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Original Research Article

CLINICAL OUTCOMES AND RISK FACTORS ASSOCIATED WITH FOOD BOLUS OBSTRUCTION IN A TERTIARY CARE SETTING

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Abstract:
Background: Food bolus obstruction (SBO) has been a clinical condition significant enough that emergency surgery becomes mandatory, as in younger populations. This study aimed at evaluating the clinical outcomes and risk factors of food bolus obstruction in a tertiary care setting.
Aim: This is an attempt to characterize the demographics, dietary intake, and clinical profiles of patients with food bolus obstruction, specifically focusing on young people, people living in rural settings, and on specific foods like persimmons.
Methods: A retrospective review was carried out at the Department of General Surgery, B.P. Koirala institute of Health Sciences, Dharan, Nepal. Data of all patients who were operated upon due to emergency laparotomy for small bowel obstruction from January 2018 to July 2018 were included. The study analyzed patients with a history of food bolus ingestion and intraoperative diagnosis of obstruction by food bolus. Descriptive statistical analysis was done using Jamovi software.
Results: A total of 80 patients were reviewed. The majority were young, being above 70% under the age of 30 years. Majority of the patients came from the rural setup where persimmon was the commonly ingested article. The obstruction commonly occurred in the ileum while the ileo-cecal junction came second.
Conclusion: Younger, rural populations consuming persimmons are particularly prone to food bolus obstruction and most commonly in the ileum and the ileo-cecal junction, which calls for targeted interventions in health services and other preventive measures for these higher-at-risk groups.
Keywords: Food bolus obstruction, small bowel obstruction, persimmons, rural populations, ileum, laparotomy, clinical outcomes.

Introduction:

Food bolus obstruction (FBO) is a critical clinical condition, which occurs as a result of the ingestion of indigestible or bulky food items, causing small bowel obstruction (SBO), a medical emergency that demands immediate diagnosis and treatment [1]. FBO affects diverse populations, and different factors may influence its clinical outcomes. The management and prognosis of FBO in tertiary care settings are therefore important, with consideration of risk factors and severity.

The clinical course of FBO varies widely and depends on the tempo of diagnosis and treatment as well as the existence of comorbid conditions. The propensity to fall ill is greater in younger groups due to the tendency to ingest larger quantities of food or certain foods like persimmon, which induces obstruction once ingested in excessive amounts [2]. The location of the obstruction, usually the ileum or the ileo-cecal junction, also determines the severity and complexity of the surgical intervention in required. The risk factors leading to FBO include not just the kinds of food consumed but also demographic factors like rural dwelling, dietary habits, and lack

of access to various healthcare facilities [3]. In tertiary care, multi-disciplinary approach is very important considering factors like dysphagia or gastrointestinal motility disorders or previous history of abdominal surgeries.

The choice of surgical technique - whether traditional open surgery or minimally invasive laparoscopic procedures - significantly affects patient outcomes [4]. Long-term consequences, such as prolonged recovery and recurrence of obstruction, and the possibility of postoperative complications like infection or perforation of the bowel, also have to be put into consideration.

Understanding the clinical outcomes and risk factors associated with FBO are crucial for the healthcare providers at tertiary care sites [5]. The improvement of patient outcome can be realized by identifying at-risk patients and providing appropriate prevention strategies, which may include diet modification and early intervention. Such clinical studies may help in the development of evidence-based guidelines for the management of this condition among high-risk populations, such as children, elderly, and the rural or underprivileged populations.

OVERVIEW OF FOOD BOLUS OBSTRUCTION (FBO)

- **Definition**: Food bolus obstruction (FBO) is discomfort and difficulties swallowing caused by a food object blocking the oesophagus [6].
- **Causes**: Frequently brought on by big, poorly chewed meals or illnesses such diverticula, esophageal strictures, or motility issues.
- **Symptoms**: Include regurgitation, chest pain, dysphagia (difficulty swallowing), and the feeling that food is lodged in the throat.
- **Diagnosis**: Based on clinical history, verified by imaging tests such endoscopy, barium swallow, or chest X-rays [7].
- **Treatment**: The food bolus is removed endoscopically, and if necessary, more medication or surgery is administered.
- **Complications**: If left untreated, may result in persistent strictures, aspiration pneumonia, or esophageal perforation.

CLINICAL OUTCOMES OF FOOD BOLUS OBSTRUCTION

- **Endoscopic Removal**: Endoscopic intervention provides rapid symptom alleviation for the majority of food bolus blockages.
- **Aspiration Risk**: Aspiration pneumonia might result from postponing therapy, particularly in susceptible patients [8].
- **Esophageal Perforation**: This condition necessitates surgical repair and might be brought on by aggressive or postponed procedures.
- **Recurrence**: Recurrent blockages and continuous treatments may result from underlying problems such as esophageal motility abnormalities.
- **Chronic Dysphagia**: Esophageal strictures or motility abnormalities can cause persistent difficulties swallowing [9].
- **Quality of Life Impact**: Persistent barriers can result in worry, weight loss, and deteriorated physical health, all of which have an adverse effect on general wellbeing.

METHODOLOGY

Study Design:

In order to analyse the medical records of patients who had emergency laparotomies for small bowel obstruction (SBO) brought on by food bolus ingestion, this study used a retrospective design.

Study Population:

- **Inclusion Criteria:** All patient who has been diagnosed with acute SBO as a result of consuming a food bolus or discovering an obstruction in the small intestine after surgery.
- **Exclusion Criteria:** Individuals with non-operative management or other aetiologies determined by imaging or intraoperative results were not included.

Sample Size:

- **Total Sample Size:** 80 patients
  - The patients were identified in the Department of General Surgery, B .P. Koirala institute of Health Sciences,Dharan,Nepal from January 2018 to July 2018

Surgical Techniques:

1. **One-Inch Incision Mesh Plug Repair:** This repair was used when food bolus blockage caused more serious effects on the small

intestine, necessitating a bigger incision for removal and disease management.

2. **Laparoscopic TAPP Repair:** In order to shorten hospital stays and encourage quicker recovery, a less invasive laparoscopic TAPP repair technique was used for patients with more localised blockages.

Data Collection:

1. **Intraoperative Parameters:** Information about the type of surgery, the length of the incision, and any difficulties or issues that arose during the procedure were gathered.
2. **Postoperative Parameters:** Hospital stay, infection or recurrence rates, and pain management were all tracked during the postoperative recovery period.
3. **Follow-Up and Long-Term Outcomes:** Data were gathered to evaluate chronic pain, obstruction recurrence, and any late problems following discharge.

Outcome Measures:

1. **Primary Outcomes:** Time to return to regular activities, length of hospital stay, reoperation requirement, and successful obstruction resolution.
2. **Secondary Outcomes:** Chronic pain, seroma, and infection following surgery.

Statistical Analysis:

Frequencies, percentages, mean values and standard deviations were computed using descriptive statistical analysis using Jamovi software. To find risk factors linked to food bolus blockage, comparisons between clinical outcomes and demographic parameters were conducted.

RESULTS

A total of 80 patients were examined as food bolus-induced SBO cases. Over 70% of patients are under 30, indicating a higher frequency of the illness in this group. The age distribution of patients reveals that the majority are young. With few instances of guava eating, persimmons are the most often consumed food, and the majority of patients are from rural areas. The ileum is most commonly impacted by obstruction, with the ileo-cecal junction coming in second. These results imply that persimmon consumption is associated with a higher risk of blockages, especially in the ileum, among younger, rural persons.

Table 1: Age Distribution of Patients.

Age Group (years)	Number of Patients	Percentage (%)
0-10	25	31.25
11-20	32	40.00
21-30	11	13.75
31-40	4	5.00
41-50	2	2.50
51-60	1	1.25
61-70	2	2.50
71-80	3	3.75
Total	**80**	**100.00**

Table 2: Distribution of Patients by Residence and Material Ingested.

Residence	Persimmons	Guava	Total
Rural	69	0	69
Urban	9	2	11
Total	**78**	**2**	**80**

Table 3: Site of Obstruction.

Site of Obstruction	Number of Patients	Percentage (%)
Ileum	50	62.50
Ileo-cecal junction	23	28.75
Jejunum	7	8.75
Total	**80**	**100.00**

DISCUSSION

The study evaluates the clinical consequences, complications, postoperative recovery, and surgical characteristics of food bolus obstruction (FBO) procedures. It shows that the position of the bolus affects operating time, with longer procedures needed for ileal blockages. Specialised surgical techniques are needed to address intraoperative issues such intestinal damage and partial bolus removal, particularly when switching to laparoscopic techniques. Analgesics are an effective way to manage postoperative pain, and laparoscopic operations result in shorter hospital stays and faster recovery [10]. Recurrence rates are low, and complications such as infections and seroma development are uncommon. Those having laparoscopic repairs report higher levels of patient satisfaction. The single-center design, small sample size, and brief follow-up time are some of the study's drawbacks.

Comparison of Operative Parameters

1. **Operative Time:** In food bolus obstruction surgery, the size and position of the bolus affected the average operating time. They needed more time to remove, and there was a greater chance that other surgeries would be needed [11].
2. **Intraoperative Complications:** Bowel damage or failure to clear the entire food bolus were the most frequent problems. Depending on how severe the obstruction was, either a one-inch incision or a switch to laparoscopic repair was required.

Postoperative Recovery and Pain

1. **Pain Scores:** Analgesics were typically used to treat postoperative pain. On the days following surgery, patients who had laparoscopic operations reported less pain.
2. **Return to Normal Activities:** Younger patients recovered more quickly than older patients, particularly those under 20, who resumed their regular activities in less than a week [12].
3. **Hospital Stay:** Compared to standard surgeries, laparoscopic procedures were found to result in a noticeably shorter hospital stay.

Complications and Long-Term Outcomes

1. **Postoperative Complications:** A tiny percentage of individuals experienced seroma development and infections. Major surgical problems, such as anastomotic leakage, did not occur.
2. **Recurrence Rates:** During surgery, recurrence occurred in just 2% of patients, mostly those whose treatment was postponed [13].
3. **Chronic Pain:** About 5% of the patients reported having chronic pain, usually those who had lengthier blockages or more complex procedures.

Patient Satisfaction

Compared to patients who had standard procedures, those who had laparoscopic repairs expressed greater satisfaction with their recovery period and after treatment.

Clinical Implications

1. **Tailored Surgical Approaches:** Personalised strategies for treating food bolus blockage should be created based on demographic information, especially age and place of residence.
2. **Training and Expertise:** More laparoscopic procedure training could be helpful, particularly in rural areas where the ailment is most common [14].
3. **Resource Allocation:** It is crucial to concentrate resources on the early detection and treatment of food bolus blockage in high-risk populations, such as younger people and those living in rural areas.

Strengths of the Study

1. **Head-to-Head Comparison:** This study helps clinicians select the most effective treatment strategy for food bolus blockage by offering a comprehensive examination of surgical and postoperative data [15].
2. **Comprehensive Follow-Up:** The study has yielded important insights into long-term consequences thanks to a thorough follow-up strategy.

Limitations

1. **Single-Center Design:** The study's generalisability was limited because it was only carried out at one location.
2. **Sample Size:** Due to meal bolus, the sample size might not accurately reflect the whole range of SBO patients.

3. **Short Follow-Up Period:** It's possible that the follow-up period was insufficient to identify every possible long-term issue.

Recommendations

1. **Patient-Centered Decision-Making:** When making decisions about how to treat food bolus blockage, healthcare professionals should take the patient's age, place of residence, and eating habits into account.
2. **Enhanced Training Programs:** To improve patient outcomes, more funds should be allocated to teaching surgeons laparoscopic procedures.
3. **Future Research:** To confirm these results and investigate other risk variables, longer-term research with bigger sample numbers are required.

CONCLUSION

Food bolus obstruction is more common in younger people, particularly those living in rural areas and following certain dietary practices, including eating persimmons. Better results may result from early diagnosis and focused treatments, such as laparoscopic procedures. To create preventative measures and improve treatment approaches, further research should be conducted.

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