# Endoscopic Management of Steakhouse Syndrome

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**Abstract**

**Background:** Impaction of meat bolus over the lower oesophagus is known as "Steakhouse Syndrome" and is characterized by an abrupt onset of a dysphagia associated with odynophagia, drooling, chest pain, heartburn, neck pain, regurgitation and so on. During last fifty years, various management options like Glucagon, simethicone, carbonated beverages, a cocktail of tartaric acid and bicarbonate, hyoscine butylbromide, benzodiazepines, opioids etc. have been used. However flexible endoscopy has been advocated to be highly sensitive in diagnosis and management of steakhouse syndrome. **Objective:** In this study we wanted to evaluate efficacy of endoscopic management of steakhouse syndrome in two endoscopic set ups in Rajshahi city with limited facilities. **Methods:** Records of 19 patients with steakhouse syndrome were analysed on retrospective. We used a judicious combination of push and extraction techniques. We used topical oropharyngeal spray anesthesia with conscious sedation like Diazepam or midazolam and hyoscine N-butyl bromide. Resuscitation facilities were available. **Result:** Most of the patients were male and were in the 50-70 years age group. Almost 90% patients were treated successfully by endoscopic manipulation. Most (68%) of the interventions were carried out between 24 and 72 hours of incidence. Push technique was successful in most (70%) of the cases. **Conclusion:** Endoscopic manipulation with a differential approach is a reliable and safe procedure for management of steakhouse syndrome. The patients with suspected Steakhouse syndrome should be clinically evaluated and referred to a skilled and competent endoscopist at the earliest convenience.

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Cite this as:
BMCJ2015;1(2):15-18.

**Introduction:**

Acute food impaction of the oesophagus has been known for a long time as the "steakhouse syndrome" or the "backyard barbeque syndrome" and it is a medical emergency associated with obstruction of lower esophagus by poorly chewed bolus of food materials specially steaks and other forms of meat.[1] This is usually characterized by an abrupt onset of a dysphagia associated following food ingestion and it occurs more frequently in adults and elderly people. Patients suffering from Steakhouse syndrome experience dysphagia, odynophagia, drooling, chest pain, heartburn, neck pain, regurgitation, abdominal pain and even dyspnea. Considerable respiratory symptoms including stridor, coughing, wheezing or choking may result from aspiration of saliva or food and compression of the trachea by a large food bolus impaction.[2]

Steakhouse syndrome, in most cases, occurs due to incomplete and inadequate chewing of food. [3] The condition may, in about one third of cases, be associated with some preexisting esophageal abnormalities.[3,4] These include esophageal motility disorder, gastroesophageal reflux disease, Schatzkis ring, esophageal stricture, hiatus hernia, eosinophilic esophagitis, pill-induced esophageal ulcers, esophageal malignancy etc.[5-7]

It is important to differentiate steakhouse syndrome from a true foreign body impaction. A careful history taking, meticulous clinical examination, primary radiographic evaluation with plain X-ray is to be performed. However contrast x-ray is restricted because of the risk of aspiration. By far the most important investigation for esophageal obstruction is endoscopy of upper GIT, having advantages of delivering immediate management as well.[2] Furthermore, endoscopy can reveal the underlying esophageal pathology leading to the impaction and any associated mucosal damage.[7]

Conservative treatment includes injection of Glucagon at pharmacological doses which relaxes the lower esophageal sphincter, promoting the spontaneous passage of an impacted food bolus or facilitating endoscopic manipulation.[8] To be noted that Glucagon has very little effect on the motility of the proximal esophagus.[9] Chemical agents including simethicone, carbonated beverages like coca-cola and a cocktail of tartaric acid and bicarbonate have been used to treat acute esophageal food impactions with success.[10] These agents appears to work by releasing carbon dioxide in the esophagus, raising the intraluminal pressure against a closed upper esophageal sphincter, forcing the bolus into the stomach.[11] Other medical options like hyoscine butylbromide, benzodiazepines, opioids are also available.[12]

Management plan is often based entirely on clinical judgement.[12] However flexible endoscopy is highly sensitive in diagnosis and management of steakhouse syndrome. It also significant in detecting underlying esophageal pathology leading to the

impaction.[13] Removal of food bolus with flexible endoscopes has a high success rate and can be performed with conscious sedation in most adults.[13-15] Successful management is conditioned by factors including the experience and technical skills of the endoscopist and availability of necessary endoscopic accessories. These accessories include appropriately sized overtubes, polypectomy snares, rat-tooth and alligator forceps, a Roth retrieval net, Dormia basket, and Magill or Kelly grasping forceps etc. [16] This study was conducted to evaluate the role of endoscopic manipulation with limited facilities in the management of steakhouse syndrome.

**Methods**

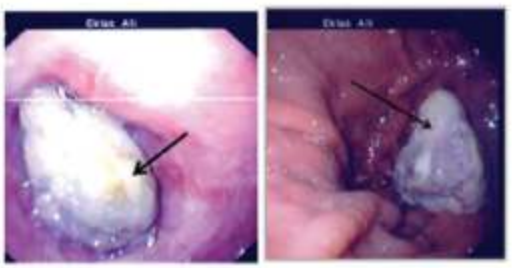
We retrospectively reviewed the records of all patients with dysphagia undergoing endoscopic examination of upper GIT during January 2010 and December 2014 in two endoscopy units of Rajshahi city. Records of 19 patients with steakhouse syndrome were analysed to evaluate the efficacy of endoscopic intervention in the management of steakhouse syndrome.

In our setup endoscopic examination of upper GIT was usually performed with topical oropharyngeal spray anesthesia. Conscious sedation like Diazepam or Midazolam with hyoscine N-butyl bromide was used as and when necessary. For management of steakhouse syndrome we used accessories such as polypectomy snares, alligator forceps and Kelly grasping forceps. Resuscitation facilities were available.

We used a judicious combination of push and extraction technique. The push technique was used with experience and good judgement. In some cases the endoscope could be successfully steered into the stomach before pushing the bolus. However, blind manipulation was stopped if any significant resistance was encountered and extraction technique was applied. Extraction technique was preferred when the food bolus was large, firm and was found to be associated with bones or sharp edges. It was also applied when pre-existing esophageal pathology was anticipated. This extraction technique was associated with repeated passes of the endoscope. After the food bolus had been removed, endoscopic evaluation of esophageal anatomy was performed.

**Result**

Outcome of endoscopic manipulation in 19 patients with steakhouse syndrome was analyzed on retrospective. Out of 19 patients, 16 (84%) were male. Age of the patients ranged from 48 years to 88 years. Mean age of the patients was 67.8 years. Most (13/19, 68.4%) of the patients were in the 50-70 years age group, 5 (26.3%) patients were > 70 years and only 1 (5.3%) patient was <50 years.

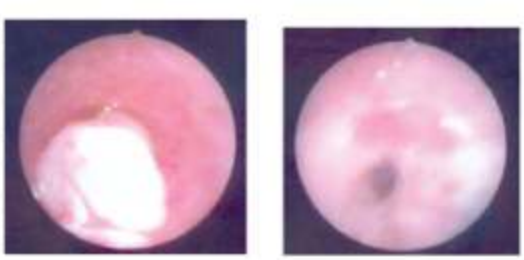


Impcted meat bolus in esophagus

Disimpacted meat bolus in stomach

Photograph 1. Impacted meat bolus in the esophagus was disimpacted and pushed into the Stomach

Out of 19 cases, 17 (89.5%) were treated successfully by endoscopic manipulation. In 12 (70.6%) patients out of 17, the meat bolus was safely and successfully pushed into the stomach (Photograph-1.). In 3 ( 17.6%) patients the meat bolus was extracted by appliances. In all these patients repeated passes of endoscope was necessary. One of these patients had benign esophageal stricture with esophageal candidiasis (photograph 2). Two patients (11.7%) were elderly patients in which risk of perforation due to pressure effect could not be excluded. In these patients the meat bolus were partially extracted and partially pushed into the stomach (Photograph 3). One of these patients had associated esophageal candidiasis.



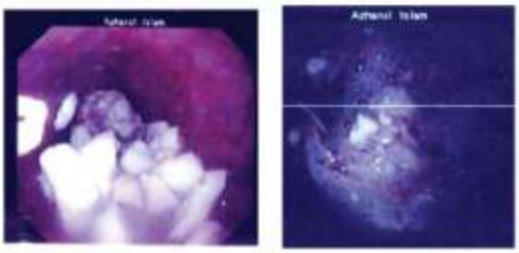
Impacted meat bolus in esophagus

Esophageal stricture with candidiasis

Photograph 2: Impacted meat bolus in the esophagus was disimpacted and extracted. There is stricture of lower end of esophagus

In our patients most ( 13/19 - 68.4%) of the endoscopic interventions were performed between 24-72 hours after the incidence of impaction. Five (26.3%) patients attended the endoscopy unit within

24 hours of incidence and only 1(5.3%) patient attended the endoscopy unit after 72 hours. Post manipulation complications were ulceration of lower esophageal mucosa in five out of 17 successful endoscopic manipulations (29.4%) cases.



Impcted meat bolus with egg pieces in esophagus

Disimpacted meat bolus with egg pieces in stomach

Potograph 3: Impacted meat bolus in the esophagus was disimpacted, partially extracted and partially pushed into the stomach.

In two case the endoscopic manipulation failed to resolve the obstruction and were referred to ENT units for management. One of these patients was suspected of having esophageal malignancy.

**Discussion**

Steakhouse syndrome, first reported by Norton et al in 1963, is caused by food impaction in the esophagus.[1] It is observed the food bolus obstruction of the lower esophagus is more common in elderly and old patients.[17] In our series most of the patients (13/19 - 68.4%) were in the 50-70 years age group (Mean 67.8 years).

The symptoms, clinical presentation and endoscopic findings of steakhouse syndrome require differentiation from other esophageal disorders, and must be considered in patients complaining of dysphagia.[7] As possible causes for esophageal food impaction, in one third of cases, several underlying obstructive lesions should be considered.[4] We had one patient with benign stricture of esophagus, two with esophageal candidiasis and another one with suspected lower esophageal malignancy.

Endoscopic removal is accepted as the most important management option for steakhouse syndrome. However, endoscopic intervention may require sedation or general anesthesia. We performed the procedures under conscious sedation like parenteral Diazepam or Midazolam as and when necessary.

When endoscopy reveals solid food impaction, an endoscopic polypectomy snare or grasping forceps can be used for extraction. If a fragmenting meat bolus is identified, a push technique can be performed.[4] Extraction technique was widely advocated and, historically, push technique was avoided because of the concern for associated distal obstructing lesions, or strictures and increased risk of perforation.[18] However, several authors have recently advocated using the push technique to guide the esophageal food bolus into the stomach.[19,20] Vicari et al reported a 97% success rate using the push technique for acute esophageal food impaction.[19] We were rewarded with push technique in most (70.6%) of the cases. Judicious combination of push and extraction technique in each individual patient lead to the success. Other historically noted approaches, including carbonated beverages or blind passage of a nasogastric tube to stimulate passage, are not endorsed. [21]

It is known that food bolus impactions that persist more than 12–24 hours confer more risk for serious complications, including esophageal perforations.[21] Local pressure-induced mucosal damage or perforation may be minimized by early removal of the meat bolus. So the patient should be subjected to urgent endoscopic evaluation as early as possible. In our patients most (13/19, 68%) of the endoscopic interventions were performed between 24-72 hours after the incidence of the disease. The delay in presentation may be due to illiteracy, lack of awareness, absence of endoscopic facilities in peripheral health service delivery setups and last but not least, superstitions and available indigenous management services in the rural area. Post manipulation complications were ulceration of lower esophageal mucosa in five (29.4%) cases.

**Conclusions:**

Steakhouse syndrome is an emergency in most of the cases. Endoscopic treatment with a differential approach in each individual patient is a reliable and safe procedure in skilled and expert hands with a high success rate and low morbidity and mortality. However to get the highest effective success the patients with suspected Steakhouse syndrome should be clinically evaluated and referred to the skilled and competent endoscopist at the earliest convenience.

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