic/perforation closure leaks is 25% in centers with large volume and up to 60% elsewhere [2-5] by surgeons much better than I. This small series of patients should have had 3 to 6 patients with esophageal suture line leaks and 2 to 3 deaths. There were NO suture line leaks of any kind and no deaths. This is not simply good luck. The common thread in all of these cases is the N-G tube removing oral secretions and enzymes from the esophagus proximal to the suture line/anastomosis. This does not sterilize or get 100% of the bacterial/enzymes brew in the proximal esophagus but does diminish the bath of enzymes/bacteria to a trickle which then proceeds to the stomach without pooling on the suture line/anastomosis. The bacterial/enzyme fluid from the mouth, sinuses, and oro-naso-pharnyx are a lethal brew capable of destroying any suture line as anyone who has had dental sutures can attest to.

6. CONCLUSION

A simple cheap effective method to markedly diminish esophageal gastric and esophageal perforation suture line/anastomotic leaks is presented. Hopefully other better surgeons can confirm my theory and results in the future.

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