

## DRY PERSIMMON SEEDS (PHYTOBEZOAR) A RARE CAUSE OF SMALL BOWEL OBSTRUCTION. A RETROSPECTIVE ANALYSIS OF DATA COLLECTED OVER 06 YEARS FROM A TERTIARY HEALTH CENTER IN OUR REGION

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### Abstract

**Background:** Intestinal obstruction is the commonest surgical cause of morbidity and mortality. The intestinal obstruction due to foreign body especially phytobezoar is rare. The aim of the study was to evaluate the patients of small intestinal obstruction due to a specific phytobezoar persimmon seeds (date plum or amlook) in our region in terms of clinical presentation, management and complications. **Materials and Methods:** Data of 200 patients of intestinal obstruction due to dry persimmon phytobezoar (date plum or amlook) were evaluated retrospectively by clinical presentation, clinical examination, radiological investigations and the management options and intraoperative finding were noted from hospital record. **Result:** Out of 200 patients record evaluated the commonest presentation was pain abdomen in 183 patients, abdominal distension in 182, nausea and vomiting in 170 and constipation in 70 patients. 30 patients were managed conservatively, 112 patients underwent exploratory laparotomy with milking of food bolus, 36 patients underwent enterotomy with removal of food bolus, 12 patients resection with end to end anastomosis (REEA) and 10 patients underwent stricturoplasty. **Conclusion:** Intestinal obstruction due to dry persimmon phytobezoar (date plum or amlook) food bolus should be suspected in all patients where this fruit is commonly used as in our region and mass education of people in the region should be done.

## INTRODUCTION

Intestinal obstruction is a common disease that is encountered in surgical practice. Intestinal obstructions are often induced by adhesion, hernia, neoplasm and inflammation, but intestinal obstruction due to feeding is rare.<sup>[1]</sup> Furthermore, plant seeds that pass through the pylorus do not induce intestinal obstruction because swallowed seeds are often small and ovoid shaped.<sup>[2,3]</sup> Dried persimmon (date plum or Amlook) is a well-known dried fruit in Asian countries such as Japan, Korea, and China. Small bowel obstruction caused by phytobezoar is a rare but interesting pathogenesis that accounts for 2–4% of all small bowel obstructions. Phytobezoar caused by persimmon is rare, it has been seen in various countries, with about 50 cases reported in the English literature.<sup>[4-6]</sup>

## MATERIALS AND METHODS

The study was conducted in a tertiary care hospital and 200 patients were included in the study retrospectively from the hospital record of last 6 years. Patients with history of abdominal distension and pain abdomen after ingestion of dry persimmon were admitted and treated in our hospital as per protocol. Confirmed cases of small intestinal obstruction due to persimmon seeds were studied irrespective of age and sex in this study. Findings related to detailed history of disease and history of ingestion of dry persimmons (date plum /amlook) was recorded, examination including general physical examination, abdominal examination and digital rectal examination (DRE), CBC, blood grouping, RFT, blood glucose and X- ray abdomen were recorded for all patients. Patients of sub-acute intestinal obstruction were kept under observation, patients were kept nil per oral, on intravenous fluids, input/ output monitoring, 4 hourly abdominal

examination was done. If patient deteriorate or not responding to conservative treatment than taken for surgery. All patients of acute intestinal obstruction were taken for emergency surgery. CECT abdomen was done in selected patients. Patient who were managed non-operatively, underwent BMFT after 3 weeks to look for any small bowel pathology. Intraoperative finding of patients and operative procedures were recorded from the patient record.

## RESULTS

200 patients presented with history of consumption of dry persimmon (date plum /amlook) and presented with symptoms and sign of intestinal obstruction, 134 were male and 66 were female and age ranges from 4year to 68years as shown in [Table 1].

Most common symptom was pain abdomen in 183 patients, nausea and vomiting in 170 patients, abdominal distension in 182 patients and obstipation in 70 patients. Most common sign was abdominal distension in 182 patients, tenderness of abdomen in 148 patients, exaggerated bowel sounds in 161 patients, dehydration in 98 patients, and fever in 24 patients as shown in table-2. DRE was normal in 104 patient, 94 patients had ballooning and rectal polyp seen in 2 patients.

X-ray abdomen supine and erect views were taken to confirm clinical findings. Patients with SAIO were

managed conservatively but in patient were the condition deteriorated CECT abdomen was done in 31 patients 12 patients relieved after CECT Abdomen and rest were operated. All patients with acute intestinal obstruction were operated. Among the operated patients, 136 had obstruction in ileum, 47 had obstruction in ileocaecal junction and 17 patients in jejunum as shown in [Table 3].

Exploratory laparotomy with milking of food bolus from small gut into large gut, peritoneal lavage and peritoneal drainage was done in 112 patients. Small gut at the site of obstruction was normal in these patients, [Figure 1]. Small bowel was showing pregangrenous changes just proximal to site of obstruction in 18 patients and 12 among them require REEA. Enterotomy, removal of food bolus and closure of enterotomy was done in 36 patients [Figure 2 &3].

10 patients had small bowel strictures along with food bolus obstruction. Nine stricture secondary to abdominal TB and in one patient secondary to radiation enteritis, in all these patients enterotomy removal of food bolus, biopsy and stricturoplasty was done as shown in [Table 4].

Post-operative complications: Wound infection in 20 patients, wound dehiscence in 4 patients, anastomatic leak in 5 patient, post-operative prolonged ileus in 23 patients, chest infection in 7 patients and thromphilitis in 4 patients.

**Table 1: Age distribution of patients.**

Age group in years	No. of patients	Percentage
0-20	110	55%
20-40	66	33%
40-60	16	8%
60-80	8	4%
Total	200	100%

**Table 2: Clinical presentation of patients with food bolus obstruction.**

S. No.	Clinical presentation	No. of patients	Percentage
1	Pain abdomen	183	91.5%
2	Abdominal distension	182	91%
3	Nausea and Vomiting	170	85%
4	Exaggerated bowel sounds	161	80.5%
5	Tenderness	148	74%
6	Dehydration	98	49%
7	Obstipation	70	35%
8	Fever	24	12%
9	Absent bowel sounds	12	6%

**Table 3: Site of obstruction.**

Site of obstruction	Number of patients	Percentage
Ileum	136	68%
Ileocaecal junction	47	23.5%
Jejunum	17	8.5%
Total	200	100%

**Table 4: Management of patients with food bolus obstruction**

S.No.	Management	No. of patients	Percentage
1	EL with milking of food bolus from small gut into large gut, PL and PD	112	56%
2	Enterotomy, removal of food bolus and closure of enterotomy, PL and PD	36	18%
3	REEA	12	6%
4	Stricturoplasty	10	5%
5	Non operative management	30	15%



**Figure 1: phytobezoar bolus with normal bowel milking done.**



**Figure 2: phytobezoar bolus with unhealthy bowel resection anastomosis done after removal of bolus.**



**Figure 3: Enterotomy done with removal of bolus.**

## DISCUSSION

Dried persimmon (date plum / amlook) is eaten primarily in Asian countries and is made from Diospyros kaki. This fruit is so bitter that it is

unsuitable for being eaten raw. By drying the astringent persimmon, the tannins shift from soluble to insoluble form, and the bitter taste turns sweet. Phytobezoars due to persimmons are generally attributed to over ingestion of dried astringent persimmons. As dried astringent persimmons are rich in soluble tannin, this tannin is susceptible to polymerization of the cellulose, hemicellulose, and protein in the presence of the dilute hydrochloric acid in the stomach, forming the basis of the bezoar.<sup>[5,7]</sup>

Phytobezoars due to persimmons are commonly associated with previous gastric surgery (such as truncal vagotomy and pyloroplasty or subtotal gastrectomy and gastroenterostomy), dental problems, poor mastication, and overconsumption of persimmons.<sup>[3,4]</sup> Gastric operations may reduce gastric motility and delay gastric emptying. Gastric motility disorder and hypoacidity play an important role in the formation of phytobezoars.<sup>[4,8]</sup> Diabetes mellitus and hypothyroidism have also been reported as predisposing factors for phytobezoar formation, as they could delay gastric emptying.<sup>[5,9]</sup> Depending on the location of the phytobezoar, clinical manifestations vary from no symptoms to acute abdomen.<sup>[5,10,11]</sup> The most common site for phytobezoar formation is stomach. However, it is not uncommon to find phytobezoar in small bowel especially in jejunum and proximal ileum where they get impacted and cause obstruction. In our study the most common site of obstruction was ileum. The treatment options for bezoars can be medical, endoscopic and surgical. Medical therapy includes diet, prokinetics and enzymatic dissolution agents of phytobezoar like cellulose and can be complementary to endoscopy.<sup>[12]</sup> Conservative treatment includes endoscopic removal, drugs and gastric lavage and dissolution agents. However, diospyrobezoars are resistant to drugs than other phytobezoars. Sometimes the partial dissolution may occur and bezoar may pass into small bowel and cause obstruction. When the conservative measures fail or the patient at presentation is in frank obstruction, the surgical treatment is preferred. The surgical treatment can be done by open surgery or laparoscopic depending upon availability and expertise in the emergency.

## CONCLUSION

Dry persimmon diospyrobezoar is an uncommon phytobezoar which can cause small intestinal obstruction but it is common in the regions where this fruit Amlook is consumed as in our region especially in rural areas. Education regarding fruit, eating habits, is must especially in our region because most of the cases are due to over consumption of dry fruit Amlook.

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